Water

Wild Rice

Proposed Joint Priority: EPA seeks a commitment from MPCA to develop methodology to assess whether surface waters meet the State's sulfate water quality standards applicable to wild rice production waters, and for designating waters as wild rice production waters. These methodologies should be developed for use in the 2014 CWA Section 305(b) and 303(d) assessment and impaired waters listing cycle.

Background: MPCA submitted its final 2012 303(d) listing methodology and impaired waters list in October of 2012. MPCA did not list wild rice production waters as impaired due to elevated sulfate concentrations, in part because the MPCA lacked both a methodology to assess against its sulfate standard, and a clear method for determining which water bodies are wild rice production waters. The determination that a water body is a wild rice production water is necessary for the sulfate Water Quality Standards (WQS) to apply to that water body.

MPCA received comments on this issue during the 2012 303(d) list public notice period. MPCA received comments from federally recognized tribal partners and other concerned stakeholders. The Fond du Lac and Grand Portage tribes submitted comments expressing their concerns related to tribal wild rice waters impacted by mining operations in northern-central Minnesota. EPA discussed these concerns in a recent Tribal Consultation call with the tribes. Most significantly, MPCA did not list water bodies specified as wild rice production waters in certain mining operation NPDES permits. Those permits included sulfate effluent limits and conditions based on the State's determination that the receiving waters are wild rice production waters, and that the sulfate WQS were being exceeded. EPA is discussing the State's determinations in these situations with MPCA prior to taking final action on Minnesota's 2012 303(d) list.

In conversations over the previous year, MPCA has communicated its intention to develop a sulfate water quality assessment methodology for use in the assessment of state waters for the 2014 303(d) list. This methodology would answer questions including where and when the sulfate standard applies, and the minimum number of measurements needed for an assessment decision. Making this a joint priority would formalize that commitment.

Modernizing Mining Permits

Proposed Joint Priority: MPCA and EPA will jointly work to modernize all expired permits for mining operations over the next 18 months.

Issue: Forty-eight NPDES permits for discharges from Minnesota mining operations are expired. Three more will expire in federal fiscal year 2013. Expired permits may not contain all of the effluent limitations and other conditions needed to protect water quality.

Background: The Clean Water Act and Minnesota law limit the duration of NPDES permits to five years. However, a permit can be administratively extended after it expires if the permittee has timely applied for permit renewal.

There are nine categories of mining operations in Minnesota as determined based on Standard Industrial Classification. The categories include iron ores, dimension stone, crushed and broken limestone, crushed and broken granite, crushed and broken stone, construction sand and gravel, industrial sand, Kaolin and ball clay, and miscellaneous nonmetallic minerals. According to EPA's Integrated Compliance Information System, the number of Minnesota mining permits that are expired or will expire in each classification is 12, 2, 10, 2, 1, 15, 1, 2, and 8, respectively. The 48 permits have been expired for an average of 3.5 years. One has been expired for 23 years, another has been expired for 20, and four have been expired for seven years.

Permit development includes a process for determining whether a discharge has "reasonable potential" to cause or contribute to excursions beyond water quality standards in the receiving and downstream waters. The Clean Water Act and Minnesota law require effluent limitations based on the standards where reasonable potential exists. On average across all 48 permits, more than eight years have passed since Minnesota last determined whether the discharges need limits to protect water quality.

Air

Proposed Joint Priority
Air Permitting: EPA strongly recommends the Title V Permitting backlog to be a Joint Priority and urges MPCA to commit to addressing this longstanding issue. Although MPCA's Title V permit renewal backlog has not been included in its Performance Partnership Agreement (PPA) in previous years, it needs to be addressed. After steadily increasing over a few years, it has leveled off recently - currently at 145 sources according to the Title V Operating Permit System (TOPS) data. However, even though Minnesota has a small universe of permitted Title V sources, its permits backlog comprise almost 50% of Title V sources. Please note, the EPA staff suggests that MPCA includes the following language in the PPA:

CAA Title V Permitting
October 1, 2012 – September 30, 2016

Statement of Environmental Problem/Issue**:**
The MPCA implements the requirements of Title V of the Clean Air Act through its combined construction and operating permits program, which was approved by EPA on December 4, 2001 (66 Fed Reg 62967). Through regular program interactions, our annual planning process, and periodic program reviews, EPA and MPCA discuss

program progress and implementation issues. MPCA and EPA agree that there is a large backlog of Title V renewal applications. EPA and MPCA seek to work jointly to significantly increase issuance of Title V operating permit renewals, thereby reducing MPCA's renewal backlog.

MPCA and EPA have identified the following approaches to reduce this backlog:

1) MPCA will ensure that an appropriate number of FTEs are dedicated to processing Title V permit applications, including renewal permits.
2) By February 1, 2013, MPCA and EPA will identify and implement a strategy to increase the rate of permit issuance of back logged Title V permit renewals.
3) By March 1, 2013, MPCA will identify a list of 20 back logged Title V permit renewal applications that will be public noticed and issued by the end of calendar year 2013.
4) By June 2013, MPCA will public notice at least 10 targeted renewal permits from the backlog. By November 2013, MPCA will public notice an additional 10 renewal permits for issuance in calendar year 2013.
5) By July 2013, EPA and MPCA will strategize, identify and target issuance of an additional 35 backlogged Title V permit renewals for issuance in calendar year 2014.
6) By December 31, 2013, MPCA will issue a 2013 cumulative total of 20 back logged permits.
7) By June 2014, MPCA will public notice at least 20 targeted renewal permits. By November 2014, MPCA will public notice an additional 15 renewal permits from the backlog. By December 31, 2014, MPCA will issue a cumulative total of 55 targeted Title V renewals from the backlog.
8) Thereafter, MPCA will continue to public notice and issue Title V renewals from the backlog with the goal of eliminating the backlog of pending Title V applications.

Air Toxics and Assessment

The MPCA submitted the Environmental Justice and Urban Air Quality project as a Joint Priority for our consideration. The Air Toxics and Assessment Branch and MPCA have discussed the rationale and merit of elevating the Environmental Justice and Urban Air Quality project as a Joint Priority. MPCA would expect Region 5's contribution to be related to risk communication and data analyses. Specifically, it would involve working with MPCA to communicate the data and information regarding the various sources and extent of the air pollution in the community. This would be in addition to the work that Region 5 would normally do for a special monitoring grant (characterizing PAHs in various neighborhoods) including oversight and technical assistance. MPCA would also like to enlist our expertise in the area of asthma, and support their coordination efforts among the health agencies as well. MPCA believes there is a tactical advantage to expanding Region 5's role from simply the grant oversight role, to assisting in the risk communication phase of the project particularly, since community groups are already forming to interact and participate in the conversations about the PAH grant.

Issues with MPCA's air pollution control program or air quality issues specific to Minnesota:

Attainment Planning and Maintenance Section

Taconite Federal Implementation Plan/State Implementation Plan (FIP/SIP): EPA will work with MPCA on issues relating to implementation of the taconite FIP and, should the state request, on how to replace the taconite FIP with a SIP.

1) SO2 Designations: EPA will work with MPCA to complete SO2 designations by the deadline of June 3, 2013.
2) Ozone Advance: EPA will work with MPCA to identify opportunities under Ozone Advance program to help keep Minnesota areas below the ozone standard.

Asbestos NESHAP Delegation Issue in Minnesota

The Minnesota Pollution Control Agency (MPCA) requested, and was granted, the authority to implement and enforce the federal asbestos NESHAP regulations, which govern actions involving 1) renovations, 2) demolitions, and 3) waste disposal performed by MPCA's Air Quality program. EPA has recently learned that MPCA receives an average of 2,200 original asbestos demolition/renovation notifications a year. In March of 2010 MPCA contacted EPA informally and stated that, due to budget cuts, MPCA's asbestos NESHAP implementation and enforcement program was reduced to .5 FTEs. To deal with this problem, MPCA's Solid Waste program assumed responsibility for inspecting some demolition projects and asbestos waste disposal sites but not renovation sites. At some point, MPCA decided that implementation and enforcement of the asbestos regulations at renovation projects would be left to the Minnesota Department of Health (MDH). However, the MDH does not have authority to implement or enforce the asbestos NESHAP and it has not incorporated all of the asbestos NESHAP requirements in its regulations. Although the MDH does a significant amount of good work enforcing their own asbestos regulations at renovation sites, there are significant gaps in the coverage of its regulations when compared to the asbestos NESHAP. In addition, the MDH enforcement response to violations of asbestos regulations is limited.

Renovation projects involving asbestos pose great risk to the public and regulated community. Unlike demolition projects which are very visible, renovation projects can occur unnoticed. If the work is not done properly, the public and building occupants can be exposed to asbestos over and over again for many years. Implementation and enforcement of the asbestos NESHAP requirements that apply to renovation projects is needed to deter violations of the asbestos NESHAP. Despite the fact MPCA was no longer implementing and enforcing a complete asbestos NESHAP program, MPCA continued to commit to implementing and reporting their asbestos NESHAP activities in the Section 105/PPA workplan with EPA. MPCA recently informed EPA that it now has 2.5 FTE's assigned to work on demolition, waste handling and disposal compliance issues. This will not restore MPCA's role in implementing the asbestos NESHAP for renovation projects where asbestos is being removed or the commitment in the FFY13 -

16 Section 105/PPA workplan in reporting all demolition and renovation activities conducted under the asbestos NESHAP regulations.

MPCA sought and was granted delegation of the asbestos NESHAP. According to the delegation agreement between EPA and MPCA, if the State of Minnesota determines that for any reason, including budget reductions, it is unable to administer any new NSPS or NESHAPS, the Executive Director of the MPCA will notify the Regional Administrator. Upon such notification by the State, the primary enforcement responsibility for such new standards will return to EPA. EPA is willing to work with MPCA to find a solution to this problem.

State Review Framework

Briefing: Issue with MPCA sharing of enforcement data

Issue

States with delegated or authorized programs are required to submit certain enforcement data to EPA, through the data system OTIS. MPCA is not providing some of the required enforcement data on open cases. The amount of data not being provided varies by program. (For example, RCRA data systems allow for data to be entered without public release; so for RCRA at least EPA has received the required data, though it is not publicly available.)

A 2008 state supreme court case (Westrom v. Minnesota Dept. of Labor and Industry) held that, under state law, information on "pending civil legal actions" is protected from release. The MN Attorney General interprets this to include data regarding Administrative Penalty Orders, stipulation/compliance agreements, and field citations. The AG sent a letter to MPCA that told them not to release such data. Release of this data would create personal liability for MPCA staff.

Attempts to Resolve

- Region 5 highlighted this issue with MPCA in Rounds 1 and 2 of the State Review Framework, and raised it to OECA-HQ as an issue needing resolution. OECA-HQ has expressed concern, but hasn't fully engaged on the issue.
- MPCA has suggested that if R5 could demonstrate that federal law preempts the MN state law, they might have the ability to release protected data.
- OECA-R5 and an ORC attorney met several times over the course of 2012 to look at the feasibility of federal preemption, FOIA exemptions, and other means of required data being reported within the limits set by the MN AG's interpretation of state law. None of these options appear to be viable.
- During the process of amending the RCRA program authorization, the MN AG did not highlight any issues in regard to MN releasing program data as part of the authorization. Later, it became apparent that the current stance on not releasing data per the Westrom decision conflicts with the authorization.

- The MN AG attorney referred the issue to the MPCA's new General Counsel to discuss possible work-arounds similar to that being used for RCRA data. Even if possible, this only makes data fully available to EPA, not the public.
- We believe that the MN AG interpretation of state law with respect to enforcement data is overly broad; and that a narrower interpretation could resolve the issue. To date, the MN AG has not been willing to revisit their interpretation.

Next steps for resolution

- We recommend that resolution efforts be escalated through R5 senior management, including the possibility of addressing in MPCA's PPA. However, options depend on whether a change in AG interpretation or a change in state law is needed to resolve.

Mining Permits

October 1, 2012 – September 30, 2016

(FFY 2013-2016)

Objective:
Complete timely NPDES permitting actions for metallic mining projects in Minnesota to address outstanding environmental issues, eliminate permit backlog, and issue permit decisions for construction projects.

Statement of Problem/Issue:
Water quality permits for the metallic mining sector are critical to the protection of surface waters. These permits are often associated with economic development, are under increasing public scrutiny, and involve complex permitting situations. As a result, NPDES permits for the metallic mining sector have a higher than average reissuance backlog and permit decisions for new or expanding facilities are often delayed.

Scope:
All new, expanding and existing metallic mining operations in Minnesota needing NPDES permits.

Strategy:
Complete a workload analysis and schedule for pursuing staffing revisions; identify permit priorities and schedules; identify necessary process improvements based on past experience and implement process revisions; develop standard operating procedure(s) to expeditiously move to final permit decisions.

The Metallic Mining Joint Priority will include identification and prioritization of metallic mining permitting projects, and streamlining/improving the permitting process to assure NPDES permit decisions in a timely manner and eliminate the permit backlog over a 5 year period.

Work Load Analysis and Staffing

It is anticipated that significant additional staff resources will be needed to meet performance measures for this joint priority. The commitments in this joint priority are based on the assumption that the following activities are successfully completed:

By March 29, 2013 a work load analysis will be developed – MPCA lead. The work load analysis will include projections necessary to eliminate the metallic mining permit backlog to zero by July 1, 2018 and assure timely permit decisions for new construction (new and expanded mines) projects. The work load analysis will include known significant barriers to permit issuance and resources needed to address these barriers.

By April 30, 2013, EPA and MPCA will each independently develop staffing initiatives

that reflect the work load analysis and meet the commitments of the joint priority.

By June 30, 2013, EPA and MPCA will each independently achieve approval of staffing initiatives.

By September 30, EPA and MPCA will complete hiring or assignment of staff identified in the respective staffing initiatives.

By December 31, 2013, newly assigned EPA and MPCA staffs will complete permit writer training and other training, as appropriate to achieve a level of expertise needed to issue metallic mining permits.

Permit Project Prioritization and Scheduling

By April 1, 2013 MPCA and EPA will develop a Metallic Mining Permit Priority List that will focus staff resources on critical construction projects and permit reissuances necessary to eliminate the permit backlog by July 1, 2018 (5 years). The Priority List will include tiered goals and performance measures based on staffing (fewer projects under current staffing levels and more projects under the level identified in the staffing initiatives). Assuming the scope including the 25 existing metallic mining permits identified below, performance measures should achieve an average of 1) work on 2 new permits, 2) complete 5 permit modifications, and 3) complete 5 permit reissuances per year over the next 5 years to achieve a 20% backlog reduction per year and issue construction permits. This prioritization and schedule will be evaluated and updated by EPA and MPCA by October 1, 2013 and annually thereafter.

MPCA will lead the development of the Metallic Mining Permit Priority List and proposed schedule for completing each of the active permitting projects. The initial Metallic Mining Permit Priority List is provided below and will be updated every 12 months. Permit project schedules will be reviewed and revised monthly via MPCA/EPA conference calls.

Metallic Mining Permit Priority List (Preliminary)

NPDES ID	Permit Name	Current Major Minor Status	Issue Date	Expiration Date
NEW	POLYMET	TBD		
MN0054089	CLIFFS ERIE, LLC-HOYT LAKES (combining 2 permits)	Minor	5/4/2001	11/30/2005
MN0042579	CLIFFS ERIE LLC-DUNKA	Minor	8/3/2000	6/30/2005

MN0055301	NORTHSHORE MINING/SILVER BAY P	Major	1/26/2004	9/30/2008
MN0057207	US STEEL/MINNTAC TAILINGS BASI	Minor	9/30/1987	7/31/1992
MN0050504	US STEEL CORP-MINNTAC WWTF	Minor	12/31/1984	12/31/1989
MN0069078	MESABI MINING/STEEL DYNAMICS	Minor	11/30/2007	6/30/2010
NEW	ESSAR EXPANSION	TBD		
NEW	TWIN METALS	TBD		
NEW	TECK	TBD		
NEW	DIRECT REDUCED IRON	TBD		
MN0070378	Magnetation LLC - Plant 4			NEW
	TOP PRIORITIES ARE ABOVE THIS LINE			
MN0044946	EVELETH MINES LLC DBA EVTAC	Minor	6/30/1999	5/31/2004
MN0055964	ISPAT INLAND MINING CO-MINORCA	Minor	9/29/2000	7/31/2005
MN0042536	CLEVELAND CLIFFS LLC	Minor	5/4/2001	11/30/2005
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MN0068241	Essar Steel Minnesota LLC			9/30/2017

Process Improvement

By June 30, 2013, EPA and MPCA will work together to develop Standard Operating Procedure(s) (SOP) for the development and review of Metallic Mining permits. The SOP shall include EPA and MPCA roles and responsibilities, and include generic time commitments for each step. The SOP shall describe EPA's early consultation on TMDL implementation, pre-TMDL impaired waters, compliance schedules, and complex effluent limit determinations. EPA and PCA will continue to work together on the variance process improvement effort currently underway.

To maximize permit decision making and processing, EPA and MPCA will work jointly on process improvement activities throughout the term of the PPA. Process improvement activities will include, but not be limited to, EPA/MPCA communications, communication with external parties, and addressing tribal concern. Initial improvements will focus on improved EPA/MPCA collaboration, development and improvement to permit templates, and avoiding duplication of work efforts.

As process impediments are identified EPA and MPCA agree to evaluate and resolve the impediment in a fixed period of time. If an issue is not resolved within the established period it will be elevated to the Division Director (EPA) level and Assistant Commissioner (MPCA) level for resolution.

Additional information:
For more information on the Mining Permits Joint Priority, contact:
At MPCA: Jeff Stollenwerk, 218-302-6612, jeff.stollenwerk@state.mn.us
At EPA Region 5: Kevin Pierard, 312-886-4448, pierard.kevin@epa.gov

Mining Permits

October 1, 2012 – September 30, 2016 (FFY 2013-2016)

FFY 2014 REPORT

Objective:
Complete timely NPDES permitting actions for metallic mining projects in Minnesota to address outstanding environmental issues, eliminate permit backlog, and issue permit decisions for construction projects.

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MPCA will lead the development of the Metallic Mining Permit Priority List and proposed schedule for completing each of the active permitting projects. The initial Metallic Mining Permit Priority List is provided below and will be updated every 12 months. Permit project schedules will be reviewed and revised monthly via MPCA/EPA conference calls.

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MN0070050	Mining Resources LLC			10/31/2016
MN0068241	Essar Steel Minnesota LLC			9/30/2017

FFY 2013 Report:

MPCA's staffing initiative was only partially funded and also delayed until July 2014. We expect funding for one additional FTE for water quality permitting. In the meantime, we are shifting resources to the extent possible and continuing work to eliminate the mining permit backlog. The Metallic Mining Permit Priority List has been developed and is up to date. The Magnetation Plant 4 was reissued in May. EPA and MPCA staff toured the US Steel Minntac and Cliffs Erie sites in mid-August 2013. We continue to work through various issues in an effort to get these permits developed and on public notice. The Polymet supplemental draft EIS is nearing public notice and the various media permits are being developed concurrently. EPA is a cooperating agency and participates in biweekly update meetings

Process Improvement

By June 30, 2013, EPA and MPCA will work together to develop Standard Operating Procedure(s) (SOP) for the development and review of Metallic Mining permits. The SOP shall include EPA and MPCA roles and responsibilities, and include generic time commitments for each step. The SOP shall describe EPA's early consultation on TMDL implementation, pre-TMDL impaired waters, compliance schedules, and complex effluent limit determinations. EPA and PCA will continue to work together on the variance process improvement effort currently underway.

To maximize permit decision making and processing, EPA and MPCA will work jointly on process improvement activities throughout the term of the PPA. Process improvement activities will include, but not be limited to, EPA/MPCA communications, communication with external parties, and addressing tribal concern. Initial improvements will focus on improved EPA/MPCA collaboration, development and improvement to permit templates, and avoiding duplication of work efforts.

As process impediments are identified EPA and MPCA agree to evaluate and resolve the impediment in a fixed period of time. If an issue is not resolved within the established period it will be elevated to the Division Director (EPA) level and Assistant Commissioner (MPCA) level for resolution.

EPA Comments:
EPA developed a draft SOP and sent it to the MPCA on July 1, 2013. MPCA provided brief verbal feedback later that month. MPCA provided written revisions to EPA's draft SOP on December 23, 2013. Additional negotiation is needed to finalize the SOP. MPCA will work with EPA to schedule further discussions on this issue.

FFY 2014 Report:
Staffing – Adequate staffing continues to be a challenge. MPCA received funding for one additional FTE in water quality permitting beginning July 2014. This funding was delayed from original expectations when the joint priority was developed. In addition, it has been difficult to find qualified candidate that is willing to accept this position. Additional candidate interviews are scheduled with the hope of filling the position in the next 2 months. MPCA also lost a key mining unit supervisor who recently transferred to a private sector position. The supervisor position was filled internally.

Mining Permit Priority List – MPCA and EPA staff remain focused on several permit reissuances as well as new permits and permit modifications. By the end of 2014 we expect to have the US Steel Minntac Tailings Basin permit (which will include the WWTF) on public notice. We are also actively working on two permit modifications. MPCA proposes to update the Metallic Mining Permit Priority List as follows:

Kuefler, Patrick 1/28/2015 4:41 PM
Comment [1]: The report identifies that the level of effort to date has not been sufficient to meet the joint priority objective and eliminate the permit backlog over a 5 year period nor does it provide significant actions or enhanced strategies intended to improve program performance or meet the joint priority objective going forward. MPCA should provide an enhanced strategy such as redeploying permitting staff from other NPDES industrial sector permitting groups to assist with processing the permits timely in accordance with the Joint priority.

Kuefler, Patrick 1/28/2015 4:36 PM
Comment [2]: The priority list presented should be adjusted to reflect the goal of the joint priority. EPA recommends a revision to the list of permits/sites to ensure the objective of the priority is met. Mine permits that are not NPDES permits should be removed from the list for purposes of the joint priority and the remaining permits should be prioritized to reflect the need to address active discharges, potential environmental impact of those discharges and the duration of which the permit has been expired. EPA provides a recommended table of priority permits.

Metallic Mining Permit Priority List (Proposed Updates 11/1/14)

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McKim, Krista 1/20/2015 9:06 AM
Moved down [5]: MN0055301

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MN0059633	ArcelorMittal Minorca Mine Inc. - Laurentian			12/31/20
MN0069400	Northshore Mining Co - Silver Bay Dredge Disposal			2/28/2014
MN0020249	Midland Research Center			7/31/2016
MN0055948	Keewatin Taconite Operations - Tailings			10/31/20
MN0031879	US Steel Corp - Keetac			10/31/20
MN0068241	Essar Steel Minnesota LLC			9/30/201

Additional information:

For more information on the Mining Permits Joint Priority, contact:
At MPCA: Jeff Stollenwerk, 218-302-6612, jeff.stollenwerk@state.mn.us
At EPA Region 5: Kevin Pierard, 312-886-4448, pierard.kevin@epa.gov

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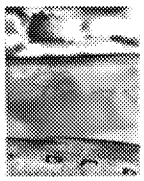
NPDES ID	Permit Name	Current Major Minor Status	Issue Date	Expiration Date	Action	Status
MN0057207	US STEEL/MINNTAC TAILINGS BASIN	Minor	9/30/87	7/31/92	No permit noticed	1st Q 2015 Mining Report, public notice of draft permit "on h505old."
MN0050504	US STEEL CORP-MINNTAC WWTF	Minor	12/31/84	12/31/89	No permit noticed	No mention in 1st Q 2015 Mining Report.
MN0052493	US STEEL CORP-RESERVOIR	Minor	1/7/04	11/30/08	No permit noticed	No mention in Mining Reports or MPCA search.
MN0046981	NORTHSHORE MINING -PETER MITCHELL			7/31/14	No permit noticed	1st Q 2015 Mining Report. Notes modification in 2013 (monitoring change).
MN0055301	NORTHSHORE MINING/SILVER BAY P	Major	1/26/04	9/30/08	No permit noticed	1st Q 2015 Mining Report. States working on water permit MP7.
MN0049760	HIBBING TACONITE CO - TAILINGS BASIN AREA			4/30/00	No permit noticed	1st Q MiningReport. No mention of tailing area.
MN0001465	HIBBING TACONITE CO - MINING AREA			5/31/13	No permit noticed	1st Q 2015 Mining Report. Only discusses 2008 watter quality permit.
MN0052116	UNITED TACONITE, LLC	Minor	8/25/05	7/31/10	No permit noticed	1st Q 2015 Mining Report. Only discusses air permit work.
MN0044946	UTAC THUNDERBIRD MINE (Previously "EVTAC")	Minor	6/30/99	5/31/04	No permit noticed	Active variance noted 11-14 MiningReport. No reference in 1st Q 2015 Report.
MN0054089	CLIFFS ERIE LLC - HOYT LAKES (LTVSMC Tailings)	Mkinor	5/4/01	11/30/05	No permit noticed	1st Q 2015 Mining Report "discussions with the company."
MN0042579	CLIFFS ERIE LLC-DUNKA	Minor	8/3/00	6/30/05	No permit noticed	Active variance. No reference in 1st Q 2015 Mining Report.
MN0069078	MESABI MINING/STEEL DYNAMICS	Minor	11/30/07	6/30/10	No permit noticed	8-2012 Mining Report - in process of permit for closure. No recent reference.
	TOP PRIORITIES - EXPIRED PERMITS - ABOVE THIS LINE					
MN0055964	ISPAT INLAND MINING CO-MINORCA	Minor	9/29/00	7/31/05	No permit noticed	1st Q 2015 Mining Report removed reference to project.
MN0042536	CLEVELAND CLIFFS LLC - HOYT LAKES	Minor	5/4/01	11/30/05	No permit noticed	1st Q 2015 Mining Report no reference to project.
MN0060151	MDNR SOUDAN STATE PARK			9/30/08	No permit noticed	No mention in Mining Reports or MPCA search.
MN0059633	ARCELOR MITTAL MINORCA MINE - LAURENTIAN			12/31/11	No permit noticed	1st Q 2015 Mining Report. Only discusses completed air permit.
MN0069400	NORTHSHORE MINING - SILVER BAY DREDGE DISPOSAL	Major		2/28/14	No permit noticed	No mention in Mining Reports or MPCA search.
MN0069221	MAGNETATION PLANT 1 & MESABI CHIEF TAILINGS BASINS			6/30/13	No permit noticed	1st Q 2015 Mining Report. States drafting SDS permit only.
	ADDITIONAL EXPIRED PERMITS - ABOVE THIS LINE					
MN0020249	Midland Research Center			7/31/16		
MN0055948	Keewatin Taconite Operations - Tailings			10/31/16		
MN0031879	US Steel Corp - Keetac			10/31/16		
MN0070050	Mining Resources LLC			10/31/16		11-14 MiningReport. States drafting major modification SDS only.
MN0068241	Essar Steel Minnesota LLC			9/30/17		
MN0069868	Magnetation Plant 2			9/30/15		
MN0070378	Magnetation LLC - Plant 4		11/12/13		SDS permit issued	New plant. SDS permit only. No NPDES surface water requirements.
MN0067687	Mesabi Nugget LLC		10/24/12		Variance overturned	EPA disapproved variance 7/2/14, no revision of variance noticed or referenced.
	CURRENT PERMITS - ABOVE THIS LINE					
NEW	PolyMet	TBD				
NEW	Essar Expansion	TBD				
NEW	Twin Metals	TBD				
NEW	Teck	TBD				
NEW	Direct Reduced Iron	TBD				
	FUTURE PERMITS - ABOVE THIS LINE					



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February 18, 2012

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RE: Mesabi Nugget NPDES/SDS Permit MN0067687 and Proposed Variances

Dear Commissioner Aasen, Mr. Timerson, Mr. Pierard, Mr. Pfeifer:

The comments below are submitted on behalf of WaterLegacy, a Minnesota non-profit organization formed in 2009 to protect Minnesota's water resources and the communities that depend on them.

For the reasons discussed below, WaterLegacy believes that the draft NPDES/SDS permit MN0067687 and the proposed variances from water quality standards for bicarbonates, hardness, total dissolved solids and specific conductance proposed in that NPDES/SDS permit fail to comply with the Clean Water Act (CWA) and regulations promulgated under the CWA.

We request that the proposed Mesabi Nugget permit be scheduled for a hearing before the Minnesota Pollution Control Agency (MPCA) Citizens' Board and that the MPCA, upon reflection and review by its Board, reject all proposed variances from water quality standards and further require revisions to the draft NPDES/SDS permit to protect wild rice and prevent mercury contamination of fish. In addition, we believe that it would be appropriate for the United States Equal Protection Agency (EPA) to object to the draft NPDES/SDS permit and reject all proposed variances from water quality standards.

INTRODUCTION

According to the Variance Issue Statement (VIS) provided by the MPCA to WaterLegacy on February 14, 2012, Mesabi Nugget Delaware, LLC (Mesabi Nugget) and Steel Dynamics, Inc. (SDI) operate an iron nugget production facility (Large Scale Demonstration Plant – LDSP)

located near Hoyt Lakes, Minnesota at the former Cliffs Erie mining site. This facility was originally permitted in 2005, although construction was delayed until 2009 because of financing issues and a change in ownership. In January 2010, the Mesabi Nugget facility commenced operation of the 600,000 metric ton/year iron nugget facility. (MPCA, *Variance Issue Statement*, February 14, 2012, attached as Exhibit 1, "Ex. 1, VIS," p 1)

The draft NPDES/SDS permit MN0067687 for the Mesabi Nugget facility pertains to industrial wastewater discharged through SD001 (formerly SD003 under the Cliffs Erie operation) to Second Creek, a Class 2B, 3C, 4A, 4B, 5 and 6 water under Minnesota Rules 7050.0430 and an Outstanding International Resource Water under Minnesota Rules Chapter 7052. (MPCA, *Draft NPDES/SDS Permit MN0067687*, Noticed Jan. 30, 2012, attached as Exhibit 2, "Ex. 2, NPDES Draft," pp. 4-5). Second Creek is part of the Partridge River and St. Louis River watersheds that ultimately flow to Lake Superior. Both the Partridge and the St. Louis Rivers are Class 2B, 3C, 4A, 4B, 5 and 6 water under Minnesota Rules 7050.0430 and Outstanding International Resource Waters under Minnesota Rules Chapter 7052. Since 1998, the St. Louis River has been listed as an impaired water due to mercury contamination in fish tissue from the Partridge River downstream to the Embarrass River.

I. The Mesabi Nugget draft NPDES/ SDS permit fails to comply the Clean Water Act and with federal regulations implementing the Act.

It is axiomatic that a state with a federally authorized NPDES program is required to issue permits that ensure the protection of federally approved water quality standards. See 33 U.S.C. §1311(b)(1)(C), CWA §301(b)(1)(C); and generally, 40 C.F.R. Part 123 (see especially 40 C.F.R. §123.25(a)(1)); and 40 C.F.R. §§122.4 and 122.44. Where a state proposes to issue a permit that fails to apply or to ensure compliance with any applicable requirement including water quality based effluent limitations, EPA has the authority to review and to object to such permit issuance pursuant to its authority under 40 C.F.R. §123.44.

No permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the Clean Water Act or regulations promulgated under the CWA. 40 C.F.R. §122.4(a). NPDES permit conditions must attain compliance with State narrative requirements as well as numeric standards. 40 C.F.R. 122.44(d).

The Clean Water Act protects any designated uses in existence in receiving waters at any time subsequent to November 28, 1975. 40 C.F.R. § 131.3(e). Designated uses of waters can include uses for propagation and maintenance of wild rice species, aquatic life, industrial and agricultural uses.

Federal law precludes backsliding, and a permit may not be renewed, reissued or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. 33 U.S.C. §1342(o), CWA §402(o). Where a renewed or reissued permit has both interim and final effluent limitations, "interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit." 40 C.F.R. 122.44(l). In addition, any exceptions to anti-backsliding provisions do not apply if the proposed effluent limitation is less stringent than that required by existing water quality standards at the time when a permit is renewed, reissued or modified or if the implementation of the proposed less stringent water limitation would result in a violation of a water quality standard applicable to such waters. 40 C.F.R. 122.44(l)(2)(ii).

In addition to precluding backsliding, the Clean Water Act does not permit indeterminate deferral of compliance with effluent limitations. EPA guidance suggests that NPDES permits

must require immediate compliance with water quality based effluent limitations unless they were adopted after July 1, 1977 and the State has clearly indicated that it intends to allow permits to defer compliance.[1]

Minnesota statutes and rules define a "schedule of compliance" not as a customary permitting strategy, but as "a schedule of remedial measures." Minn. Stat. §115.01, Subd. 16, Minn. R. 7000.0100, Subp. 11. Any schedule of compliance in a permit "must require compliance in the shortest reasonable period of time." Minn. R. 7001.0150, Subp. 2(A). If a proposed permittee will not comply with all applicable state and federal pollution control statutes and rules, the agency may refuse to issue a new, modified or reissued permit. Minn. R. 7001.0140, Subp. 2(A).

Federal regulations enacted under the Clean Water Act require that a schedule of compliance be "an enforceable sequence of interim requirements leading to compliance with the CWA and regulations." 40 CFR §122.2. Schedules must require "compliance as soon as possible," 40 CFR §122.47(a)(1), and schedules that exceed one year must have interim requirements and dates of achievement. 40 CFR §122.47(a)(3).

A. Draft permit conditions are inconsistent with Minnesota's narrative as well as numeric standards that prevent impairment or degradation of wild rice.

The permit record does not disclose whether production of wild rice from natural stands was a designated use of the Second Creek receiving waters at any time subsequent to November 28, 1975, requiring that this use be protected under the Clean Water Act. 40 C.F.R. § 131.3(e). It is, however, undisputed that the Partridge River, into which the Second Creek flows, is currently used for the production of natural stands of wild rice. Mesabi Nugget states in its June 2010 Application for Variance, "During the summer of 2009, a wild rice survey (required by the MPCA) discovered wild rice in the Partridge River, just downstream from the confluence of Second Creek." (Mesabi Nugget, *Variance Application*, June 2010, attached as Exhibit 3, "Ex.3, Variance App." p. 1)

The Mesabi Nugget draft NPDES/SDS permit contains no limits on sulfates either in its "interim" or "final" period. (Ex. 2, NPDES Draft, pp. 10-14) The only constraint on sulfates is provided in paragraph 6.1 of the draft permit, which states, "To minimize the potential impact to wild rice resources in downstream waters, the Permittee shall not discharge from Outfall SD001 from April 1 through August 31 of each year." (Ex. 2, NPDES Draft, p. 15).

Failure to set limits for sulfate discharge to wild rice waters is inconsistent with precedent set in the MPCA's contested permit proceedings (Clay Boswell NPDES, permit issued in 1975) and uncontested proceedings (U.S. Steel Corp. Keetac NPDES, permit issued in 2011). The Boswell case set less stringent limits on sulfates in certain months, but both permits provided year-round limits on sulfate discharge to wild rice waters.

WaterLegacy believes that failure to set year-round sulfate limits conflicts with Minnesota Rule 7050.0224, Subpart 2 and with federal regulations that require compliance with state standards. 40 C.F.R. 122.44(d). Subpart 2 of the wild rice sulfate standard sets a 10 mg/L limit for sulfates in waters used for the production of wild rice during periods when wild rice "may be susceptible to damage by high sulfate levels." Scientific research suggests that wild rice may be susceptible to damage by high sulfate levels outside its growing season due to the conversion of sulfates to

[1] U.S. EPA Memo, Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits, May 10, 2007 available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/signed-hanlon-memo.pdf (last visited Feb. 15, 2011). Citing the EPA decision *In The Matter of Star-Kist Caribe, Inc.*, 3 E.A.D. 172, 175, 177 (1990).

toxic hydrogen sulfide in sediments of streams, rivers and lakes. Support for some degree of susceptibility is provided in the MPCA's November 8, 2011 Study Protocol to Protect Wild Rice, which states, "In Minnesota surface waters, it is suspected that any negative effect of sulfate on wild rice likely involves the conversion of sulfate to sulfide—a conversion that is accomplished by anaerobic bacteria that respire sulfate instead of oxygen."[2] The decision to place no concentration limits on high sulfate levels from September 1 through March 31 is unreasonable under Minn. R. 7050.0224, Subpart 2 and subject to EPA review under 40 C.F.R. 122.44(d).

Even if one were to accept the MPCA's interpretation that Subpart 2 of Minn. R. 7050.0224 could be satisfied if discharge were prohibited "from April 1st through August 31st due to the potential for impacts to downstream wild rice from sulfate in the discharge," (Ex. 1, VIS, p. 2), the Mesabi Nugget permit is not properly drafted to apply even this modest condition. The draft permit would allow uncontrolled release of sulfates during the month of August, as well as the month of September if Mesabi Nugget can show that its effluent does not exceed 1.0 chronic toxicity units. (Ex. 2, NPDES Draft, p. 15, ¶ 6.2). To meet the minimal protection of wild rice specified in the MPCA's supporting documents, Paragraph 6.2 must be revised so that discharge after whole effluent toxicity (WET) testing could only occur from September 1 through September 30, not from August 1 through September 30 as provided in the draft permit. (*See e.g.* Ex. 1, VIS, p. 13, "Specifically, discharge from SD001 will not be authorized during September of each year unless Mesabi Nugget can demonstrate through WET testing that toxicity exceeding one toxicity unit is not present.").

The MPCA may have some discretion to interpret the requirements of Minn. R. 7050.0224, but under 40 C.F.R. 122.44(d) NPDES permit conditions must ensure compliance with both numeric and narrative standards. The draft NPDES/SDS permit fails to ensure compliance with narrative water quality standards preventing impairment or degradation of Minnesota's natural stands of wild rice:

> The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the agriculture and wildlife designated public uses and benefits. . . The quality of these waters and the aquatic habitat necessary to support the propagation and maintenance of wild rice plant species must not be materially impaired or degraded. Minn. R. 7050.0224, Subpart 1 (emphasis added).

Nothing in the permit record suggests that an analysis was performed by MPCA to determine what limits on sulfate concentrations or mass loading from September through April are needed to prevent formation of hydrogen sulfides or other conditions that impair or degrade waters and aquatic habitat necessary to support the propagation and maintenance of wild rice.

The Sulfate Transport and Wild Rice Impact Studies described in the draft permit neither discuss the fate of sulfates in the aquatic ecosystem nor seek an outcome related to protection of the use of waters for the propagation and maintenance of wild rice. Studies could drag on for more than four years without any determination of whether conditions are needed to protect the resource, let alone imposition of such conditions through reissuance or modification of a permit. (Ex. 2, NPDES Draft, p. 25).

WaterLegacy would propose the following conditions consistent with Clean Water Act requirements to prevent degradation of designated wild rice uses:

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[2] MPCA, *The Sulfate Standard to Protect Wild Rice*, Nov. 8, 2011, p. 5 http://www.pca.state.mn.us/index.php/view-document.html?gid=16356 last visited on Feb. 15, 2012.

Revise draft permit page 15, Paragraph 6.2 so that discharge after WET testing can only occur from September 1 through September 30.

Set limits on SD001 sulfate discharge from September 1 through March 31 to protect natural stands of wild rice.

If regulators believe more study is needed to place limits on sulfate discharge from September through March, revise conditions for ***Studies to Determine Sulfate Fate and Transport and Prevent Wild Rice Impairment*** *as follows:*

1. *Within 90 days of permit issuance, the Permittee shall submit for approval a Sulfate Fate and Transport Study work plan and a Wild Rice Impact Study work plan.*

   - *The Sulfate Fate and Transport Study shall be designed to determine the fate (including conversion to hydrogen sulfide) and transport of sulfate in receiving waters and sediments, including but not limited to Second Creek, the Partridge River and the St. Louis River.*

   - *The Wild Rice Impact Study shall be designed to consider impacts from the fate and transport of sulfates and from water level changes due to Permittee's discharge on the propagation and maintenance of wild rice. At a minimum, the Wild Rice Impact Study shall include two years of monitoring/survey for the presence and general condition of wild rice and sampling for phytoliths in sediments.*

2. *Within 24 months after MPCA approval of the Sulfate Fate and Transport Study work plan, the Permittee shall complete and submit for approval the Sulfate Fate and Transport Report. Within 24 months after MPCA approval of the Wild Rice Impact Study, the Permittee shall complete and submit for approval the Wild Rice Impact Report.*

3. *The MPCA shall have the authority to reject, amend, revise or approve any study work plans and reports described in this section.*

4. *Within 90 days of receiving the completed Sulfate Fate and Transport Report and Wild Rice Impact Report, the MPCA will determine what additional conditions limiting sulfates and/or volume or timing of discharge from SD001 are required to ensure compliance with Minnesota rules preventing impairment or degradation of waters and aquatic habitats that support the propagation and maintenance of wild rice and shall propose such conditions for permit modification with public notice.*

B. Draft permit conditions fail to ensure that mercury releases will not violate water quality based effluent limitations.

WaterLegacy appreciates that the Mesabi Nugget draft NPDES/SDS permit contains mercury water quality based effluent limitations intended to be consistent with the Great Lakes Initiative, Chapter 7052 of Minnesota Rules. However, WaterLegacy would request clarification of why the average limit is set at 1.8 rather than the 1.3 nanograms per liter level given that 7Q10 flow levels in Second Creek do not permit consideration of dilution. (*See* Ex. 2, NPDES Draft, pp. 9, 12). The draft permit suggests that a second filtration process for mercury can be required prior to discharge from the Area 1 pit if the initial MNC Mercury Filter is insufficient to bring mercury levels down to permitted levels. (*Id.*, p. 4)

However, permit conditions pertaining to the Area 1 pit are insufficient to ensure that Mesabi Nugget discharge complies with mercury water quality standards. The draft permit provides no mercury limit for SW003, the Area 1 pit, described in the permit as a Lake/Reservoir. (*Id.*, pp. 8, 10, 13). The Area 1 Lake/Reservoir is accessible to wildlife and waterfowl that may be impacted by high mercury levels.

Area 1 Lake/Reservoir hydrology also seeps and flows to surface waters. The MPCA's Variance Issues Statement explains, "Pit 1 watershed hydrology is such that total water inflows exceed water losses to groundwater and evaporation resulting in a long-term overflow or discharge of the pit to Second Creek." (Ex. 1, VIS, p. 14). The Area 1 Pit Water Treatment Evaluation prepared by Mesabi Nugget confirms that lowering the water level in the pit to 1546 feet mean sea level was needed "in order to stop seepage in the southeast corner of the pit." (Mesabi Nugget, *Area 1 Pit Water Treatment Evaluation in Support of the Nondegradation Analysis*, June 2011, attached as Exhibit 4, "Ex. 4, Area 1 Pit Eval.," p. 1). These reports suggest that there is a "significant nexus" between the Area 1 pit and navigable waters, requiring control of mercury levels in the Area 1 pit.[3]

In addition to requesting permit conditions limiting mercury concentrations in the Area 1 Lake/Reservoir, WaterLegacy would suggest revision of specific draft permit conditions that could allow mercury seepage to surface water in excess of water quality standards. The draft permit requires Mesabi Nugget to cease discharge through SD001 if monitoring data shows exceedances of the mercury standard three times in any 12-month period or four times in any 60-month period. (Ex. 2, NPDES Draft, p. 15, ¶7.1). However, even if mercury levels in the Area 1 pit exceed limits, the draft permit would allow Mesabi Nugget to continue iron nugget production and store mercury in this Lake/Reservoir. (*Id.*, p. 16, ¶7.4).

The Variance Issues Statement confirms that waters flowing into the Area 1 pit enter groundwater. Even if seepage from the pit's surface could be controlled by reducing water levels, no studies demonstrate that water infiltrating Area 1 pit groundwater would not have a direct hydrological connection to nearby surface waters. Discharge to groundwater that is connected to groundwater is governed by the Clean Water Act[4] and the Great Lakes Initiative (GLI) requires limits on mercury, particularly where downstream waters are already impaired due to contamination of fish tissue with mercury.

The following changes to the Mesabi Nugget draft permit would prevent violation of GLI mercury standards resulting from hydrological connections between the Area 1 pit and waters of

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[3] *See N. Cal. River Watch v. Healdsburg*, 496 F.3d 993, 995, 1002 (9th Cir. 2007).

[4] See EPA responses to Comments on National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 3,016 (Jan. 12, 2001), *available at* http://www.sba.gov/advo/laws/is_cafopr2.txt. "EPA does not argue that the CWA directly regulates ground water quality. In the Agency's view, however, the CWA does regulate discharges to surface water which occur via ground water because of a direct hydrologic connection between the contaminated ground water and nearby surface water. EPA repeatedly has taken the position that the CWA can regulate discharges to surface water via ground water that is hydrologically connected to surface waters . . .EPA has made consistent statements on at least five other occasions. In the Preamble to the final NPDES Permit Application Regulations for Storm Water Discharges, the Agency stated: ''this rulemaking only addresses discharges to waters of the United States, consequently discharges to ground waters are not covered by this rulemaking (unless there is a hydrological connection between the ground water and a nearby surface water body.'') 55 Fed. Reg. 47,990, 47,997 (Nov. 16, 1990) (emphasis added). *See also* 60 Fed. Reg. 44,489, 44,493 (Aug. 28, 1995) (in promulgating proposed draft CAFO permit, EPA stated, ''discharges that enter surface waters indirectly through groundwater are prohibited''); EPA, ''Guide Manual On NPDES Regulations For Concentrated Animal Feeding Operations'' at 3 (Dec. 1995), *available at* http://www.epa.gov/guide/cafo/ (''Many discharges of pollutants from a point source to surface water through groundwater (that constitutes a direct hydrologic connection) also may be a point source discharge to waters of the United States.'').

the State:

> *Set mercury limits for SW003 (the Area 1 Lake/Reservoir) as well as for SD001.*
>
> *Revise page 16, Part 7.4 of the draft permit to allow the Permittee to continue iron nugget production after mercury exceedances only if, prior to occurrence of the conditions in Part 7.1, the Permittee has demonstrated through studies approved by the MPCA that water in the Area 1 pit is not hydrologically connected to surface waters.*

C. Draft permit conditions regarding bicarbonates, hardness, total dissolved solids and specific conductance fail to meet federal anti-backsliding requirements.

The MPCA's Variance Issues Statement suggests that the draft permit merely carries forward a set of variances granted in 2005: "The existing permit issued in 2005 included a variance for the same parameters. The current request is in essence a continuation of the existing variance." (Ex. 1, VIS, p. 6, similar statement at p. 2). However, this is manifestly incorrect. Mesabi Nugget provides admits that they "voluntarily ceased discharging on June 30, 2010 because the Minnesota Pollution Control Agency (MPCA) had not reissued the permit and extended the water quality variances beyond the expiration date of the permit." (Ex. 4, Area 1 Pit Eval., p. 1).

What neither the proposed draft permit nor the Variance Issues Statement disclose is that the MPCA issued a modification of the Mesabi Nugget NPDES/SDS permit MN0067687 on February 24, 2011. That permit stated, "The Permittee shall comply with the limits and monitoring requirements as specified below" and set standards for bicarbonates, hardness, total dissolved solids and specific conductance. (MPCA, *NPDES/SDS Permit MN0067687 Modification*, Feb. 24, 2011, attached as Exhibit 5, "Ex. 5 NPDES Modification," pp. 8-9).

The MPCA's application of the more stringent standards in the February 24, 2011 NPDES permit modification is reflected in the difference between the standards contained in the MPCA's discharge monitoring summary reports for 2010 and 2011. In 2010, standards under the 2005 variance were applied; whereas in 2011, more stringent standards based on the expiration of the variances were applied. (See MPCA, *Discharge Monitoring Summary Reports*, 2011 and 2010, attached as Exhibit 6, "Ex.6 DMRs," compare p. 1 of the 2011and 2010 reports).

As detailed in the chart below, the standards put in place in the February 24, 2011 permit modification are more stringent than those that would be effective if the January draft NPDES/SDS permit and variances were to be approved.

NPDES Permit MN0067687 **Parameter**	**Modification Feb. 24, 2011** **Effective Date: 2011**	**DRAFT January 2012 Interim** **Effective Date: Approval 2012**	**DRAFT January 2012 Final** **Effective Date: None**
Bicarbonates (Cal. Mo. Ave.)	268 mg/L	*362 mg/L*	257 mg/L
Bicarbonates (Cal. Mo. Max.)	301 mg/L	*378 mg/L*	267 mg/L
Hardness (Cal. Mo. Ave.)	268 mg/L	*831 mg/L*	512 mg/L
Hardness (Cal. Mo. Max.)	301 mg/L	*863 mg/L*	532 mg/L
Total Dissolved Solids (Cal. Mo. Ave.)	752 mg/L	*1160 mg/L*	726 mg/L
Total Dissolved Solids (Cal. Mo. Max.)	842 mg/L	*1228 mg/L*	768 mg/L
Specific Conductance (Cal. Mo. Ave.)	1074 µmhos/cm	*1889 µmhos/cm*	1025 µmhos/cm
Specific Conductance (Cal. Mo. Max.)	1203 µmhos/cm	*1965 µmhos/cm*	1066 µmhos/cm

The Mesabi Nugget draft permit makes a conclusory statement that the permit would comply with Minn. R. 7053.0275 regarding anti-backsliding. (Ex. 2, NPDES Draft, p. 6). However, Minn. R. 7053.0275 explicitly states that the Agency may not set less stringent effluent limits unless a permittee has established that it is entitled to less stringent limits under section 402(o) of the Clean Water Act, the federal anti-backsliding provisions previously cited. Federal anti-backsliding statutes and regulations preclude approval of the standards for bicarbonates, hardness, total dissolved solids and specific conductance in the proposed draft permit.

As explained previously, the potential that some of the "final" effluent limitations may be as stringent as existing standards does not satisfy anti-backsliding requirements. Where a renewed or reissued permit has both interim and final effluent limitations, *interim* effluent limitations, standards or conditions must be at least as stringent as the effluent limitations, standards, or conditions in the previous permit. 40 C.F.R. 122.44(l). The interim effluent limitations in the draft permit are significantly less stringent than existing permit conditions as well as substantially less stringent than Minnesota's water quality based effluent limitations.

Further, as discussed in more detail in the next section, the "final" effluent limitation in the proposed draft permit is a meaningless construct. The MPCA has specified no means to attain the limitations and no date by which they must be attained.

Federal anti-backsliding law, applicable to Minnesota NPDES permits and incorporated by reference in Minnesota rules, precludes relaxation of the effluent limits for bicarbonates, hardness, total dissolved solids and specific conductance proposed in the Mesabi Nugget draft permit. In order to comply with anti-backsliding provisions, the following limits applicable in the "interim" period should be applied to discharge from SD001.

Set NPDES/SDS permit limits at least as stringent as the following:	
Bicarbonates (Cal. Mo. Ave.)	*268 mg/L*
Bicarbonates (Cal. Mo. Max.)	*301 mg/L*
Hardness (Cal. Mo. Ave.)	*268 mg/L*
Hardness (Cal. Mo. Max.)	*301 mg/L*
Total Dissolved Solids (Cal. Mo. Ave.)	*752 mg/L*
Total Dissolved Solids (Cal. Mo. Max.)	*842 mg/L*
Specific Conductance (Cal. Mo. Ave.)	*1074 µmhos/cm*
Specific Conductance (Cal. Mo. Max.)	*1203 µmhos/cm*

D. Draft permit conditions provide no schedule of compliance with water quality standards for bicarbonates, hardness, total dissolved solids or specific conductance.

WaterLegacy has concluded that draft permit effluent limitations for bicarbonates, hardness, total dissolved solids and specific conductance are impermissible backsliding, as explained above, and impermissible variances under the Clean Water Act as explained in subsequent sections. Even if the Mesabi Nugget draft permit provided an enforceable sequence of interim requirements leading to compliance with water quality standards for these four parameters, the permit conditions would still conflict with applicable state and federal law.

However, the lack of any schedule of compliance that would make the "final" effluent limitations enforceable is particularly troubling. The MPCA granted variances for bicarbonates, hardness, total dissolved solids and specific conductance in 2005. Seven years later, Mesabi Nugget has requested and the Agency is poised to approve an indefinite plan for non-compliance

with water quality based effluent standards.

The draft permit contains no requirement that any method of treatment of discharge from Mesabi Nugget SD001 ever be adopted and sets no date by which compliance with water quality standards will be required. (*See* Ex. 2, NPDES Draft, pp. 18-20) Neither the Water Balance Study nor the Chemical Balance Study seem directed to compliance with any water quality standards, and they may well be duplicative of studies already completed or underway in connection with environmental review.

The Pollutant Reduction Study is required to propose a specific plan of action with a schedule that will result in compliance with the final effluent limitations. (*Id.*, p. 20 ¶8.14). However, the Variance Issue Statement makes it clear that even this eventual plan for a schedule need not include installation of wastewater treatment equipment or source mitigation to achieve water quality standards. The MPCA has apparently agreed that a "plan of action" developed after more than another year of reports could just as well include "a proposal for alternative discharge location and/or submittal of information necessary to support a request for development of site specific water quality standards." (Ex. 1, VIS, p. 16).

The draft permit contains a general platitude, "For as long as this variance is in effect, it shall be the responsibility of the Permittee to make all reasonable progress towards attainment of the water quality standards." (Ex. 2, NPDES Draft, p. 18, ¶ 8.2) Again, the Variance Issue Statement more boldly concedes that there is no schedule of compliance with water quality standards for bicarbonates, hardness, total dissolved solids or specific conductance: "Because of these factors and uncertainties, the exact timeframe for compliance with final effluent limitations is not known at this time." (Ex. 1, VIS, p. 12)

WaterLegacy believes that interim effluent limitations for bicarbonates, hardness, total dissolved solids and specific conductance cannot be less stringent than the limits set in February 2011 after Mesabi Nugget's variance had expired. Thus, there is no need for a schedule of compliance. However, the combination of backsliding to reinstate 2005 variances that violate federal regulations and the failure to set any schedule for attainment of water quality standards is a striking departure from the requirements of the Clean Water Act and the State's responsibilities in executing its delegated NPDES authority.

II. Proposed variances in the Mesabi Nugget draft NPDES/ SDS permit fail to comply with the Clean Water Act and federal regulations implementing the Act.

Although a regulated party may apply for a variance from water quality standards under Minnesota Rules, a variance can only be granted with EPA approval.

Minnesota Rule 7000.7000, Subpart 2 explains the procedure to apply for a variance. The application (F) requires a report from an engineer if the claim is made that it is not "technologically feasible" or, (E) "if the applicant seeks a variance primarily on grounds of economic burden" requires "financial statements" which "shall fairly set forth the status of the business, plant, system, or facility for each of the three financial years immediately preceding the year of the application, and an analysis of the effect of such financial status if the variance is not granted (if the business, plant, system, or facility has not been in operation for this period, then the financial statements and analysis must be based on the most complete data available)"

Minnesota's substantive standard for a variance from water quality standards, requires findings of "exceptional circumstances" and "that strict conformity with the standards would be unreasonable, impractical, or not feasible under the circumstances." A variance also must be "in

harmony" with "the intent of the applicable state and federal laws." Minnesota Rule 7050.0190, Subpart 1.

The EPA characterizes variances from water quality standards as changes to water quality standards and applies substantive and procedural requirements similar to what is required to remove a designated use."[5] Thus, the EPA determines if a variance is appropriate or not using the legal framework for removal of designated uses established in 40 C.F.R. §131.10. The legal authority of the EPA to grant a variance depends, first, on whether the designated use to be removed is an existing use. "*Designated uses* are those uses specified in water quality standards for each water body or segment whether or not they are being attained." 40 C.F.R. §131.3(f). "*Existing uses* are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 C.F.R. §131.3(e).

Where a water body currently complies with water quality standards, uses of that water body are "existing uses" and states may not remove an existing designated use. 40 C.F.R. § 131.10(h). A variance that would remove an existing use violates federal regulations.

Where a water body is already in violation of water quality standards, the designated use is not actually attained. EPA may approve a variance and allow a state to remove a designated use that is *not* an existing use only if more stringent controls "would result in substantial and widespread economic and social impact." 40 C.F.R. §131.10(g)(6).

As discussed below, analysis under 40 C.F.R. §131.10 requires rejection of the variances requested in connection with the Mesabi Nugget draft NPDES permit.

A. Proposed variances for hardness, total dissolved solids and specific conductance would remove existing uses from Second Creek, the Partridge River and the St. Louis River in violation of federal regulations.

Neither the Mesabi Nugget draft permit nor the Variance Issue Statement analyze in any detail whether the proposed variances would remove existing uses from receiving waters. The discussion of the high economic costs of proposed wastewater treatment might suggest that it has been assumed that no existing uses would be removed by granting the variances. This assumption would be erroneous.

Applicable water quality standards for Minnesota waters are 250 mg/L for bicarbonates in Class 4A waters, 500 mg/L for hardness in Class 3C waters, 700 mg/L for total dissolved solids for Class 4A waters and 1000 µmhos/cm for specific conductivity for Class 4A waters. These standards apply to Second Creek, the Partridge River and to the St. Louis River.

The record demonstrates that existing uses would be removed from each of these receiving waters should the proposed variances be granted, precluding the EPA's approval of variances.

With respect to Second Creek, the most recent monitoring of discharge under the previous variance from July 2009 to June 2010 demonstrated that Second Creek Upstream of Mesabi Nugget's SD001 discharge exceeded water quality standards for bicarbonates, hardness and specific conductance. (Ex. 1, VIS, p. 5 chart). A variance from water quality standards for these parameters would not remove an existing use of Second Creek, so consideration of economic and social impacts of denial of the variance under 40 C.F.R. §131.10(g)(6) might be appropriate.

[5] EPA, *NPDES Permit Writers' Manual* (September 2010) p. 6-10, available at http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45, last visited Feb. 16, 2012.

However, in this same recent year of monitoring, Second Creek Upstream of Mesabi Nugget's SD001 discharge *met* the 700 mg/L water quality standard for total dissolved solids. After receiving untreated discharge from Mesabi Nugget Area 1 pit under the 2005 variance, Second Creek Downstream violated the total dissolved solids standard. (*Id.*) Under 40 C.F.R. §131.10(h), the EPA must reject the proposed variance from the total dissolved solids water quality standard since it would remove an existing Class 4A use from Second Creek.

Granting the proposed variances would also remove existing uses from the Partridge River and the St. Louis River under low flow conditions. Mesabi Nugget's Toxicity Identification Evaluation (TIE) 2008-2011 Study released in June 2011 demonstrates that Area 1 pit violates standards for hardness, total dissolved solids and specific conductance. However, baseline monitoring suggests that the Partridge River currently complies with standards for hardness, total dissolved solids and specific conductance, and the St. Louis River complies with standards for specific conductance, the only parameter for which data is provided. (Mesabi Nugget, *Toxicity Identification Evaluation 2008 – 2011 Study for the Mesabi Nugget Pits Mesabi Nugget Phase I Project*, June 2011, attached as Exhibit 7, "Ex. 7 TIE Study," *see* Table 2).

Should the proposed variances be granted, under 7Q10 low-flow conditions Partridge and St. Louis River waters would no longer meet water quality standards. As explained in the Variance Issues Statement, under low flow conditions,

> [T]he SD001 discharge when considered alone was projected to result in standards continuing to be exceeded in Second Creek for all four variance parameters and exceedances being extended to Partridge River for TDS and specific conductance. When contributions from the Area 6 Pit were included in the 7Q10 low flow evaluation, exceedance of standards for hardness, TDS and specific conductance could extend into the St. Louis River. (Ex. 1, VIS, p. 13) (emphasis added).

Based on Mesabi Nugget's TIE Study and the MPCA's Variance Issues Statement, variances for hardness, total dissolved solids (TDS) and specific conductance would remove existing Class 3C and Class 4A uses of the Partridge and St. Louis Rivers in violation of 40 C.F.R. §131.10(h).

In addition, it is also likely that granting proposed variances for hardness, total dissolved solids and specific conductance would impair aquatic life, removing an existing Class 2B use from receiving waters.

For the Mesabi Nugget discharge, site-specific studies have connected high levels of total dissolved solids, associated conductivity and sulfates to aquatic toxicity, as summarized in the June 2011 Area 1 Pit Water Treatment Evaluation, "Preliminary toxicity studies indicate that the overall TDS (and associated conductivity), sulfate concentration, and pH rise during the WET test are the potential causative agents for the observed intermittent toxicity." (Ex. 4, Area 1 Pit Eval., p. 5).

The June 2011 TIE Study of Area 1 pit discharge suggested that elevated levels of sulfate and alkalinity may result in toxicity due to blockage or chemical interference with micronutrient uptake. (Ex. 7, TIE Study June 2011, p. 2) When the chemistry of Area 6, Area 1 and Area 2WX pits was compared, toxicity was correlated with higher concentrations of anions and cations, and higher sulfate levels rather than bicarbonate levels appeared to be associated with toxicity to the test endpoint species, *C. dubia*. (*Id.*, p. 8) According to the logistic regression models for the pits and St. Louis River, alkalinity, sulfate, chloride, and sodium were the factors most often correlated with negative impacts to *C. dubia* young production. (*Id.*, p. 15)

This site-specific information regarding toxicity at Mesabi Nugget is consistent with EPA's conclusion that scientific literature and research increasingly recognize the relationship between salinity and conductivity levels and adverse impacts to biological communities.[6]

The MPCA's 2012 listing of impaired waters included 105 new listings of waters in Minnesota's Arrowhead Region due to impairments for aquatic life identified in bioassessments of fish or macroivertebrates.[7] Variances for salinity and conductivity are likely to create adverse impacts to aquatic life. Should existing industrial and agricultural water quality standards that control salinity and conductivity be relaxed either in individual permit applications or in state rulemaking proceedings, it is likely that such weakened standards would impair existing designated uses of Class 2 waters to sustain aquatic life. WaterLegacy proposes the following:

> *Reject the proposed variance for total dissolved solids that would remove existing uses from Second Creek and remove existing uses from the Partridge and St. Louis Rivers under low flow conditions.*
>
> *Reject proposed variances for hardness and specific conductance that would remove existing uses from the Partridge and St. Louis Rivers under low flow conditions.*
>
> *Inform the MPCA that existing standards for total dissolved solids and specific conductance may be needed to protect existing uses for aquatic life in Class 2 waters.*

B. Proposed Mesabi Nugget variances do not meet state or federal legal requirements for exceptional circumstances or widespread economic and social impact.

Proposed Mesabi Nugget variances for total dissolved solids, hardness and specific conductance are precluded under 40 C.F.R. §131.10(h) since they remove existing designated uses from receiving waters. In addition, a careful look at the record demonstrates that, even if proposed variances were not precluded under paragraph (h) of Section 131.10, none of the four proposed variances would meet threshold requirements under state rules and federal regulation 40 C.F.R. 131.10(g)(6).

The proposed variances to avoid requirements for water treatment systems using membrane technology do not meet the requirement of "exceptional circumstances" demonstrating infeasibility. Minn. R. 7050.0190, Subpart 1.

Various Mesabi Nugget documents reflect that there are similar systems in mining situations throughout the world, where the use of the technology makes economic sense. (*See e.g.* Ex. 3, Variance App., p. 8). The company's recent Water Treatment Evaluation for Mesabi Nugget's Area 1 pit states that membrane treatment is a "technology that is widely commercially available, having a number of large-scale installations, which can reliably produce treated water that could meet the water quality standards." (Ex. 4, Area 1 Pit Eval., p. 4) In addition, the Water Treatment Evaluation concluded that the process water from the LSDP is the primary source of total dissolved solids, (*Id.*) providing a significant opportunity to dissolved solids at the source.[8]

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[6] See EPA, *A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams,* Final Report EPA/600/R-10/023F (March 2011), pp. 2-3, available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=233809, last visited Feb. 16, 2012.

[7] MPCA, *Minnesota Impaired Waters List, 2012 Inventory of all Impaired Waters*, available at http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/assessment-and-listing/303d-list-of-impaired-waters.html, last visited Feb. 15, 2012.

[8] The Water Treatment Evaluation (Nov. 2009) stated at page 2, "a significant contributor to the Area 1 Pit water quality is the return of treated process water from the LSDP. This flow of only 445 gpm, contains 22,000 kg/d of TDS." This 11 percent flow volume was estimated to provide up to 50 percent of the total dissolved solid load.

Where a technology proposed is widely commercially available and source reduction is available to facilitate compliance with water quality standards, "exceptional circumstances" preventing water treatment cannot be demonstrated.

A finding that the need for membrane technology to meet Minnesota water quality standards is an "exceptional circumstance" would also have far-reaching application to other mining projects where advanced treatment has also been proposed. The MPCA stated in its Variance Issue Statement:

> Advanced treatment systems utilizing membrane technology have been proposed to treat scrubber water at U.S. Steel – Keetac and Essar Steel, tailings basin water at U.S. Steel – Minntac and mine and plant site water at PolyMet. (Ex. 1, VIS, p. 8)

Approving the proposed Mesabi Nugget variances would set precedent that requiring use of water treatment technology for mining pollution is "exceptional" in Minnesota, undermining all other Minnesota proposals for membrane technology to ensure compliance with water quality standards.

Although couched as a question of "technological" feasibility, Mesabi Nugget's opposition to water treatment and the MPCA's willingness to allow the proposed variances are primarily economic in nature. Mesabi Nugget's claims of technological infeasibility focus on the infeasibility of implementing water treatment technology to meet the 10 mg/L wild rice sulfate standard. The company has asserted, "No commercial facility exists which has met a water quality standard of 10 mg/L." (Ex. 3, Variance App., p. 7). The Memorandum prepared for Mesabi Nugget by Barr Engineering in May 2011, *Economic Consequences of meeting 10 mg/L Sulfate Standard* makes the same claim that, "Treatment of process wastewaters to 10 mg/L for sulfates is not technically feasible" (M. Hansel, Barr Engineering, *Economic Consequences of meeting 10 mg/L Sulfate Standard* Memorandum, May 31, 2011, attached as Exhibit 8, "Ex. 8, Barr Econ. Memo," p. 1). Since the draft permit proposes seasonal limitations on discharge rather than water treatment technology to meet the 10 mg/L wild rice sulfate standard, these objections appear to be moot.

The Permittee's remaining objections to compliance and the MPCA's apparent willingness to grant variances are fundamentally based on economic infeasibility. These claims are based on insufficient data under Minnesota Rule 7000.7000, Subpart 2(E) and fail to meet the test of "widespread economic and social impact" required under 40 C.F.R. §131.10(g)(6).

The Economic Consequences memorandum from Mesabi Nugget's consultants emphasizes that the capital cost for membrane treatment (reverse osmosis) at the Area 1 pit would be $40.6 million, with annual operations and maintenance of $3.3 million per year, based on achieving a 10 mg/L sulfate standard. (Ex. 8, Barr Econ Memo, p. 2). Assuming the need to treat to a 10 mg/L level, a useful life of equipment of only 20 years and an interest rate of 7 percent, none of which may be reasonable assumptions, and making no explicit allowance for source reduction to minimize sulfate concentrations, Mesabi Nugget's consultants concluded that capital and operating costs to comply with water quality standards would be $14.2 per metric ton of nuggets produced. (*Id.*). They then asserted, based on a comparison with Brazilian Pig Iron prices and an assumed $256/metric ton price for nuggets that water treatment would add 5.5 percent to Mesabi Nugget's cost, resulting in a competitive disadvantage to Mesabi Nugget. (*Id.*, pp. 2-3).

The MPCA, in their Variance Issues Statement, did not challenge any of the above assumptions. The Agency acknowledged that reverse osmosis systems, with and without evaporation/ crystallization are in use for treatment of wastewater generated by other industry sectors in

Minnesota (Ex. 1, VIS, p. 8) and apparently recognized that other systems to treat the high volumes and relatively low concentrations of constituents had been designed and built outside Minnesota. (*Id.*, pp. 7-8). However, despite commercial applications of similar systems to remove salinity, the Variance Issues Statement concluded, "Staff concurs with Mesabi Nugget's assessment on the technical feasibility of this technology as well as on the more general concepts of its uncertainty, costs and practicality. (*Id.*, p. 10) The Agency concluded, "MPCA staff concur with the company's analysis that maintains wastewater treatment alternatives that may theoretically be capable of providing treatment are complex, unproven and therefore economically risky, and even if they were technically feasible would be exceptionally expensive to install and operate at the flows and concentrations projected for their facility." (*Id.*, p. 14-15)

WaterLegacy does not have access to sufficient information to test all of the assumptions contained in the Barr Economic Consequences Memo and carried forward in the MPCA's Variance Issues Statement. It is probable that source reduction of sulfates would reduce treatment costs. It is also likely that use of seasonal discharge limits rather than wastewater treatment to meet the 10 mg/L sulfate standard would reduce costs. It is probable that the useful life of water treatment systems exceeds 20 years and that current interest rates for capital construction are lower than the 7 percent rate assumed by Barr. It is unlikely that the $256/metric ton price for Brazilian Pig Iron is the appropriate price against which to assess treatment costs, since the price for Brazilian Pig Iron has been generally trending up during the past decade and is currently at a price of $450/metric ton.[9] Were these assumptions tested, it is unlikely that compliance with water quality standards would represent 5.5 percent of the price of nuggets.

The MPCA and the EPA must investigate these assumptions asking whether annual revenues of $225,000,000 (assuming 500,000 tons of production and current Pig Iron prices) are too modest to allow Mesabi Nugget to control its own pollution. Using current Brazilian Pig Iron prices, the cost of water quality compliance would drop to 3.2 percent of the price of nuggets. Further analysis of assumptions could further decrease the ratio of cost to price. Is there any cost percentage that Mesabi Nugget would not seek to avoid to maximize its profits? What obligation, if any, do regulators have to protect a company's marginal competitive edge at the expense of enforcing the laws that preserve water quality?

Whatever the accurate percentage of cost to nugget price might be, Mesabi Nugget has not met the requirements under state and federal regulations for granting a variance. The company has provided no financial statements on the status of its business, plant, system or facility with and without the granting of a variance as required by Minn. R. 7000.7000, Subp. 2(E). Mesabi Nugget has made no showing under 40 C.F.R. §131.10(g)(6) that requiring the Company to comply with water quality standards "would result in substantial and widespread economic and social impact."

The record suggests that the Mesabi Nugget plant currently employs over 70 full time employees. (Ex. 1, VIS, p. 14) No information has been provided as to the additional construction jobs and permanent jobs that would provide positive benefits to the economy if Mesabi Nugget were to construct and maintain a water treatment system to comply with existing water quality standards. Further, no information has been provided as to the positive economic and social impact upon anglers, wild rice harvesters and Indian tribal members, among others, if Mesabi Nugget were to comply with Minnesota's water quality standards.

Even if variances were not precluded under Section 131.10(h), the record would not support granting variances for bicarbonates, hardness, total dissolved solids and specific conductance

[9] See Pig Iron Prices, http://www.steelonthenet.com/files/pig_iron.html, last updated on Feb. 9, 2012.

under state rules and federal Section 131.10(g)(6) where appropriate technologies are commercially available, there are no exceptional circumstances and widespread social and economic impact has not been demonstrated. The following relief is appropriate:

> *Reject all proposed variances for bicarbonates, hardness, total dissolved solids and specific conductance.*

CONCLUSION

The proposed Mesabi Nugget draft permit neither complies with state rules nor with the Clean Water Act and federal regulations promulgated to implement the CWA. The permit fails to meet the requirements for State delegated authority under the NPDES program and variances must be denied under the legal framework applied by the EPA's water quality standards branch.

WaterLegacy requests that a hearing be scheduled before the MPCA's Citizens Board and that the MPCA and the EPA take the following actions as described in more detail above:

> *Revise the draft permit so that discharge after WET testing can only occur from September 1 through September 30.*
>
> *Set limits on SD001 sulfate discharge from September 1 through March 31 to protect natural stands of wild rice.*
>
> *If more study is needed to place limits on sulfate discharge from September through March, revise conditions to provide Studies to Determine Sulfate Fate and Transport and Prevent Wild Rice Impairment as described more fully above.*
>
> *Set mercury limits for SW003 (the Area 1 Lake/Reservoir) as well as for SD001.*
>
> *Revise the draft permit so that iron nugget production can only occur after mercury exceedances if Mesabi Nugget has proved that water in the Area 1 pit is not hydrologically connected to surface waters.*
>
> *Revise NPDES/SDS permits to set interim effluent limits for bicarbonates, hardness, total dissolved solids and specific conductance that are at least as stringent as those in the February 24, 2011 permit modification.*
>
> *Reject proposed variances for hardness, total dissolved solids and specific conductance on the grounds such variances would remove existing uses from receiving waters.*
>
> *Reject proposed variances for bicarbonates, hardness, total dissolved solids, and specific conductance on the grounds that they fail to meet state and federal threshold requirements.*

WaterLegacy has focused in our comments on the substantive inadequacies of the proposed Mesabi Nugget NPDES/SDS permit. However, the failure of this permit and variances to follow procedural requirements is also troubling.

Federal regulations require that a fact sheet be provided with the draft permit in any case where a variance is proposed in order to summarize the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit and how the public may comment. 40 C.F.R.§§124.8, 124.56. No such fact sheet was provided by the MPCA, and the public notice released on January 30, 2012 failed to provide any explanation of the rationale

for the proposed variances.[10] The Public Notice also failed to provide members of the public with a contact to provide comments in electronic form.

No information pertinent to the Mesabi Nugget draft permit, variances, studies or discharge monitoring reports was available on the MPCA's web site. WaterLegacy contacted the Agency on January 31, 2012 requesting the variance application, technical reports, and the Agency's justification for variances among other information. Although the MPCA eventually provided over 100 documents (some duplicative) to WaterLegacy in various installments, the Variance Issue Statement was not made available until February 14, more than two weeks after Public Notice was issued for the permit. Incomplete release of documents to the public and to various parties undermines confidence in the process by which the Mesabi Nugget permit and variances were prepared and submitted for public and federal scrutiny.

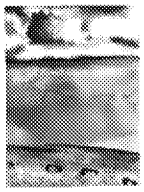
In addition to requesting substantial revisions of the Mesabi Nugget draft NPDES/SDS permit and denial of all proposed variances, WaterLegacy would repeat requests made in other permitting matters that the MPCA provide a more open and transparent permitting process. Please feel free to call me at 651-646-8890 if you have any questions regarding the above comments.

Respectfully submitted,

Paula Goodman Maccabee
Counsel/Advocacy Director for WaterLegacy

cc: Krista McKim, EPA Region 5 (mckim.krista@epa.gov)
Christine Wagener, EPA Region 5 (wagener.christine@epa.gov)

[10] MPCA, *Public Notice of Intent to Reissue NPDES/SDS Permit MN0067687* (January 31, 2012) available at http://www.pca.state.mn.us/index.php/about-mpca/mpca-news/public-notices/public-notices.html, last visited Feb. 16, 2012.



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January 28, 2014

Commissioner John Linc Stine
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Angela Preimesberger (angela.preimesberger@state.mn.us)
Minnesota Pollution Control Agency
520 Lafayette Road North
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RE: Triennial Review of Water Pollution Standards & Variances
Failure of MPCA to Protect Aquatic Ecosystems & Human Health from Mining Pollution

Dear Commissioner Stine, Ms. Preimesberger:

WaterLegacy is a Minnesota non-profit organization formed to protect Minnesota's water resources and the communities that rely on them. The following comments are submitted in connection with Minnesota's Triennial Review of water pollution standards and variances. WaterLegacy is providing members of the Minnesota Pollution Control Agency ("MPCA") Citizens' Board and staff of the United States Environmental Protection Agency ("EPA") with copies of these comments.

WaterLegacy's research and participation in rulemaking, permitting and variance proceedings during the past four years has convinced us that Minnesota's water pollution standards fail to protect human health and aquatic ecosystems from toxic pollutants related to mining; that certain changes in rules currently under consideration by the MPCA would further weaken rather than increase water quality protection; and that the MPCA has repeatedly exercised its discretion to protect mining company interests rather than to serve the public interest.

Where mining facilities are concerned, Minnesota's regulatory process is broken. WaterLegacy would request that the Citizens' Board play a more active role in review of the staff's progress in updating variances and out-of-date mining facility permits that fail to require compliance with water quality standards.

WaterLegacy's Triennial Review Comments can be summarized as follows:

1. Minnesota's water quality standards must be revised to protect human health from toxic pollutants, including arsenic, a known human carcinogen released from mine facilities, and other priority pollutants.

2. Minnesota's water quality standards for aquatic life must be immediately revised to protect aquatic ecosystems from specific conductance, hardness, and total dissolved salts,

a signature suite of chemicals emitted from mining facilities. Providing these standards should take priority over some other revisions to existing aquatic life standards.

3. No changes in Minnesota's water quality standards for specific conductance, hardness, or total dissolved salts related to industrial or agricultural irrigation uses should be considered by the MPCA and no variances should be granted to industrial dischargers for these pollutants until the Agency has set appropriate aquatic life standards.

4. The Citizens' Board should promptly schedule a public discussion on existing mining company variances from pollution standards and should conduct a public meeting before any mining company variance is granted or extended if any citizen requests such public discussion.

Brief explanations of each of our comments are provided below.

1. Minnesota's water quality standards must be revised to protect human health from toxic pollutants, including arsenic, a known human carcinogen released from mine facilities, and other priority pollutants.

Minnesota water quality standards pertaining to surface water discharge are insufficient to protect human health. MPCA's focus on updating health-based water quality standards should begin with arsenic and then focus on other toxic pollutants deemed a priority under state or federal law.

In WaterLegacy's work related to protecting Minnesota from sulfide mining pollution, we've had the chance to review water quality standards pertaining to arsenic. Minnesota's water quality 2.0 μg/L standard for arsenic as a source of drinking water (Class 2A water Minn. R. 7050.0222, subp. 2) is insufficiently protective of human health.

EPA regulations of arsenic for states that do not set their own surface water standards under the Clean Water Act limit arsenic discharge to 0.018 μg/L to protect human health when fish and water are both consumed and to 0.14 μg/L when only fish are consumed. 40 C.F.R. §131.36.[1]

This level of protection is based on a 1 in 1,000,000 cancer risk threshold. States like Washington, which protect human health based on a 1 in 1,000,000 cancer risk, have used the EPA's 0.018 μg/L arsenic criterion in setting TMDL limits for mining pollution.[2] The draft TMDL for arsenic in Iowa's Mississippi River prepared by EPA Region 7 in 2010 was based on an Iowa standard of 0.18 μg/L for arsenic, since Iowa sets limits on carcinogens based on a 1 in 100,000 cancer risk.[3]

Minnesota also has a 1 in 100,000 cancer risk rule. (Minn. R. 4717.7840, subp. 2B). Applying the EPA's Clean Water Act criteria, Minnesotans who consume fish and drink water should be protected from cancer with an arsenic limit of 0.18 μg/L, an order of magnitude more protective

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[1] See also EPA, National Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/criteria/current/
[2] Washington State Department of Ecology, *A Total Maximum Daily Load Evaluation for Arsenic in the Similkameen River*, November 2002, p. 8 http://www.ecy.wa.gov/biblio/0203044.html
[3] EPA Region 7, TMDL Mississippi River (IA 01-NEM-0010_2, IA 03-SKM-0010_1) for Total Arsenic Draft, March 2010, pp. 1-3. http://www.epa.gov/region07/water/pdf/mississippi_river_ia_draft_tmdl.pdf

than the current limit.

Minnesota's risk of cancer due to arsenic exposure in surface water should also take into account the risk of accumulation in wild rice as well as fish, particularly for people who rely on fishing and gathering of wild rice for subsistence. The FDA has recently tested various types of rice and has found arsenic levels in Minnesota wild rice of 6 μg/L.[4]

WaterLegacy recommends that MPCA work with the Minnesota Department of Health and prioritize providing up-to-date water quality standards for arsenic. The MPCA should then use current health-based research to determine if water quality standards for other toxic pollutants are inadequately protective of human health.

2. Minnesota's water quality standards for aquatic life must be immediately revised to protect aquatic ecosystems from specific conductance, hardness, and total dissolved salts, a signature suite of chemicals emitted from mining facilities. Providing these standards should take priority over some other revisions to existing aquatic life standards.

WaterLegacy believes that ongoing discussion of whether to revise aquatic life standards currently in rule pertaining to copper, cadmium and chloride should not be a priority. The MPCA should, however, set as a high priority the development of aquatic life standards for specific conductance, hardness and total dissolved salts.

Specific Conductance
Minnesota Rules limit specific conductance to 1,000 μmhos/cm based on use of waters for agricultural irrigation. Minn. R. 7050.0224, subp. 2. Minnesota sets no limit on specific conductance to protect aquatic life.

In other ecoregions impacted by mining, EPA has set limitations on specific conductance in order to protect aquatic life from salt mixtures that elevate conductivity. EPA set the chronic aquatic life benchmark value for conductivity derived from all-year data at 300 μS/cm (equivalent to 300 μmhos/cm) for West Virginia and Kentucky, stating that this standard is also expected to be applicable to ecoregions extending into Ohio, Pennsylvania, Tennessee, Virginia, Alabama, and Maryland.

EPA noted that this benchmark is likely to apply when dissolved ions are dominated by salts of Ca^{2+}, Mg^{2+}, SO_4^{2-} and HCO_3^- particularly where natural background levels are lower. EPA explained, "the salt mixture dominated by salts of SO_4^{2-} and HCO_3^- is believed to be an insurmountable physiological challenge for some species." (EPA, *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*, Final Report, EPA/600/R-10/023F, March 2011, p. xv[5]).

EPA has also stated as a general rule that specific conductance above 500 μhos/cm may have the potential to impair aquatic life. EPA's web site summarizes, "Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a range between 150 and 500

[4] FDA, U.S. Food and Drug Administration Analytical Results from Inorganic Arsenic in Rice and Rice Products Sampling, September 2013. http://www.fda.gov/downloads/Food/FoodborneIllnessContaminants/Metals/UCM352467.pdf
[5] http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=233809#Downloadd (last visited Jan. 28, 2014)

μhos/cm. Conductivity outside this range could indicate that the water is not suitable for certain species of fish or macroinvertebrates."[6]

Hardness – Invasive Species

Minnesota's only limits for hardness, measured as calcium and magnesium, are in rules protecting industrial consumption. The limits for hardness vary based on the type of industrial use in receiving waters and range from 50 mg/L for Class 3A industrial uses up to 500 mg/L in Class 3C waters to prevent severe fouling or other unsatisfactory industrial conditions. Minn. R. 7050.0223. These limits are inadequate to protect Northeastern Minnesota waters from invasive species for which mining pollution creates favorable conditions.

Lakes and streams in Northeastern Minnesota have low natural levels of hardness. Un-impacted waters in the Lake Superior Basin and north of the Laurentian divide are likely to contain low levels of calcium (10 to15 mg/L). These natural conditions protect against invasion by zebra mussels. Increase in calcium as a result of use of lime and other compounds by mining facilities threatens existing aquatic uses that would be impacted by this invasive species.

Recent research has found that calcium is a limiting factor for zebra mussels, so preserving natural low levels of calcium (less than 15 mg/L) from mining discharge would effectively slow if not stop invasive mollusks such as zebra mussels. Studies show that larval production for zebra mussels increases dramatically when hardness exceeds 24 mg/L.[7] There is a calcium threshold for zebra mussels, with good adult survival between 20 mg/L and 30 mg/L and "many abundant, reproducing populations" above 28 mg/L.[8]

The industrial limit of 50 mg/L, even if rigorously applied, would not provide adequate protection from the zebra mussel invasive species. Minnesota must set an aquatic life standard to prevent the spread of invasive mollusks, such as the zebra mussel, to lakes and streams in Northern Minnesota.

Total Dissolved Salts

Minnesota rules limit total dissolved salts for agricultural irrigation uses to 700 mg/L. Minn. R. 7050.0224, subp. 2. This rule is insufficient to protect aquatic life and naturally growing plants in aquatic ecosystems from high levels of salts.

Peer-reviewed literature concludes that major ion imbalances can produce toxic effects in bioassays for fish and macroinvertebrates.[9]

Plant osmotic balances, as well, can be harmed by dissolved salts. In 1975, John Moyle prepared a literature review on this issue for the MPCA which summarized, "At higher concentrations (several hundred ppm) sulfates probably have an adverse osmotic effect, upsetting absorptive

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[6] EPA, *What is conductivity and why is it important*? http://water.epa.gov/type/rsl/monitoring/vms59.cfm last visited Jan. 28, 2014.
[7] Cal. Dept. Water Resources, *A Review of Zebra Mussels' Environmental Requirements* (2005), p. 4. http://cdm16658.contentdm.oclc.org/cdm/ref/collection/p267501ccp2/id/690
[8] *Id.*, p. 29.
[9] See e.g. "Major Ion Toxicity in Effluents: A Review With Permitting Recommendations," *Environmental Toxicology and Chemistry*, Vol. 19, No.1 pp. 175-182, 2000; "Toxicity of Total Dissolved Solids Associated With Two Mine Effluents To Chironomid Larvae And Early Life Stages of Rainbow Trout," *Environmental Toxicology and Chemistry*, Vol. 19, No. 1 pp. 210-214, 2000.

and water-regulating systems of the plant."[10] Moyle also testified in the Clay Boswell case as to well-known scientific evidence that high levels of salts have an adverse impact on aquatic plants as a result of "an osmotic effect; that is, the high concentrations in the water prevent the plant from taking in the nutrients it needs in the water. It sort of dries up the plant, you might say."[11]

The MPCA should place the highest priority on revising aquatic life standards to protect fish and aquatic ecosystems from specific conductivity, hardness and total dissolved salts.

3. No changes in Minnesota's water quality standards for specific conductance, hardness, or total dissolved salts related to industrial or agricultural irrigation uses should be considered by the MPCA and no variances should be granted to industrial dischargers for these pollutants until the Agency has set appropriate aquatic life standards.

In numerous informal conversations, MPCA staff and EPA staff have acknowledged that Minnesota water quality standards are insufficient to protect aquatic life from specific conductance, hardness and total dissolved salts.

In 2012, the MPCA listed dozens of new waters in Minnesota's Arrowhead Region that are impaired due to fish and macroinvertebrate bioassessments under Clean Water Act Section 303(d). Preliminary investigations suggest that toxicity is among the stressors resulting in impairments to these waters.

Since Minnesota's *Regional Copper Nickel Study* in the late 1970's, researchers have know that disturbance from mining features increased dissolved ions resulting in median specific conductance levels almost six times higher than background sites.[12] In their Cumulative Effects Analysis for the PolyMet NorthMet sulfide mine project, Tribal Cooperating Agencies confirmed that elevated specific conductance is a water chemistry "signature" for mining discharges.[13]

Tribal analysis demonstrated that specific conductance was highest nearest to mine discharge sites, and tended to only gradually decrease downstream of mine discharge sites. Linear regressions demonstrated that specific conductance was significantly negatively related to distance across all sample sites. Tribal analysis included stream and river monitoring only (not lakes). The regression suggests that specific conductance could drop to 150 μS/cm only 203 km (126 mi) downstream of the nearest upstream mine discharge site.[14]

The mining industry is seeking relief from even the modest limitations now provided under Minnesota rules for specific conductance, hardness and total dissolved salts through variances. The industry is also asking that current agricultural irrigation rules and industrial use rules should be amended to further weaken limits on these chemical discharges.

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[10] John Moyle, *Review of the Relationship of Wild Rice to Sulfate Concentration of Waters*, Memo for MPCA, March 16, 1975, p. 3
[11] Excerpts of Hearing Testimony, *In the Matter of the Applications for NPDES Permits for Minnesota Power & Light Co. (Clay Boswell)* March 19, 1975.
[12] Thingvold *Water Quality Characterization of the Copper Nickel Research Area*, Dec. 1979, p. 18, Legislative Library # TN443.M6M55#153.
[13] PolyMet NorthMet SDEIS (December 2013), pdf p. 2053.
[14] *Id.*

Neither mining facility variances nor modifications of the agricultural or industrial limits for specific conductance, hardness or total dissolved salts should even be considered until the MPCA has enacted appropriate rules to protect fish, macroinvertebrates and naturally growing plants in aquatic ecosystems from this suite of potential mining pollutants.

4. The Citizens' Board should promptly schedule a public discussion on existing mining company variances from pollution standards and should conduct a public meeting before any mining company variance is granted or extended if any citizen requests such public discussion.

Half of MPCA's six active variances from water quality standards allow mining company facilities to exceed pollution standards. Looking only at industrial facilities, 75 percent of Minnesota's variances from water quality standards are for mining company pollution. This disproportion reflects the special dispensation given by the Agency when mining facilities oppose compliance with Minnesota water pollution rules. This special treatment for mining interests must stop.

Variances are modifications to approved water quality standards subject to EPA approval and must be reviewed every three years under applicable federal law. 40 C.F.R. §131.13. The EPA limits the effective term of state NPDES/SDS permits to five years. 40 C.F.R. §122.46(a). Yet, there is no regular process where MPCA variances are reviewed, and many mining permits are both inadequate and long-expired.

The last permit issued by the MPCA for the Dunka Mine was on August 3, 2000. It expired on June 30, 2005, more than 8 years ago. That permit (NPDES/SDS permit MN0042579) contained a variance for discharges that are acutely toxic to aquatic life. The permit also provided that the MPCA could require that a long-closed water treatment plant resume operation if discharge exceeded the variance limits. Discharge monitoring reports show numerous violations, yet the treatment plant has not operated for at least two decades.

Since 2009, WaterLegacy has asked the MPCA to review the Dunka Mine variance. In March 2011, WaterLegacy asked the Commissioner to issue a new permit setting limits to protect aquatic life and human health not provided in the expired permit, namely: limits on mercury discharge affecting mercury impaired waters; limits on sulfate discharge affecting wild rice waters; limits on specific conductivity and hardness; and limits based on chronic standards for metals, such as copper, cobalt, nickel and zinc that are known to be toxic to aquatic life. As with other mining facility permits, the MPCA has failed to update expired and inadequate permits and variances.

WaterLegacy and others are currently litigating the variance for Mesabi Nugget in federal court. On February 18, 2012, WaterLegacy requested that the Mesabi Nugget draft permit variance be denied because the proposed permit and variance violated state rules and federal regulations limiting the scope of variances, and because the pollutants that would be discharged would adversely affect natural wild rice and aquatic life. It should be noted that the Mesabi Nugget variance was granted for the Lake Superior Basin and affects internationally protected high value waters.

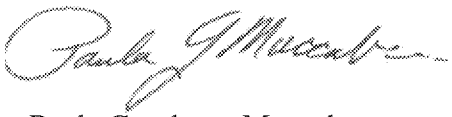
The United Taconite (UTAC) Thunderbird Mine variance allows the facility to discharge at pH levels up to 9.3, which exceeds the pH standards in two receiving waters.[15] The variance was apparently last reviewed in 1999. Discharge monitoring reports at the existing UTAC tailings basin show repeated exceedances of Minnesota's water quality standards for specific conductance and total dissolved salts.[16] Seepage from the UTAC tailings basin discharging as much as 20,000 gallons per day (SD001) has consistently exceeded 300 mg/L in sulfate concentration, potentially impacting nearby wild rice lakes identified by the Minnesota Department of Natural Resources[17] as well as wild rice in the St. Louis River.

MPCA's allowance of mining facility variances, along with an indeterminate and uncertain review process, threatens aquatic ecosystems, human health and public confidence in the regulatory process.

WaterLegacy requests that the MPCA promptly schedule a public discussion before the Citizens' Board on the existing mining company variances from pollution standards and conduct a public meeting before granting or extending any mining company variance request if any citizen requests such a discussion. WaterLegacy also requests that rule changes that protect human health and aquatic life from toxic pollutants and chemical stressors be prioritized, as described above.

Thank you for your consideration. Please feel free to contact me at 651-646-8890 if you have any questions regarding our comments.

Sincerely yours,



Paula Goodman Maccabee
Advocacy Director/Counsel for WaterLegacy

cc. MPCA Citizens Board
U.S. EPA Region 5

[15] Request For Issuance Of A Variance From Agency Rules Regarding pH Water Quality Standards Applicable To Outfalls SD007 And SD009 For NPDES Permit MN044946 Issued to EVTAC Mining For The Thunderbird Mine, MPCA, June 1999.
[16] DMRS, 2000 to 2012, MN0052116 United Taconite Fairlane/Tailings Basin received from MPCA.
[17] *Id.* and MDNR, Natural Wild Rice in Minnesota, *supra*, pp. 79, 81(Perch, Stone, East Stone and Anchor Lake).

ATTACHMENT 4

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STATE OF MINNESOTA

Minnesota Pollution Control Agency

Industrial Division

National Pollutant Discharge Elimination System (NPDES)/
State Disposal System (SDS) Permit MN0067687

PERMITTEE:	Mesabi Nugget Delaware LLC		
FACILITY NAME:	Mesabi Nugget		
RECEIVING WATER:	Second Creek (Class 2B,3C,4A,4B,5,6 water)		
CITY OR TOWNSHIP:	Hoyt Lakes	**COUNTY:**	St. Louis
ISSUANCE DATE:		**EXPIRATION DATE:**	

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to operate a disposal system at the facility named above and to discharge from this facility to the receiving water named above, in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with Minnesota and U.S. statutes and rules, including Minn. Stat. chs. 115 and 116, Minn. R. chs. 7001, 7050, 7052, 7053, 7060, 7090.3000 through 7090.3080, and the U.S. Clean Water Act.

This permit is effective on the issuance date identified above, and supersedes the previous permit that was issued for this facility on July 29, 2005, and most recently modified February 24, 2011. This permit expires at midnight on the expiration date identified above.

Signature: _____

Jeff Udd, P.E.
Supervisor, Water Quality Permits Unit
Land and Water Quality Permits Section
Industrial Division

for The Minnesota Pollution Control Agency

Submit DMRs to:
Attention: Discharge Monitoring Reports
Minnesota Pollution Control Agency
520 Lafayette Rd N
St Paul, MN 55155-4194

Submit Other WQ Reports to:
Attention: WQ Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Rd N
St Paul, MN 55155-4194

Questions on this permit?

- For DMR and other permit reporting issues, contact: Tamara Dahl, 507-476-4252.
- For specific permit requirements or permit compliance status, contact: John Thomas, 218-302-6616.
- General permit or NPDES program questions, contact: MPCA, 651-282-6143 or 1-800-657-3938.

Table of Contents

Permitted Facility Description 3
Aerial Map of Permitted Facility 7
Summary of Stations and Station Locations 8
Limits and Monitoring Requirements 9

Chapter 1. Surface Discharge Stations 15
1. Requirements for Specific Stations
2. Sampling Location
3. Surface Discharges
4. Discharge Monitoring Reports
5. Winter Sampling Conditions
6. Prohibited Discharges
7. Special Requirements
8. Variances

Chapter 2. Surface Water Stations 21
1. Requirements for Specific Stations
2. Discharge Monitoring Reports
3. Sampling Location
4. Sampling Protocol
5. Winter Sampling Conditions

Chapter 3. Waste Stream Stations 22
1. Requirements for Specific Stations
2. Special Requirements
3. Sampling Location

Chapter 4. Whole Effluent Toxicity (WET) Testing – Chronic 23
1. General Requirements
2. Species and Procedural Requirements
3. Quality Control and Report Submittals
4. Positive Toxicity Result for WET
5. WET Data and Test Acceptability Criteria (TAC) Submittal
6. Permit Re-opening for WET
7. Whole Effluent Toxicity Requirement Definitions

Chapter 5. Special Requirements 25
1. Special Requirements

Chapter 6. Industrial Process Wastewater 30
1. Prohibited Discharges
2. Chemical Additives
3. Toxic Substance Reporting
4. Mobile and Rail Equipment Service Areas
5. Polychlorinated Biphenyls (PCBs)
6. New Proposed Dewatering
7. Application for Permit Reissuance

Chapter 7. Stormwater Management 33

1. Authorization
2. Water Quality Standards
3. Stormwater Pollution Prevention Plan
4. Employee Training Program
5. Inspection and Maintenance
6. Good Housekeeping & Control Measures
7. Sedimentation Basin Design and Construction
8. Application of Chemical Dust Suppressants
9. Reporting
10. Records
11. Notification
12. Request for Termination of Stormwater Permit Coverage
13. Definitions

Chapter 8. Total Facility Requirements 38

1. General Requirements

Facility Description

The Mesabi Nugget Delaware, LLC facility (facility) is located in Section 24, Township 59 North, Range 15 West, Aurora, St. Louis County, Minnesota. The principal activity at this facility is the production of iron nuggets from iron ore concentrate at a rate of 600,000 metric tons per year (661,400 short tons per year). The nuggets are approximately 96-98% iron, and can be fed directly into electric arc furnaces (mini-mills) as well as to foundries and blast furnaces at conventional integrated iron and steel manufacturing facilities. The facility consists of all manufacturing, conveyance and storage facilities, the Area 1 Pit, and non-sewage wastewater treatment systems within the area designated on the map included in this permit for water treatment.

Raw materials for nugget manufacturing consists of iron ore concentrate, various coals, fluxes, and binders. All raw materials are delivered by rail, truck, pneumatic truck, or in bulk supersacks with the iron ore concentrate stored in storage piles and the other raw materials stored in bins and/or storage piles in an adjacent storage yard.

Coals, fluxes, binders, and iron ore concentrate are mixed and formed into green balls (similar to taconite operations). The balls are dried and fed to a rotary hearth furnace where they undergo reduction and are converted to metallic iron and slag material. The iron and slag are cooled and separated, and then loaded directly into rail cars or stored in onsite piles for shipment at a later date.

Mesabi Nugget appropriates water from the Area 1 Pit at an approximate average and maximum rate of 2.9 million gallons per day – MGD (2000 gallons per minute – gpm) and 7.2 MGD (5000 gpm), respectively. This water is supplied for process temperature control (contact and non-contact cooling) and for process water, including for the wet scrubber system. If additional water is needed, water can be supplied from the Area 2WX or Area 9 Pits. For water conservation purposes, a majority of the makeup water is sequentially cycled and cascaded from the clean (non-contact) cooling system to the process (contact) cooling system to a wet scrubber air pollution control system. Rotary hearth off-gases are passed through the wet scrubber system for control of particulates, sulfur dioxide, acid gases and metals, including mercury. Blowdown from the scrubber system, at an approximate average and maximum rate of 1100 gpm and 2000 gpm is routed to a multi-stage wastewater treatment system for treatment prior to discharge. A portion of the makeup water that is used for once-through, non-contact cooling and seal water (approximate average 400 gpm and maximum 800 gpm) is routed directly back to the Area 1 Pit.

The wastewater treatment system employs chemical coagulation and precipitation, followed by filtration through a Mesabi Nugget developed filtration system (MNC Mercury Filter – patented) for enhanced mercury removal (if needed to meet permit limits). Chemical precipitation is accomplished using a one stage metals removal and softening system employing lime, ferric chloride, cationic and anionic polymers and caustic soda. The precipitate generated is passed through a filter press or other filtration device with the solids disposed off site in an approved landfill, or used for beneficial reuse upon approval. The effluent from the chemical precipitation system is then routed through the first of two MNC Mercury Filter units, (if needed to meet permit limits), for mercury removal, and from there into a multimedia filter, and then the west end of the Area 1 Pit. The MNC Mercury Filter units are proprietary filtration systems utilizing taconite tailings as the filtration media. Water from the east end of the Area 1 Pit can then be routed into a second MNC Mercury Filter Unit for final mercury removal prior to discharge, if needed to meet permit limitations. The final treated effluent is piped through Outfall SD001 for direct discharge to Second Creek at an average and maximum rate of 1.5 MGD (1065 gpm) and 5.8 MGD (4000 gpm) respectively. Second Creek is a Class 2B, 3C, 4A, 4B, 5 and 6 water under Minn. R. Ch. 7050.0430 and an Outstanding International Resource Water (OIRW) according to Minn. R. Ch. 7052. Outfall SD001 is the same outfall as was previously permitted as Outfall SD003 in the NPDES/SDS permit for the Cliffs Erie (formerly LTV Steel Mining Company) Mining Area (MN0042536).

A variance from the Class 3C water quality standard for hardness and the Class 4A water quality standards for specific conductance, total dissolved salts (solids) and bicarbonates is included in this permit. As a result of the variance, the permit includes interim effluent limitations for the variance parameters during the life of this permit reissuance with final effluent limitations becoming effective as defined by the variance schedule in the permit language. Stream monitoring upstream and downstream of the discharge point for the variance parameters is required.

Tailings to be used as the filtration media in the MNC Mercury Filter Units will be obtained from ArcelorMittal near Virginia, Minnesota or other locations upon approval. Spent filtration media removed from the MNC Mercury Filter Units will be disposed of at an approved location or solid waste disposal facility. Slag generated during the nugget manufacturing process, at an approximate rate of 100,000 metric tons per year, will be stored on site for future sale or beneficial reuse or disposed of at an approved facility or location.

Chemical additives proposed for use at the water treatment system include various softening agents and water treatment chemicals in the makeup water softening system, various anti-scalants, corrosion inhibitors and biocides in the cooling water systems, and various softening agents, flocculants, pH adjusters and polymers in the wastewater treatment systems. Chemical additives and their usage rates are approved for use through the process described in Chapter 8, with additives already approved as of permit reissuance listed in Chapter 6. Dust suppression at the storage area will be accomplished primarily with water application, with the supplemental use of approved chemical dust suppressants.

Stormwater from the plant area and the raw material/product storage areas will be collected and routed to two on-site sedimentation basins for solids settling. The east sedimentation basin has a manual valve which is connected to Area 1 Pit as well as a sump pump and piping which connects to the on-site water treatment system. The west sedimentation basin does not have a physical outlet structure. Excess stormwater from the west sedimentation basin is manually pumped to the on-site water treatment system. Water treated by the onsite treatment system is directed to the Area 1 Pit, and subsequent discharge through Outfall SD001. Sewage generated at the facility is stored in a holding tank and hauled to local municipal wastewater treatment plants.

The Permittee is authorized to transfer water to and from the Area 1 Pit to and from the Area 2WX Pit for the purposes of managing facility water inventory and minimizing the impact of the SD001 discharge on the receiving water, as authorized by the previous permit.

The location of the facility is shown on the "Topographical Map of Permitted Facility" page. The location of designated monitoring stations is specified on the "Summary of Stations and Station Locations" page.

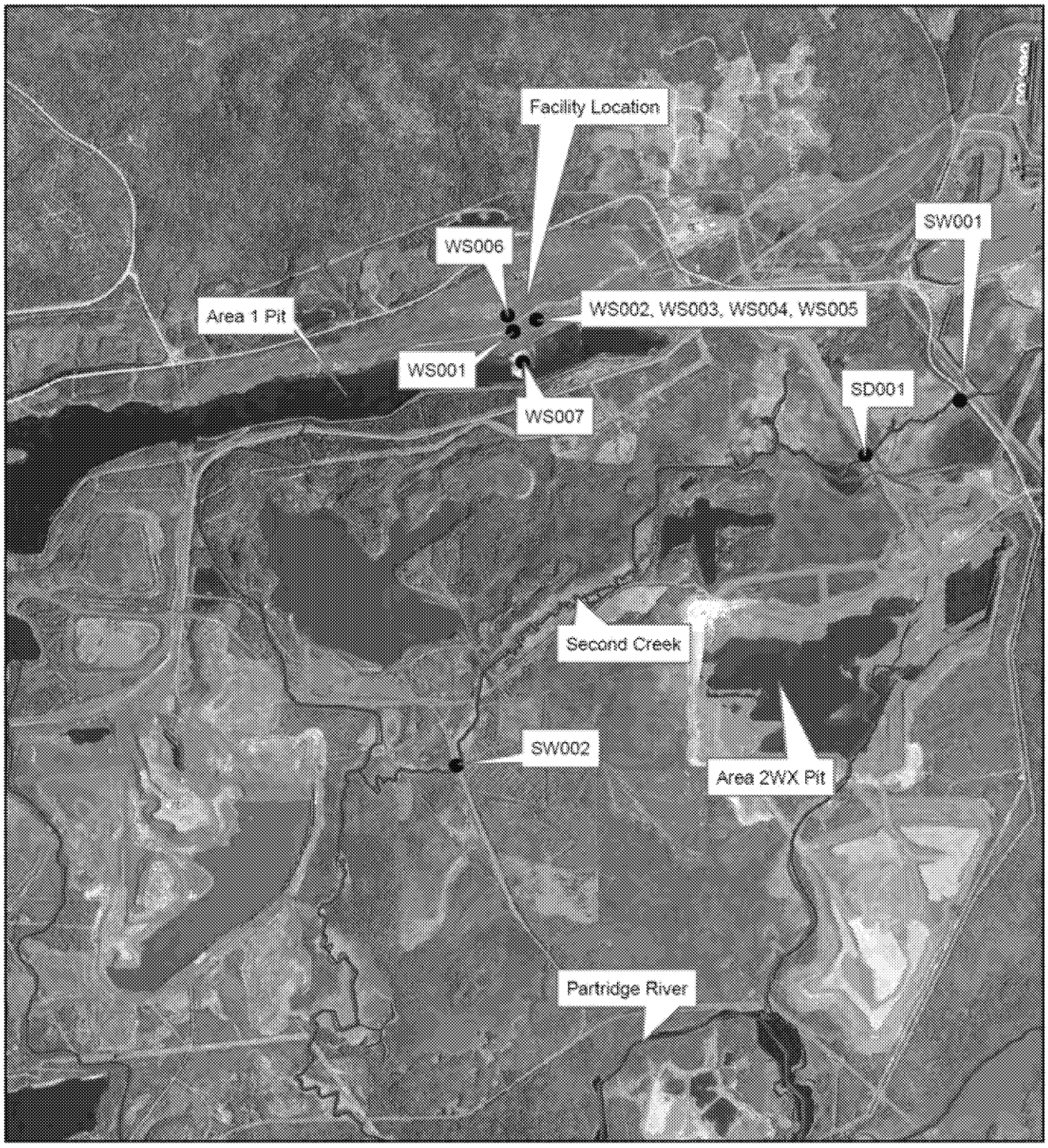
In accordance with MPCA rules regarding nondegradation for all waters that are not Outstanding Resource Value Waters, nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is: (1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day to any water other than a Class 7 water or (2) an expanded discharge that expands by greater than 200,000 gallons per day that discharges to any water other than a Class 7 water or (3) a new or expanded discharge containing any toxic pollutant at a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality. The flow rate used to determine significance is the design **maximum daily** flow. The January 1, 1988, design **maximum daily** flow for this facility is 14.4 mgd.

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

Any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the MPCA that contains effluent limits more stringent than those that would be established by MInn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.

Aerial Map of Permitted Facility

MN0067687, Mesabi Nugget Delaware, LLC
T59N, R15W, Section 24
Aurora, St. Louis County, Minnesota



Map produced by MPCA Staff 9/26/2012
Source: USGS Aurora Quad
Scale: 1:36,000

0 0.15 0.3 0.6 0.9 1.2 Miles

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Mesabi Nugget Delaware, LLC
Summary of Stations

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Surface Discharge Stations

Station	Type of Station	Local Name	PLS Location
SD001	Effluent To Surface Water	Area 1 Pit to Second Creek	SE Quarter of the NW Quarter of the SW Quarter of Section 20, Township 59 North, Range 14 West

Surface Water Stations

Station	Type of Station	Local Name	PLS Location
SW001	Stream/River/Ditch, Upstream	Second Cr. - Upstream	NE Quarter of Section 20, Township 59 North, Range 14 West
SW002	Stream/River/Ditch, Downstream	Second Cr. - Downstream	SW Quarter of Section 25, Township 59 North, Range 15 West

Waste Stream Stations

Station	Type of Station	Local Name	PLS Location
WS001	Influent Waste	Influent to Wastewater Treatment System	NE Quarter of the NW Quarter of Section 24, Township 59 North, Range 15 West
WS002	Internal Waste Stream	Influent to Tailings Filter #1	NE Quarter of the NW Quarter of Section 24, Township 59 North, Range 15 West
WS003	Internal Waste Stream	Dschrg fr Tailings Filter #1 to Pit 1	SE Quarter of Section 21, Township 59 North, Range 15 West
WS004	Internal Waste Stream	Influent fr Pit 1 to Tailings Filter #2	SW Quarter of the NE Quarter of the NW Quarter of Section 19, Township 59 North, Range 14 West
WS005	Solids to Land Disposal/Non-application	Spent Tailings Disposal	NW Quarter of Section 24, Township 59 North, Range 15 West
WS006	Solids to Land Disposal/Non-application	Slag Disposal	NW Quarter of Section 24, Township 59 North, Range 15 West
WS007	Water Intake	Area 1 Pit	NW Quarter of Section 24, Township 59 North, Range 14 West

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: ***Limits Applicable in the Interim Period***

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Aluminum, Total (as Al)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Arsenic, Total (as As)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Bicarbonates (HCO3)	362	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	5
Bicarbonates (HCO3)	378	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	5
Boron, Total (as B)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Cadmium, Total (as Cd)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chromium, Total (as Cr)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chronic Toxicity Testing	1	TUc	Monthly WET Testing	Jan-Dec, effective November 01, 2012	24-Hour Flow Composite	1 x Month	
Cobalt, Total (as Co)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Copper, Total (as Cu)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	1
Fluoride, Total (as F)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	831	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	863	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Lead, Total (as Pb)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Manganese, Total (as Mn)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Mercury, Total (as Hg)	1.8	ng/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	0.000070	kg/day	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	3.2	ng/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Nickel, Total (as Ni)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
pH	8.5	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH	6.5	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Selenium, Total (as Se)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	1160	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Solids, Total Dissolved (TDS)	1228	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	1.4	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	2.9	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance	1889	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	2 x Month	
Specific Conductance	1965	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Thallium, Total (as Tl)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Zinc, Total (as Zn)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

SW 001, SW 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

WS 001, WS 002, WS 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	5
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

WS 005, WS 006

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mass Transported From Facility	Monitor Only	ton/mo	Calendar Month Total	Jan-Dec	Measurement	1 x Month	

WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
pH	Monitor Only	SU	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	4
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

Period: Limits Applicable in the Final Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Aluminum, Total (as Al)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Arsenic, Total (as As)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Bicarbonates (HCO3)	257	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	5
Bicarbonates (HCO3)	267	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	5
Boron, Total (as B)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Cadmium, Total (as Cd)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: ***Limits Applicable in the Final Period***

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chromium, Total (as Cr)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chronic Toxicity Testing	1	TUc	Monthly WET Testing	Jan-Dec, effective November 01, 2012	24-Hour Flow Composite	1 x Month	
Cobalt, Total (as Co)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Copper, Total (as Cu)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	1
Fluoride, Total (as F)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	512	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	532	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Lead, Total (as Pb)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Manganese, Total (as Mn)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Mercury, Total (as Hg)	1.8	ng/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	0.000070	kg/day	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	3.2	ng/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Nickel, Total (as Ni)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
pH	8.5	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH	6.5	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Selenium, Total (as Se)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	726	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Dissolved (TDS)	768	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	1.4	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	2.9	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance	1025	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	2 x Month	
Specific Conductance	1066	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Thallium, Total (as Tl)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Zinc, Total (as Zn)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

SW 001, SW 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

WS 001, WS 002, WS 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	5
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

WS 005, WS 006

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mass Transported From Facility	Monitor Only	ton/mo	Calendar Month Total	Jan-Dec	Measurement	1 x Month	

WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
pH	Monitor Only	SU	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	4
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

Notes:
1 -- See Chapter 1.7.3
2 -- Use EPA analytical method 200.8.
3 -- Use EPA clean-sampling method 1669 and EPA analytical method 1631
4 -- Use EPA clean-sampling method 1669 and EPA analytical method 1631.
5 -- as CaCO3

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Chapter 1. Surface Discharge Stations

1. Requirements for Specific Stations

1.1 SD 001: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

2. Sampling Location

2.1 Samples for Station SD001 shall be taken at the discharge structure leading to Second Creek.

2.2 Samples and measurements required by this permit shall be representative of the monitored activity.

3. Surface Discharges

3.1 Floating solids or visible foam shall not be discharged in other than trace amounts.

3.2 Oil or other substances shall not be discharged in amounts that create a visible color film.

3.3 The Permittee shall install and maintain outlet protection measures at the discharge station SD001 to prevent erosion.

4. Discharge Monitoring Reports

4.1 The Permittee shall monitor Outfall SD001 according to the requirements in the Limits and Monitoring Section of this permit whenever a discharge occurs whether the manufacturing facility is operating or not.

4.2 The Permittee shall submit monitoring results for discharges in accordance with the limits and monitoring requirements for this station. If no discharge occurred during the reporting period, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR).

5. Winter Sampling Conditions

5.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

6. Prohibited Discharges

6.1 To minimize the potential impact to wild rice resources in downstream waters, the Permittee shall not discharge from Outfall SD001 from April 1 through August 31 of each year.

6.2 To minimize the potential for a discharge with chronic toxicity characteristics, the Permittee shall not discharge from Outfall SD001 from August 1 through September 30 of each year unless it can demonstrate through a Chronic Whole Effluent Toxicity Test conducted on Area 1 Pit water during that time period that a discharge would not exceed 1.0 chronic toxicity units (TUc). Facility discharge shall in no case resume prior to September 1, consistent with the requirements in 6.1 above.

6.3 The Permittee may submit, by September 30 of each year, the results of a chronic Whole Effluent Toxicity (WET)Test conducted at a point representative of SD001 at any time during the August 1 through September 30 timeframe of that year for approval. The Permittee shall not discharge, consistent with the requirements in 6.1 above during August 1 through August 31, regardless of WET test result. The Permittee shall not discharge during the September 1 to September 30 period until MPCA receives the passing chronic WET test result, (<1.0 TUc), for this discharge. The Permittee may provide such result to MPCA via U.S. mail, electronic, private carrier, courier or hand delivery.

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Chapter 1. Surface Discharge Stations

7. Special Requirements

7.1 If the data from monitoring at Outfall SD001 establishes exceedences of the mercury monthly average effluent limitation of 1.8 ng/L three times in any rolling 12-month period or four times in any 60-month period, the Permittee shall cease discharge through SD001 until such time compliance with the mercury monthly effluent limitations can be achieved.

7.2 Upon exceedance of the mercury monthly average effluent limitation as described in Part 7.1 above, the Permittee shall immediately notify the MPCA and comply with the requirements of Part 7.1. In addition, within 14 calendar days of the occurrence of conditions under Part 7.1, the Permittee shall submit for MPCA approval a written plan of the specific course of actions the Permittee will take to comply with the provisions of this Section 7.

The Permittee shall not implement the proposed course of actions until such time that it has received approval of the plan in writing from the MPCA.

7.3 The Permittee may, for the purpose of creating storage capacity in the Area 1 Pit, draw down the Area 1 Pit water level by discharging pit water through Outfall SD001 outside of the period of prohibited discharge as described in Part 6 of this chapter above.

Such discharge may occur provided that the discharge does not exceed 5.8 MGD and that the discharge fully complies with the applicable effluent limitations specified in the Limits and Monitoring Section of this permit.

The Permittee shall not draw the Area 1 Pit water level down by more than the amount representing three years of storage capacity at normal wastewater flows, so as to provide an adequate in-pit mixing ratio for the purpose of maintaining pit water quality at concentrations that will be able to attain compliance after treatment with effluent limitations upon eventual discharge. The determination of the three years storage capacity shall include all hydrologic inputs into the pit including wastewater flows, groundwater inflow and precipitation/runoff inflows.

7.4 If the conditions under Part 7.1 above occur and the Permittee ceases discharges through Outfall SD001, the Permittee may continue iron nugget production provided the following conditions are met:

a. The Permittee has notified the MPCA in accordance with Part 7.2 above;

b. The Permittee has storage capacity in the Area 1 Pit, such that an ongoing discharge through SD001 will not occur;

c. Any wastewater generated by the facility during continued iron nugget production continues to be treated through the chemical precipitation and mercury filtration system of the wastewater treatment facility as necessary prior to routing to the Area 1 Pit;

d. The Permittee is actively implementing the course of actions identified in the approved plan required by Part 7.2 above; and

e. The Permittee maintains a minimum freeboard in the Area 1 Pit representing six months of hydrologic inputs into the pit, including wastewater flow at normal rates of operation, groundwater inflow, and precipitation/runoff inflows. For the purpose of this provision, freeboard is defined as the difference in elevation between the Area 1 Pit water level and the elevation at which the Area 1 Pit would otherwise outlet or overflow. This provision to maintain a minimum 6 month freeboard in the Area 1 Pit is applicable if exceedances of the mercury monthly average effluent limitation as described in Part 1.7.1 above have occurred.

Notwithstanding the provisions of this Chapter, the Permittee shall remain responsible for the financial assurance requirements in Chapter 5, Sections 1.15 to 1.26. The Permittee shall provide for treatment for mercury until such time that the water quality of the Area 1 Pit meets water quality standards for mercury.

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Chapter 1. Surface Discharge Stations

7. Special Requirements

7.5 The provisions of this Chapter do not relieve the Permittee from any responsibilities, liabilities or penalties for violations of effluent limitations and water quality standards that may have occurred.

7.6 Notwithstanding the provisions of this Chapter, nothing in this permit waives the rights or ability of the MPCA to require the Permittee to implement additional remedial and corrective actions, mitigation, and/or other actions that the MPCA deems necessary for the Permittee to comply with the effluent limitations and other terms and conditions of this permit.

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Chapter 1. Surface Discharge Stations

8. Variances

Variance

8.1 The Permittee is granted a variance from the provisions in Minn. R. 7050.0223 Subp.3, that specifies the Class 3C (industrial consumption) water quality standard of 500 mg/L for hardness and in Minn. R. 7050.0224 Subp. 2, that specifies the Class 4A (agricultural and wildlife) water quality standards of 1000 umhos/cm for specific conductance, 700 mg/L for total dissolved solids (salts), and 5 meq/L for bicarbonates (HCO3) for Outfall SD001 in accordance with the variance procedures established in Minn. R. pts. 7000.7000 and 7050.0190. The Permittee shall comply with the applicable effluent limitations for hardness, specific conductance, total dissolve salts (solids), and bicarbonates for Outfall SD001 specified in the Limits and Monitoring Requirements of this permit.

8.2 For as long as this variance is in effect, it shall be the responsibility of the Permittee to make reasonable progress towards attainment of the water quality standards. To accomplish this, the Permittee shall investigate and implement the requirements of this chapter to establish reasonable progress toward meeting the water quality based Final Effluent Limitations for hardness, TDS, specific conductance and bicarbonates until such time as compliance is attained. The requirements in conditions 1.8.1 through 1.8.23 and 6.7.3 cease to apply if the Permittee achieves compliance with applicable water quality based Final Effluent Limitations for hardness, specific conductance, TDS and bicarbonates without the use of a variance for those parameters, and receives confirmation of compliance from MPCA.

8.3 This permit and variance may be modified by the MPCA if revisions to water quality standards adopted by MPCA and approved by EPA that are applicable to the pollutants involved in the variance. Nothing herein affects or limits any other MPCA authorities regarding permit and variance modifications.

Schedule for Short-Term Pollutant Reductions in Existing Wastewater

8.4 Within 30 days after permit reissuance the Permittee shall submit for approval a Short Term Water Quality Improvement Study Work Plan. This work plan shall describe how the Permittee proposes to investigate and evaluate actions, treatment, mitigation and/or activities that could be taken in the short term (e.g., within the first two years after permit reissuance) to reduce concentrations of TDS-related parameters, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the wastewater treatment facility (WWTF) and/or the Area 1 Pit.

Chapter 1. Surface Discharge Stations

8. Variances

8.5 The Short Term Water Quality Improvement Work Plan shall include, but is not limited to:
- Source control strategies to reduce pollutant loading from the existing scrubber system to the WWTF;
- Evaluation of the use of alternative raw materials, chemical additives, water sources and/or processing techniques to reduce pollutant loading to the WWTF;
- Evaluation of improvements or optimizations that could be made to the existing WWTF to increase pollutant removal efficiencies; and
- A proposal to bench test, and as appropriate pilot test, alternative and/or additional wastewater treatment that could be employed to reduce pollutant concentrations, including a schedule for completion of testing.

The goal of the Short Term Water Quality Improvement Study is to identify the means by which reductions in the concentration of TDS-related pollutants, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the existing WWTF is accomplished over the short term so as to establish a downward trend in the levels of TDS and specific conductance in the SD001 discharge as soon as possible. As appropriate and necessary, the Study may also include actions, controls and treatment that could be applied in the short term directly to the SD001 discharge from the Area 1 Pit.

8.6 Within 270 days of MPCA approval of the Short Term Water Quality Improvement Study Work Plan the Permittee shall complete and submit for approval the Short Term Water Quality Improvement Study Report. This report shall include a specific proposal of the actions, treatment, mitigation and/or activities to be taken over the short term, with a schedule for implementation, to accomplish reductions of TDS-related pollutants, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the WWTF and/or Area 1 Pit as soon as possible. The proposal may include actions that would result in reductions in pollutant concentrations even if they may not necessarily result in compliance with Final Effluent Limitations.

8.7 Within 7 days after MPCA approval of the Short Term Water Quality Improvement Study Report, the Permittee shall initiate the plan of action identified in the approved Report in accordance with the approved schedule.

Schedule for Compliance with Final Effluent Limitations at SD001

8.8 Within 60 days after permit reissuance the Permittee shall submit for approval Work Plans for both a Water Balance Study and a Chemical Balance Study for the ultimate purpose of providing information necessary for completion of the Pollutant Reduction Study required by parts 8.16 through 8.21 of this chapter.

8.9 The Water Balance Study Work Plan shall describe how the Permittee proposes to complete an evaluation of hydraulic loadings to and losses from the Area 1 Pit under the condition of continuous operation of the Large Scale Demonstration Plant (LSDP), taking into consideration changes in operation that may result from implementation of actions contained in, or required by, the various air emission-related studies required by the facility's Air Emissions Permit which are anticipated, as of permit reissuance, to be submitted to the MPCA no later than May 2013.

The evaluation proposed by the Water Balance Study Work Plan shall include, but is not limited to:
- Inputs to and appropriations from the Area 1 Pit related to operation of the LSDP;
- Inflow to and outflow from the Area 1 Pit from groundwater and surface water;
- Evaporation and precipitation; and
- Transfers to or from other water bodies, including the potential for use of the Area 2WX Pit as an alternative water source for the LSDP.

Chapter 1. Surface Discharge Stations

8. Variances

8.10 The Chemical Balance Work Plan shall describe how the Permittee proposes to complete an evaluation of chemical loadings to and losses from the Area 1 Pit under the condition of continuous operation of the LSDP, taking into consideration changes in operation that may result from implementation of actions contained in, or required by, the various air emission-related studies required by the facility's Air Emissions Permit which are expected to be submitted to the MPCA no later than May 2013.

The evaluation proposed by the Chemical Balance Study Work Plan shall include, but is not limited to:
- Chemical loadings to and losses from the Area 1 Pit related to the LSDP, including operation of the WWTF and stormwater contributions. In particular, the relative contributions from individual wastewater streams or processes (i.e., water conditioning, scrubber water, cooling water blowdown, etc.) shall be identified;
- Chemical loadings via groundwater or surface water flow from waste rock stockpiles located within the Area 1 Pit watershed. The evaluation shall, to the extent practical, identify the relative contributions from individual stockpiles, or areas, contributing chemical loading to the Area 1 Pit;
- Chemical loadings from unimpacted groundwater or surface water flow to the Area 1 Pit.
- Chemical loadings to and losses from the Area 1 Pit related to transfer of water to or from other water bodies, including the potential for use of the Area 2WX Pit as an alternative water source for the LSDP.

8.11 The Permittee shall initiate the approved Water Balance Study Work Plan no later than June 1, 2013.

8.12 Within 90 days after initiation of the approved Water Balance Study Work Plan the Permittee shall complete and submit for approval the Water Balance Study Report.

8.13 Within 7 days after MPCA approval of the Water Balance Study Report the Permittee shall initiate the approved Chemical Balance Study Work Plan.

8.14 Within 90 days after initiation of the approved Chemical Balance Study Work Plan the Permittee shall complete and submit for approval the Chemical Balance Study Report.

8.15 As new information becomes available during the course of either the Water Balance Study or the Chemical Balance Study, the Permittee may submit for approval proposed revisions to the approved Work Plans for the Study(s). Upon MPCA approval such revisions shall be incorporated into the ongoing Study(s) and be addressed in the Study Report(s).

8.16 Within 60 days after MPCA approval of the Chemical Balance Study Report the Permittee shall submit for approval a Pollutant Reduction Study Work Plan. The Pollutant Reduction Study Work Plan shall describe how the Permittee, utilizing the results of the Water Balance and Chemical Balance Studies, proposes to investigate and evaluate specific actions, or combination of actions, that can be implemented to reduce contaminant loading to the Area 1 Pit and/or provide additional treatment to the SD001 discharge such that compliance with Final Effluent Limitations is achieved as soon as possible.

8.17 The Pollutant Reduction Study Work Plan shall include, but is not limited to:
- Specific proposal for the bench testing, and as appropriate the pilot testing, of treatment technologies and/or source control strategies that could be applied at the WWTF and/or the SD001 discharge to determine technical and economic feasibility, including the effects of seasonal and operational variability;
- A complete evaluation of source control and mitigation technologies and practices to reduce pollutant loading from existing Area 1 Pit watershed sources including those related to existing waste rock stockpiles, including an assessment of the benefit of bench and/or pilot testing of treatment/mitigation technologies or practices.

The goal of the Pollutant Reduction Study is to identify the means by which reductions in the concentration of the variance parameters in the SD001 discharge is accomplished and compliance with Final Effluent Limitations is achieved as soon as possible.

8.18 Within 365 days of MPCA approval of the Pollutant Reduction Study Work Plan the Permittee shall complete and submit for approval the Pollutant Reduction Study Report.

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Chapter 1. Surface Discharge Stations

8. Variances

8.19 The Pollutant Reduction Study Report shall include a comprehensive analysis of the Water Balance Study Report, the Chemical Balance Study Report and the findings and analysis of the Pollutant Reduction Study, and shall propose a specific plan of action, with schedule, that will result in compliance with Final Effluent Limitations as soon as possible.

The Pollutant Reduction Study Report shall include, but is not limited to:
- A description of how potential treatment technologies, mitigation alternatives and other actions were considered and evaluated;
- An evaluation of the effectiveness (i.e., technical feasibility) of each of the potential treatment technologies, mitigation alternatives and other actions, or combination of actions in achieving compliance with Final Effluent Limitations as soon as possible;
- An evaluation of the cost to implement each of the potential treatment technologies, mitigation alternatives and other actions, or combination of actions, in achieving compliance with Final Effluent Limitations as soon as possible;
- A detailed description of the plan of action that the Permittee proposes to implement to achieve compliance with Final Effluent Limitations as soon as possible, with rationale for why the particular plan of action is being proposed;
- A detailed schedule for implementation with milestone dates indicated;
- A detailed evaluation of the economic impact (i.e., economic feasibility) on the Permittee of implementing the proposed plan of action in the event that the Permittee believes that implementation of the plan of action would result in an unacceptable financial hardship to the Permittee.

8.20 Within 7 days after MPCA approval of the Pollutant Reduction Study Report the Permittee shall initiate the plan of action identified in the approved Report in accordance with the approved schedule.

8.21 If the MPCA approved Pollutant Study Report proposes the installation of waste management or treatment techology, the Permittee shall obtain all applicable permits and approvals, including MPCA approval of plans and specifications prior to any construction.

8.22 As new information becomes available during the course of the Pollutant Reduction Study, the Permittee may submit for approval proposed revisions to the approved Pollutant Reduction Study work plan. Upon MPCA approval, such revisions shall be incorporated into the ongoing Pollutant Reduction Study and addressed in the Study Report.

8.23 The Permittee shall comply with Final Effluent Limitations as soon as possible, but in no case later than August 1, 2021.

Progress Reports

8.24 The Permittee shall submit a detailed Progress Report by the end of each half year following permit reissuance (i.e., June 30 and December 31 of each year). Progress Reports shall include, but are not limited to:
- A description of the activities and actions that have occurred in the previous six months relative to completion of the required studies and reports;
- A summary of ongoing monitoring data and the progression toward attaining compliance with Final Effluent Limitations; and
- Anticipated activities to be completed in the next six months relative to completion of the required studies and reports.

Chapter 2. Surface Water Stations

1. Requirements for Specific Stations

1.1 SW 001, SW 002: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

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Chapter 2. Surface Water Stations

2. Discharge Monitoring Reports

2.1 The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If flow conditions are such that no sample could be acquired, the Permittee shall check the "No Flow" box and note the conditions on the Discharge Monitoring Report (DMR).

3. Sampling Location

3.1 Samples for Station SW001 (upstream Second Creek) shall be taken at the County Road 666 crossing in Section 20, T59N, R14W.

3.2 Samples for Station SW002 (downstream Second Creek) shall be taken at the railroad grade crossing in Section 36, T59N, R15W.

3.3 Samples for Stations SW001 and SW002 shall be taken at mid-stream, mid-depth. Record location, date, time and results for each sample on the supplemental Discharge Monitoring Report form.

4. Sampling Protocol

4.1 All instruments used for field measurements shall be maintained and calibrated to insure accuracy of measurements.

4.2 Sample water shall be preserved according to lab instructions and delivered to a certified lab within the maximum holding times.

5. Winter Sampling Conditions

5.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Flow" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

Chapter 3. Waste Stream Stations

1. Requirements for Specific Stations

1.1 WS 001, WS 002, WS 003, WS 004: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

1.2 WS 005, WS 006: Submit a monthly DMR annually by January 22 of each year following permit issuance.

1.3 WS 007: Submit a monthly DMR monthly by 21 days after the end of each calendar month following issuance of public notice.

2. Special Requirements

2.1 The Permittee shall conduct mercury monitoring at monitoring stations WS001, WS002, WS003, and WS004 on a monthly basis as specified in the Limits and Monitoring Section of this permit.

2.2 Upon completion of two years (24 months) of monthly mercury monitoring, the Permittee may request in writing a reduction in the frequency of mercury monitoring at these stations.

2.3 No reduction in the frequency of mercury monitoring at these stations is authorized without approval from the MPCA.

3. Sampling Location

3.1 Grab and composite samples shall be collected at a point representative of total influent flow to the system.

3.2 Samples for Station WS001 shall be taken at the influent to the chemical coagulation and precipitation system.

Chapter 3. Waste Stream Stations

3. Sampling Location

3.3 Samples for Station WS002 shall be taken at influent to MNC Mercury Filter unit #1.

3.4 Samples for Station WS003 shall be taken between the effluent of MNC Mercury Filter unit #1 and the discharge to the Area 1 Pit.

3.5 Samples for Station WS004 shall be taken at the influent to MNC Mercury Filter unit #2, when in use.

3.6 Measurements for Station WS005 shall be of the total mass of slag generated in the nugget manufacturing process during the calendar month.

3.7 Measurements for Station WS006 shall be of the total mass of spent tailings filtration media removed from the wastewater treatment facility during the calendar month.

3.8 Samples for Station WS007 (Area 1 Pit) shall be taken at the point of water intake from the Area 1 Pit. Samples for WS007 shall be representative of the Area 1 Pit water at the depth from which water is appropriated.

Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

1. General Requirements

1.1 The Permittee shall conduct monthly chronic toxicity test batteries on Discharge SD001 beginning with the first full calendar month following the issuance date of the permit in which there is a discharge. The first month results are due the last day of the first full calendar month following the issuance date of the permit, and is monthly thereafter. (For example, if the permit is issued April 28, the first monthly results are due by May 31.) The monthly monitoring requirement continues at least until the permittee has reported twelve (12) consecutive passing monthly samples after successful completion of the Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluation (TRE).

1.2 Chronic test batteries shall be conducted in each succeeding year for the remainder of the permit on a basis of once every other month during discharge.

1.3 Any test that exceeds 1.0 TUc shall be re-tested according to the Positive Toxicity Results requirement(s) that follow to determine if toxicity is still present above 1.0 TUc (RWC< 100%).

1.4 This permit includes a chronic whole effluent toxicity limit of 1.0 TUc for Discharge SD001. A violation of the 1.0 TUc limit at SD001 constitutes a violation of the permit.

2. Species and Procedural Requirements

2.1 Tests shall be conducted in accordance with procedures outlined in EPA-821-R-02-013 "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" - Fourth Edition (Chronic Manual) and any revisions to the Manual. Any test that is begun with an effluent sample that exceeds a total ammonia concentration of 5 mg/l shall use the carbon dioxide-controlled atmosphere technique to control pH drift.

2.2 Test organisms for each test battery shall include the fathead minnow (Pimephales promelas)-Method 1000.0 and Ceriodaphnia dubia-Method 1002.0.

2.3 Static renewal chronic serial dilution tests of the effluent shall consist of a control, 12, 25, 50, 75 and 100% effluent.

2.4 All effluent samples shall be flow proportioned composite or grab samples. Test solutions shall be renewed daily from each fresh composite. Testing of the effluent shall begin within 36 hours of sample collection. Receiving water collected outside of the influence of discharge shall be used for dilution and controls.

2.5 Any other circumstances not addressed in the previous requirements or that require deviation from that specified in the previous requirements shall first be approved by the MPCA.

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Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

3. Quality Control and Report Submittals

3.1 Any test that does not meet quality control measures, or has results which the Permittee believes reflect an artifact of testing shall be repeated within two (2) weeks of Permittee's receipt of any results. These reports shall contain information consistent with the report preparation section of the Chronic Manual. The MPCA shall make the final determination regarding test validity.

4. Positive Toxicity Result for WET

4.1 Should a test of the SD001 discharge exceed 1.0 TUc for whole effluent toxicity based on results from the most sensitive test species, the Permittee shall conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after completion of the positive test. These tests will be used to determine if toxicity exceeding 1.0 TUc remains present for any test species. For both retests, if no toxicity is present above 1.0 TUc for any test species, the Permittee shall return to the test frequency specified by the permit. If either of the repeat test batteries indicate toxicity above1.0 TUc for any test species, the Permittee shall submit for MPCA review a plan for conducting a Toxicity Reduction Evaluation (TRE), including the Facility Performance Review (to be submitted to the MPCA WQ Submittals Center within 60 days after toxicity discovery date) and, at a minimum, provide quarterly reports starting from the date of TRE submittal, regarding progress towards the identity, source, and any plans for the removal of the toxicity. The TRE shall be consistent with EPA guidance or subsequent procedures approved by the MPCA in attempting to identify and remove the source of the toxicity. Routinely scheduled chronic toxicity test batteries required in this permit chapter shall be suspended for the duration of the TRE.

4.2 Following successful completion of the TRE the Permittee shall conduct testing as required by part 1 of this chapter. Amendments to the initial TRE shall be approved by MPCA staff and the schedules identified therein

Facility-Specific TRE Requirements

4.3 For the TRE process underway as of the issuance of this permit, the Permittee shall conduct and submit data sheets and summary reports for monthly chronic WET tests during the period of discharge, consistent with the requirements of this chapter.

4.4 For the TRE process underway as of issuance of this permit, the Permittee shall submit a quarterly report identifying and summarizing all activities completed and underway as part of the TRE process. This includes, but is not limited to:
- A description and summary of isolated variables tested;
- Complete raw data taken from all tests run within the last quarter;
- All water quality data taken with chronic WET tests during the last quarter; and
- Description of plans for the next quarter of the TRE.

4.5 For the duration of the TRE process underway at the issuance of this permit, the Permittee shall submit in December of each year an annual report providing a summary and analysis of any TRE-related activities which occurred in the previous year. This includes, but is not limited to:
- Complete summary in total of the year's testing results;
- Any changes to the facility or the site which may have affected testing conditions or results;
- Discussion of results of tests which were unexpected; and
- Goals and an outline of the next year's testing process.

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Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

4. Positive Toxicity Result for WET

4.6 For the duration of the TRE process underway at the issuance of this permit, if a test result for any species is >1.0 TUc (i.e. a failing test), the Permittee shall, in place of the protocol described in 4.1, conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after Permittee's receipt of any positive test. These tests will be used to determine if toxicity exceeding 1.0 TUc remains present for any test species. For both retests, if no toxicity is present above 1.0 TUc for any test species, the Permittee shall return to the test frequency specified in 4.2. In the case of a failing test, re-testing must continue until tests for all species find a <1.0 TUc (i.e. a passing test) result. In the case of a failing test, this continuation of testing until passing tests are completed for both species is required regardless of seasonality, and should the facility no longer be discharging, due to seasonal restrictions, a sample representative of the discharge from Area 1 Pit will be obtained to continue testing according to TRE protocols.

5. WET Data and Test Acceptability Criteria (TAC) Submittal

5.1 All WET test data and TAC must be submitted to the MPCA by the dates required by this section of the permit using the following form(s) and associated instruction forms:

Minnesota Pollution Control Agency Ceriodaphnia dubia Chronic Toxicity Test Report
Minnesota Pollution Control Agency Fathead Minnow Chronic Toxicity Test Report.

Data not submitted on the correct form(s), or submitted incomplete, will be returned to the Permittee and deemed incomplete until adequately submitted on the designated form (identified above). Data should be submitted to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

6. Whole Effluent Toxicity Requirement Definitions

6.1 "Chronic Whole Effluent Toxicity (WET) Test is a static renewal test conducted on an exponentially diluted series of effluent. The purpose is to calculate appropriate biological effect endpoints (NOEC/LOEC or IC25), specified in the referenced chronic manual. A statistical effect level less than the Receiving Water Concentration (RWC) constitutes a positive test for chronic toxicity. The RWC equals the 100 percent effluent concentration or 1.0 TUc.

6.2 "Chronic toxic unit (TUc)" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period. For example, a TUc equals [7Q10flow (mgd) + effluent average dry weather flow (mgd)]/[effluent average dry weather flow (mgd)].

6.3 "Test" refers to an individual species.

6.4 "Test Battery" consists of WET testing of all test species for the specified test. For chronic WET testing, all test species includes Fathead minnows and Ceriodaphnia dubia.

Chapter 5. Special Requirements

1. Special Requirements

Solids Management

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Chapter 5. Special Requirements

1. Special Requirements

1.1 The Permittee is responsible for the proper use or disposal of all spent filtration media (i.e. tailings filtration media), wastewater treatment sludges, slag and waste material, and shall comply with all applicable statutes and rules in the disposal of such material.

If any waste material meets any of the criteria for designation as hazardous waste, pursuant to Minn. R. pts 7045.0131 or 7045.0135, it shall be managed as hazardous waste in accordance with Minn. R. ch. 7001 and 7045, unless the Permittee requests and obtains a written determination from the Agency that the regulatory exemptions contained in Minn. R. pt. 7045.0210 apply.

If waste material does not meet any of the criteria for designation as hazardous waste, the waste material shall be disposed of in a permitted solid waste disposal facility or other specifically approved alternative.

1.2 By 90 days after permit reissuance, the Permittee shall submit for approval a Solids Management Plan update of the relevant portions of the previously submitted "MNC Mercury Filter Filtration Media Acquisition and Disposal Plan" and "Wastewater Treatment Solids and Slag Management Plan."

1.3 At a minimum the Solids Management Plan shall describe:

a. the source, estimated volume and method of transportation of tailings filtration media to be used in the mercury filtration units;

b. the method and location for disposal of spent filtration media and any testing that will be conducted to confirm the composition of the spent filtration media;

c. the method and location for beneficial reuse or disposal of waste solids and sludges generated by the wastewater treatment system;

d. the estimated volume, composition and nature of the slag generated by the manufacturing process and any testing that will be conducted to confirm the composition of the slag; and

e. the management and/or method and location for beneficial reuse or disposal of the slag material generated.

1.4 Submit a Solids Management Annual Report by February 1 of each year following permit issuance.

1.5 The Solids Management Report shall include for the previous calendar year:

a. the total volume of filtration media acquired for use in the mercury filtration units;

b. the total volume of spent filtration disposed of and the location where disposal took place;

c. the total volume of wastewater treatment sludges and solids beneficially reused or disposed of and the location where beneficial reuse or disposal took place;

d. the total volume of slag generated by the facility;

e. the ultimate disposition of the slag generated by the facility, (i.e. whether it was sold, transported off site for use or disposal or stored or used on site);

f. the results of any testing conducted on any of the waste materials; and

g. any significant deviations from the volumes and methods described in the approved Solids Management Plan.

1.6 Tailings from the Northshore Mining Company or Cliffs Erie shall not be utilized in the wastewater treatment system.

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Chapter 5. Special Requirements

1. Special Requirements

Sulfate Transport and Wild Rice Impact Studies

1.7 Within 90 days of permit reissuance, the Permittee shall submit for approval a Sulfate Transport Study work plan. The Sulfate Transport Study shall be based on modeling designed to evaluate and predict sulfate concentrations in the waters between the SD001 discharge and the confluence of the Partridge River with the St. Louis River. The model shall be calibrated to existing data and shall be capable of predicting sulfate concentrations under multiple stream flow and discharge conditions.

1.8 Within 12 months after MPCA approval of the Sulfate Transport Study work plan the Permittee shall complete and submit for approval the Sulfate Transport Report.

1.9 As new information becomes available during the course of the Sulfate Transport Study, the Permittee may submit for approval proposed revisions to the approved Sulfate Transport Study work plan. Upon MPCA approval such revisions shall be incorporated into the ongoing Sulfate Transport Study.

1.10 By 90 days after permit reissuance, the Permittee shall submit for approval a Wild Rice Impact Study work plan. At a minimum, the Wild Rice Impact Study work plan shall propose:

a. Monitoring/survey for the presence and general condition (e.g., areal extent, plant density, etc.) of wild rice resources from the SD001 discharge to the confluence of the Partridge River with the St. Louis River over a multi-year (e.g., four year) period;
b. Monitoring of water column sulfate concentrations at locations where wild rice is growing;
c. An evaluation of the SD001 discharge's contribution to sulfate concentration in affected portions of the Partridge River, taking into account the seasonal nature of the discharge; and
d. A general evaluation of water level changes in the Partridge River resulting from the seasonal nature of the SD001 discharge.

1.11 Within 48 months after MPCA approval of the Wild Rice Impact Study work plan, the Permittee shall complete and submit the Wild Rice Impact Study Report.

1.12 By February 1 of each year of the Study, the Permittee shall submit a written progress report on the status of the Wild Rice Impact Study including a preliminary evaluation of the information and data collected to date.

1.13 As new information becomes available during the course of the Wild Rice Impact Study, the Permittee may submit for approval proposed revisions to the approved Wild Rice Impact Study. Upon MPCA approval such revisions shall be incorporated into the ongoing Wild Rice Impact Study.

1.14 If data from the studies required provide information previously unavailable to the agency that shows that the terms and conditions of the permit do not accurately represent the actual circumstances relating to the permitted facility or activity, the MPCA may reopen the permit to modify or reissue it.

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Chapter 5. Special Requirements

1. Special Requirements

Financial Assurance

1.15 The Permittee shall maintain financial assurance for long-term operation of wastewater treatment systems necessary for compliance with applicable water quality standards and/or effluent limits for the Area 1 Pit. Financial assurance shall be established and maintained at a level that will cover, at a minimum, all of the following costs:

a. the cost to the MPCA of administering and contracting with a third party to implement the treatment requirements;

b. the costs to operate and maintain, as necessary, the chemical precipitation treatment system and mercury filtration systems;

c. transportation costs for both raw and spent filtration media (i.e., tailings filtration media) utilizing current transportation infrastructure;

d. disposal costs for spent filtration media and other solid and/or hazardous wastes generated during operation of the treatment facilities;

e. cost of polymers, flocculants or other water treatment additives required to attain necessary pollutant removals;

f. necessary analytical costs; and

g. costs to restore hydraulic flows and discharge locations of overflows from the pit in accordance with reclamation plans approved by Department of Natural Resources.

1.16 The financial assurance mechanism to be employed shall be: (1) an irrevocable letter of credit with a standby trust fund, (2) a fully-funded cash trust fund, or (3) another method of financial assurance approved in advance by MPCA. The Permittee shall use forms provided and approved by the Commissioner in establishing any irrevocable letter of credit and any trust fund.

1.17 The Permittee shall maintain an initial irrevocable letter of credit to the MPCA or establish a fully funded cash trust fund to satisfy the long term treatment costs in Section 1.15 above. At the time of permit issuance, the required amount is $5,000,000.00.

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Chapter 5. Special Requirements

1. Special Requirements

1.18 If the Permittee elects to utilize the irrevocable letter of credit and standby trust fund to fulfill this obligation:

a. The irrevocable letter of credit shall be issued to the Minnesota Pollution Control Agency by an institution that has the authority to issue letters of credit, and whose letter of credit operations are regulated and examined by a federal agency.

b. The letter of credit must be irrevocable and issued for a period of at least one year, and must provide that the letter's expiration date shall be automatically extended for at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the Permittee and the MPCA of a decision not to extend the expiration date. Under the terms of the letter of credit, the 120-day period must begin on the date when the MPCA received the notice, as evidenced by the return receipt.

c. In addition to the irrevocable letter of credit, the Permittee shall also establish and maintain a standby trust fund, and the terms of the letter of credit shall direct the letter's issuing institution to deposit all amounts paid pursuant to the letter of credit directly into the standby trust fund in accordance with instructions from the MPCA.

d. The MPCA may draw on the irrevocable letter of credit at any time the MPCA determines the Permittee has failed to perform closure when the Permittee is required to do so in accordance with part 5.1.15 of this Permit, or at any time within sixty (60) days prior to the expiration date of the letter of credit if a replacement irrevocable letter of credit, suitable to the MPCA in its sole discretion, has not been provided by the Permittee to the MPCA to replace an existing irrevocable letter of credit.

1.19 If the Permittee elects to establish a fully-funded cash trust fund to fulfill the financial assurance obligation, the amount of the fund shall be equal to the amount of financial assurance required by Section 1.17 as adjusted under Section 1.21 through 1.25, and the form of the trust agreement shall be the same as the form of agreement used to establish the standby trust fund, with only those minor changes necessary to indicate that a fully-funded cash trust fund has been established rather than a letter of credit with a standby trust fund.

1.20 The Permittee shall notify the MPCA by certified mail of the filing of any voluntary or involuntary petition under the United States Code, Title 11, naming the Permittee as a debtor, within five (5) days after filing of the petition or of any foreclosure actions taken against the Permittee within five (5) days after the initiation of the foreclosure action.

If the financial institution's authority (the institution which issued the letter of credit or which is the trustee for the trust fund) to issue, maintain or honor the letter of credit or any trust agreement or fund is terminated, suspended, diminished or is otherwise impaired, the Permittee shall within seven (7) days thereafter provide a substitute irrevocable letter of credit and establish the required trust fund to the MPCA, in compliance with all of the requirements of this permit.

1.21 On an annual basis, the Permittee shall review and update closure costs in accordance with projected timeframes necessary to fulfill Section 1.15 above. All cost estimates shall be fully supported by accounting principles and standard engineering practices acceptable to the MPCA and documented by actual bids from qualified independent vendors, where appropriate.

1.22 By February 1 each year, the Permittee shall submit an annual report to the MPCA identifying any changes in estimated enclosure costs due to changing conditions such as inflation or changes in facility operation and the factual basis for these changes. If there are no changes, the report must reflect this and explain the basis for this determination.

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Chapter 5. Special Requirements

1. Special Requirements

1.23 The annual report required by 1.22 above must be reviewed and approved by a qualified, independent (non-employee) registered professional engineer prior to submittal to the MPCA. The report must also contain proof that financial assurance is being maintained in accordance with Permit requirements and must propose a replacement letter of credit, or a modified level of funding if a fully-funded cash trust fund is used, to respond to changes in the estimated closure costs.

1.24 The Permittee is prohibited from making any modifications or changes to the financial assurance mechanisms, including levels of funding, unless authorized by written approval of the Commissioner. An account statement from the financial institution maintaining the trust fund shall also be provided to the MPCA at this time (i.e. at the time of submittal of the annual report). If the Permittee wishes to establish a dedicated trust fund, in lieu of an irrevocable letter of credit, to satisfy its financial assurance obligations, it shall make such a request as part of its annual review and report submittal required in 1.22 above.

1.25 The Permittee shall obtain the Commissioner's written prior approval to modify any portion of an approved financial assurance plan, including any proposed changes to the financial assurance mechanisms and financial assurance funding levels.

1.26 In the event that the MPCA requires the Permittee to provide to the MPCA a facility closure plan for approval in accordance with Chapter 8.1.48 of this permit, or if proper closure of the facility includes corrective, cleanup, or remedial actions for any environmental contamination or damage, the MPCA is authorized to hold, and to require the Permittee to maintain, any letter of credit with standby trust fund or fully-funded cash trust fund until the corrective, cleanup or remedial actions are completed to the satisfaction of the MPCA. If such actions are not completed by the Permittee in a timely manner and to the satisfaction of the MPCA, the MPCA is authorized to draw on the letter of credit or the fully-funded cash trust fund and to initiate and/or complete such actions.

At such time as proper closure of the facility and all required corrective, cleanup and/or remedial actions have been completed and paid for the MPCA shall return the letter of credit to the issuing institution or the balance of the unused funds in any trust fund to the Permittee.

Chapter 6. Industrial Process Wastewater

1. Authorization

1.1 This permit authorizes the discharge from the Area 1 Pit, and includes the activities at the Mesabi Nugget Large Scale Demonstration Plant (LDSP) and Area 1 Pit which contribute pollutants or may affect the discharge from the Area 1 Pit. This permit does not authorize the inactive station SD004, activities covered by NPDES/SDS Permit MN0069078 issued to Mesabi Mining LLC associated with the Mesabi Mining Area, or for discharges from the Area 2WX, 6, 9, and 9S Pits.

2. Prohibited Discharges

2.1 Unless specifically authorized elsewhere in this permit, this permit does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.

2.2 The Permittee shall prevent the routing of pollutants from the facility to a municipal wastewater treatment system in any manner unless authorized by the pretreatment standards of the MPCA and the municipal authority.

2.3 The Permittee shall not transport pollutants to a municipal wastewater treatment system that will interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards.

Chapter 6. Industrial Process Wastewater

3. Chemical Additives

3.1 The following listed chemical additives have been approved for use at the water treatment system. If the facility chooses to change usage of chemical additives, the chemical additive approval processes is included in Chapter 8. Total Facility Requirements, part 1.43. MPCA's prior approval is required before the Permittee may use any new or different water treatment additive or increase the quantity used of an existing additive.

3.2 The following chemicals are used as dust suppressants:
- DustTreat DC9119E, at a maximum rate of 900 gal/day;
- DustTreat DC9136, at a maximum rate of 1200 gal/day;
- EC46, at a maximum rate of 1200 gal/day; and
- HaulEZ, at a maximum rate of 3300 gal/day.

3.3 The following chemical additives are authorized for use for pH adjustment:
- Sulfuric Acid, at a maximum rate of 230 gal/day;
- Lime (98%Ca(OH)2), at a maximum rate of 35 gal/day;and
- Sodium Hydroxide, at a maximum rate of 240 gal/day.

3.4 The following chemical additives are approved for used as anti-scalants:
- DeposiTrol SF502, at a maximum rate of 5 gal/day; and
- DepositTrol PY5206, at a maximum rate of 20 gal/day.

3.5 The following chemical additives have been approved for use at the facility as corrosion inhibitors:
- CorrShield NT 402, at a maximum rate of 250 lb/day; and
- FloGard MS6206, at a maximum rate of 220 lb/day.

3.6 The following chemical additives have been approved as settling and filtering aids:
- Polyfloc AE1115, at a maximum rate of 150 lb/day;
- Klairaid PC1192, at a maximum rate of 300 lb/day;
- Klairaid IC1183, at a maximum rate of 5 gal/day; and
- Nalco 71325, at a maximum rate of 42 gal/day.

3.7 The following chemicals have been approved for use at the facility as biocides:
- Sodium Hypochlorite, at a maximum rate of 250 gal/day; and
- Spectrus NX 1106, at a maximum rate of 5 lb/day.

3.8 GenGard GN 7004, used as a solids dispersant, is approved for use at the facility at a maximum rate of 250 lb/day.

3.9 Soda Ash (98% H2SO4), used in the lime softening system, is approved for use at the facility at a maximum rate of 10 short tons/day.

3.10 MetClear MR2405, which is used for metal precipitation, is approved for use at the facility a maximum rate of 50 lb/day.

3.11 FoamTrol AF2290, which is used as an anti-foaming agent, is approved for use at the facility at a maximum rate of 5 gal/day.

3.12 Nalco 73924, which is used for iron deposit removal, is approved for use at a maximum rate of 5700 lb/day.

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Chapter 6. Industrial Process Wastewater

4. Toxic Substance Reporting

4.1 The Permittee shall notify the MPCA immediately of any knowledge or reason to believe that an activity has occurred that would result in the discharge of a toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10 or listed below that is not limited in the permit, if the discharge of this toxic pollutant has exceeded or is expected to exceed the following levels:

a. for acrolein and acrylonitrile, 200 ug/L;

b. for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol, 500 ug/L;

c. for antimony, 1mg/L;

d. for any other toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10, 100 ug/L; or

e. five times the maximum concentration value identified and reported for that pollutant in the permit application. (Minnesota Rules, pt. 7001.1090, subp. 2.A)

4.2 The Permittee shall notify the MPCA immediately if the Permittee has begun or expects to begin to use or manufacture as an intermediate or final by-product a toxic pollutant that was not reported in the permit application under Minnesota Rules, pt. 7001.1050, subp. 2.J. (Minnesota Rules, pt. 7001.1090, subp. 2.B)

5. Polychlorinated Biphenyls (PCBs)

5.1 PCBs, including but not limited to those used in electrical transformers and capacitors, shall not be discharged or released to the environment.

6. New Proposed Dewatering

6.1 The Permittee shall obtain a permit modification before discharging from a previously unpermitted point source to a water of the state.

6.2 In addition to the requirements in the Permit Modifications section of this permit, the Permittee shall submit to the MPCA detailed plans and specifications for the proposed methods of achieving any discharge limits for turbidity and total suspended solids for the new outfall, based in part upon representative water quality data for untreated wastewater and a detailed map and diagram description of the proposed design for the flow control structures, and route of the discharge to receiving waters.

7. Application for Permit Reissuance

7.1 The permit application shall include analytical data as part of the application for reissuance of this permit. These analyses shall be done on individual samples taken during the twelve-month period before the reissuance application is submitted.

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Chapter 6. Industrial Process Wastewater

7. Application for Permit Reissuance

7.2 The permit application shall include analytical data for at least the following parameters at monitoring station SD001:

a. biochemical oxygen demand, chemical oxygen demand, total organic carbon, gasoline range organics, diesel range organics, fecal coliform, ammonia, temperature;

b. color, fluoride, nitrate-nitrite (as nitrogen), total organic nitrogen, oil and grease, total phosphorus, chloride, sulfate, sulfide (as sulfur), surfactants, bicarbonates, alkalinity, total salinity, total dissolved solids, specific conductance;

c. aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, tin, titanium, vanadium, zinc (all in total form) according to 40 CFR Part 136.3;

d. total mercury using EPA Method 1631;

f. PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260; and

g. a scan of constituents using EPA Methods 624 and 625, in 40 CFR Part 136.

The Permittee shall identify, in addition to those pollutants noted in Methods 624 and 625 (Appendix D, Table II), the concentrations of at least ten of the most abundant constituents of the acid and base/neutral organic fractions shown to be present by peaks on the total ion plots (reconstructed gas chromatograms) within ten percent of the nearest internal standard. Identification shall be through the use of U.S. EPA/NIH computerized library of mass spectra, with visual confirmation and potential quantification.

7.3 The permit application shall include a detailed, finalized version of the Final Pollutant Reduction Study Report which includes a proposal and complete information submittal which will result in the compliance with applicable final effluent limitations as soon as possible, but no later than August 1, 2021, as required by 1.8.21. The application, through the Final Pollutant Reduction Study Report, shall identify in detail the sequence of specific activities to be undertaken (e.g. the process for design of treatment equipment or pipeline construction), including any pilot testing, and shall include specific milestone dates for completion of the intermediary activities. This permit application submittal shall also include, as necessary, conceptual engineering plans and a proposed schedule for submittal of engineering plans and specifications applicable to the proposed design, a complete set of monitoring or background data required as part of the proposal, and details related to the proposal to meet effluent limitations, in addition to all of the components required within an application for modification or reissuance of a permit. The Pollutant Reduction Study Report which fulfills all requirements of the approved Pollutant Reduction Study work plan must be submitted to MPCA before the application for permit reissuance can be determined complete.

Chapter 7. Stormwater Management

1. Authorization

1.1 This chapter authorizes the Permittee to discharge stormwater associated with industrial activity from industrial activity associated with SIC codes 3312 in accordance with the terms and conditions of this chapter.

1.2 This permit, unless specifically authorized by this or another chapter, does not authorize the discharge of sewage, wash water, scrubber water, floor drains from process areas, spills, oils, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.

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Chapter 7. Stormwater Management

2. Water Quality Standards

2.1 The Permittee shall operate and maintain the facility and shall control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060.

2.2 The Permittee shall limit and control the use of materials at the facility that may cause exceedances of ground water standards specified in Minnesota Rules, ch. 7060. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

3. Stormwater Pollution Prevention Plan

3.1 The Permittee shall develop and implement a Stormwater Pollution Prevention Plan (Plan) to address the specific conditions at the industrial facility. The goal of the Plan is to eliminate or minimize contact of stormwater with significant materials that may result in pollution of the runoff. If contact cannot be eliminated or reduced, stormwater that has contacted significant material should be treated before it is discharged from the site.

Guidance for preparing the SWPPP can be found on the web at:
http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html.

3.2 At a minimum, the SWPPP must include:

a. a description of appropriate Best Management Practices (BMPs) (including structural and non-structural) for protection of surface and groundwater quality at the facility and a schedule for implementing the practices;
b. a drainage map for the entire facility;
c. an inventory of exposed significant materials;
d. an evaluation of the facility areas with exposure of significant materials to stormwater;
e. an evaluation of all discharge conveyances from the site; a preventative maintenance program;
f. a spill prevention and response procedure;
g. procedures to be followed by designated staff employed by the Permittee to implement the SWPPP; and
h. description of stormwater controls.

3.3 In addition, the SWPPP must include the following:

a. Facility Map. Identify where any of the following may be exposed to stormwater: storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; pollution control equipment (e.g. baghouses); coal, coke, scrap, sand, fluxes, refractories, or metal in any form.

b. Potential Pollutant Sources. Describe the following additional sources that have potential pollutants associated with them: Areas where accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions and losses from coal and coke handling operations.

3.4 The SWPPP shall be developed and implemented within 180 days after permit issuance and shall be available for inspection.

Chapter 7. Stormwater Management

4. Employee Training Program

4.1 The Permittee must develop and implement an employee training program to inform appropriate personnel of the components and goals of the SWPPP. At a minimum, training must address:

a. spill/leak prevention and response;
b. good housekeeping;
c. petroleum product management;
d. process chemical management;
e. fueling procedures;
f. proper procedures for using fertilizer, herbicides, and pesticides;
g. erosion and sedimentation controls;
h. inspections;
i. preventative maintenance;
j. runoff management; and
k. materials management practices.

The SWPPP must identify periodic dates for such training as well as personnel responsible for managing and implementing the SWPPP and those responsible for the reporting requirements of this permit. This must include the facility contact person as indicated on the permit application. Identified personnel must be available at reasonable times of operation.

Guidance regarding employee training programs is available on the web at:
http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html.

5. Inspection and Maintenance

5.1 The Permittee must develop and implement an inspection schedule that includes a minimum of one facility inspection per calendar month. A total of two monthly inspections shall occur during runoff events, with at least one being performed during snow melt. Inspections must be conducted by appropriately trained personnel at the facility. The purpose of inspections is to: 1) determine whether structural and non-structural BMPs require maintenance or changes, and 2) evaluate the completeness and accuracy of the SWPPP.

Inspection results and documentation must remain on-site whenever Permittee staff are available on the site and must be available upon request. The inspection form is located on the MPCA's website at
http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html.

5.2 Inspections must be documented and must include the following information:

a. inspection date and time;
b. weather conditions;
c. inspector name;
d. findings; and
e. a description of any necessary corrective actions and a schedule for corrective action completion.

A copy of all inspection documentation must be stored with the SWPPP.

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Chapter 7. Stormwater Management

5. Inspection and Maintenance

5.3 In addition to the inspection requirements listed above, the following areas (including, but not limited to) must be inspected:

a. air pollution control equipment (e.g. baghouses, electrostatic precipitators, scrubbers, and cyclones) for any signs of degradation (e.g. leaks, corrosion, or improper operation) that could limit efficiency and lead to excessive emissions.
b. air flow at inlets and outlets (or use equivalent measures) to check for leaks or blockage in ducts
c. all process and material handling equipment (e.g. conveyors, cranes and vehicles) for leaks, drips or the potential loss of material.

5.4 If conditions are observed at the site that require changes in the SWPPP, such changes must be made to the SWPPP prior to submission of the annual report for that calendar year.

5.5 If the findings of a site inspection indicate that BMPs are not meeting the objectives as identified above, corrective actions must be initiated within thirty days and the BMP restored to full operation as soon as conditions allow.

6. Good Housekeeping & Control Measures

6.1 The Permittee shall include a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading and unloading, storage handling and processing occur.

6.2 The Permittee shall also implement a cleaning program which includes regular sweeping for paved areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable.

6.3 For unstabilized areas where sweeping is not practicable, the Permittee shall choose alternative stormwater management devices that effectively trap or remove sediment.

7. Sedimentation Basin Design and Construction

7.1 The Permittee is authorized to use designed infiltration devices or industrial stormwater ponds/sedimentation basins for stormwater management. Stormwater ponds/sedimentation basins must be designed by a registered professional engineer and installed under the direct supervision of a registered professional engineer. If a new stormwater pond/sedimentation basin will be constructed, the Permittee must follow the guidance located on the web site at http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html.

8. Application of Chemical Dust Suppressants

8.1 If chemical dust suppressants are applied, the Permittee shall submit a Chemical Dust Suppressant Annual Report due 31 days after the end of each calendar year, (February 1), following the application of a chemical dust suppressant.

8.2 The Chemical Dust Suppressant Annual Report shall include:

a. a record of the dates, methods, locations and amounts by volume of chemical application at the facility; and

b. whether the product was applied in the preceding year.

8.3 If a material applied is mixed with water or another solvent before application, the chemical analysis shall be done on the aqueous or other mixture that is representative of the solution applied. This analysis shall be conducted during the same calendar year of application. This analysis shall include the parameters that may be determined by U.S. Environmental Protection Agency (EPA) Methods 624 and 625 which are described in 40 CFR Part 136.

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Chapter 7. Stormwater Management

8. Application of Chemical Dust Suppressants

8.4 Chemical dust suppressants, if used, shall not be applied within 100 feet of the surface receiving waters identified in the 'Facility Description' section of this permit.

9. Reporting

9.1 Submit a Stormwater Annual Report by March 31 of each year following permit issuance. A copy of the Stormwater Annual Report Form is located on the MPCA's website at: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html.

9.2 The Permittee shall, upon request of the Agency, submit within a reasonable time the information and reports that are relevant to compliance with this Chapter, including the Plan, inspection reports, annual reports, original laboratory sheets from analyses conducted on the waste stream, and BMP plans and specifications.

10. Records

10.1 The SWPPP must be retained for the duration of the permit. A copy of the SWPPP must remain on the permitted site whenever Permittee staff are available on the site and be available upon request. The Permittee must maintain the following records for the period of permit coverage:

a. dates and findings of inspections;
b. completed corrective actions;
c. documentation of all changes to the SWPPP; and
e. a copy of all annual reports.

11. Notification

11.1 If the Permittee discharges stormwater into a regulated Municipal Separate Storm Sewer System (MS4), the Permittee must notify the operator of the first MS4 of the existence of this permit within 30 days of its issuance.

12. Request for Termination of Stormwater Permit Coverage

12.1 If the Permittee meets the eligibility criteria for No Exposure and is eligible for the conditional exclusion for No Exposure, as regulated by 40 CFR 122.26(b)(14)(i) through (ix) and (xi), it may submit: a) a No Exposure certification to the MPCA in accordance with Minn. R. 7090.3060, and b) a permit application for a modification of the NPDES/SDS Permit.

12.2 The Permittee must apply for the No Exposure certification to the MPCA once every five years. A copy of the No Exposure certification card shall be submitted with the permit application for permit reissuance.

12.3 The No Exposure exclusion is conditional. The facility must maintain a condition of No Exposure at the facility in order for the No Exposure exclusion to remain applicable. In the event of any change or circumstance that causes exposure of industrial activities or materials to stormwater, the facility must comply with the stormwater requirements of this chapter.

12.4 The no exposure certification is non-transferrable in accordance with Minn. R. 7090.3060, subp. 5(D). In the event that the facility operator changes, then the new operator must submit a new no exposure certification to the MPCA, Industrial Stormwater Program, 520 Lafayette Rd N, St Paul, MN 55155-4194.

12.5 The MPCA retains the authority to require the facility operator to comply with the requirements of this chapter, even when an industrial operator certifies no exposure, if the MPCA has determined that the discharge is contributing to the violation of, or interfering with the attainment or maintenance of water quality standards, including designated uses.

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Chapter 7. Stormwater Management

13. Definitions

13.1 "Benchmark Monitoring Location" means the location(s) within the boundary of the facility where the Permittee will collect stormwater samples for the purpose of compliance with the benchmark monitoring requirements of this permit. The benchmark monitoring location(s) shall be in a location that:

a. is below the most down-gradient BMP from the source of the industrial activity or significant materials, but prior to discharging from the Permittee's operational control;
b. minimizes or eliminates sampling of stormwater from off-site sources (run-on); and
c. yields a sample that best represents the contribution of pollutants the Permittee is required to monitor for in accordance with the Benchmark Monitoring Requirements section of this permit, and that receives drainage from an area of industrial activities, processes, and significant materials exposed to stormwater.

13.2 "Best Management Practices" or "BMPs" means practices to prevent or reduce the pollution of waters of the state, including schedules of activities, prohibitions of practices, other management practices, and also includes treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge, waste disposal or drainage from raw material storage.

13.3 "No exposure" means all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snow melt, and/or runoff. Industrial activities or materials include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

13.4 "Non-stormwater discharge" means any discharge not comprised entirely of stormwater discharges authorized by a NPDES permit.

13.5 "Runoff" means any liquid that drains over land from any part of a facility.

Chapter 8. Total Facility Requirements

1. General Requirements

General Requirements

1.1 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.

1.2 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)

1.3 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)

1.4 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)

1.5 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

Chapter 8. Total Facility Requirements

1. General Requirements

1.6 Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)

1.7 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)

1.8 Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)

1.9 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)

1.10 Severability. The provisions of this permit are severable and, if any provisions of this permit or the application of any provision of this permit to any circumstance are held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

1.11 Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.

1.12 Inspection and Entry. When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

1.13 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

Sampling

1.14 Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))

1.15 Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)

1.16 Certified Laboratory. A laboratory certified by the Minnesota Department of Health shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature, specific conductance, and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

1.17 Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

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Chapter 8. Total Facility Requirements

1. General Requirements

1.18 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)

1.19 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information (Minn. R. 7001.0150, subp. 2, item C):

a. The exact place, date, and time of the sample or measurement;

b. The date of analysis;

c. The name of the person who performed the sample collection, measurement, analysis, or calculation; and

d. The analytical techniques, procedures and methods used; and

e. The results of the analysis.

1.20 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

DMR Supplemental Form
Individual values for each sample and measurement must be recorded on the DMR Supplemental Form which, if required, will be provided by the MPCA. DMR Supplemental Forms shall be submitted with the appropriate DMRs. You may design and use your own supplemental form; however it must be approved by the MPCA. Note: Required summary information MUST also be recorded on the DMR. Summary information that is submitted ONLY on the DMR Supplemental Form does not comply with the reporting requirements.

Chapter 8. Total Facility Requirements

1. General Requirements

1.21 Submitting Reports. DMRs and Supplementals shall be submitted to:

MPCA
Attn: Discharge Monitoring Reports
520 Lafayette Road North
St. Paul, Minnesota 55155-4194.

DMRs, DMR supplemental forms and related attachments may be electronically submitted via the MPCA Online Services Portal after authorization is approved. When electronically submitted, the paper DMR submittal requirement is waived.

DMRs and DMR Supplemental Forms shall be postmarked or electronically submitted by the 21st day of the month following the sampling period or as otherwise specified in this permit. Electronic DMR submittal must be complete on or before 11:59 PM of the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

Other reports required by this permit shall be postmarked by the date specified in the permit to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

1.22 Incomplete or Incorrect Reports. The Permittee shall immediately submit an amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. (Minn. R. 7001.0150 subp. 3, item G)

1.23 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)

Chapter 8. Total Facility Requirements

1. General Requirements

1.24 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)

Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:

a. If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.

b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection.

c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)

1.25 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

1.26 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

Noncompliance and Enforcement

1.27 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.28 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.29 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

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Chapter 8. Total Facility Requirements

1. General Requirements

1.30 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. If the permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall within 24 hours of the discovery of the noncompliance, orally notify the commissioner and submit a written description of the noncompliance within 5 days of the discovery. The written description shall include items a. through e., as listed below. If the Permittee discovers other non-compliance that does not explicitly endanger human health, public drinking water supplies, or the environment, the non-compliance shall be reported during the next reporting period to the MPCA with its Discharge Monitoring Report (DMR). If no DMR is required within 30 days, the Permittee shall submit a written report within 30 days of the discovery of the noncompliance. This description shall include the following information:

a. a description of the event including volume, duration, monitoring results and receiving waters;

b. the cause of the event;

c. the steps taken to reduce, eliminate and prevent reoccurrence of the event;

d. the exact dates and times of the event; and

e. steps taken to reduce any adverse impact resulting from the event. (Minn. R. 7001.0150, subp. 3k)

1.31 Unauthorized Releases of Wastewater Prohibited. Except for conditions specifically described in Minn. R. 7001.1090, subp. 1, items J and K, all unauthorized bypasses, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

Chapter 8. Total Facility Requirements

1. General Requirements

1.32 Discovery of a release. Upon discovery of a release, the Permittee shall:

a. Take all reasonable steps to immediately end the release.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon discovery of the release. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area).

c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

d. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.

e. Submit the sampling results as directed by the MPCA. At a minimum, the results shall be submitted to the MPCA with the next DMR.

1.33 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

a. The specific cause of the upset;

b. That the upset was unintentional;

c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;

d. That at the time of the upset the facility was being properly operated;

e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and

f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

Operation and Maintenance

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Chapter 8. Total Facility Requirements

1. General Requirements

1.34 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F.

1.35 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)

1.36 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)

1.37 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

1.38 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

Changes to the Facility or Permit

1.39 Permit Modifications. Except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, no person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to the facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

1.40 No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity.

1.41 Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

Chapter 8. Total Facility Requirements

1. General Requirements

1.42 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)

1.43 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

a. The process for which the additive will be used;
b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. The aquatic toxicity information shall include at minimum the results of: a) a 48-hour LC50 or EC50 acute study for a North American freshwater planktonic crustacean (either Ceriodaphnia or Daphnia sp.) and b) a 96-hour LC50 acute study for rainbow trout, bluegill or fathead minnow or another North American freshwater aquatic species other than a planktonic crustacean;
c. A complete product use and instruction label;
d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use. (Minn. R. 7001.0170)

1.44 Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements.

Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard.

1.45 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.

1.46 TMDL Impacts. Facilities that discharge to an impaired surface water, watershed or drainage basin may be required to comply with additional permits or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) and 40 CFR 122.44.l.2.i., necessary to ensure consistency with the assumptions and requirements of any applicable US EPA approved wasteload allocations resulting from Total Maximum Daily Load (TMDL) studies.

1.47 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

Chapter 8. Total Facility Requirements

1. General Requirements

1.48 Facility Closure. The Permittee is responsible for closure and post-closure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, post-closure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

1.49 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;

b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;

c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

Minnesota Pollution Control Agency

National Pollutant Discharge Elimination System /State Disposal System (NPDES/SDS) Permit Program Fact Sheet

Permittee: U.S. Steel Corp. **Permit Number:** MN0057207 8819 Old Hwy 169 Mt. Iron, MN 55768	**Facility Name:** Minntac Tailings Basin

Current Permit Expiration: July 31, 1992
Public Comment Period Begins: Date **Period Ends:** Date
Receiving Water: Dark River - 2B, 3C, 4A&B, 5, 6
Proposed Action: Permit Reissuance with Compliance Schedule

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Permitting Contact
Erik Smith
520 Lafayette Rd. North
St. Paul, MN 55155
Phone: 651-757-2719
Fax: 651-296-8717

Table of Contents

Purpose and Participation 4
- Fact Sheet Purpose .....
- Public Participation .....

Facility Description 6
- Background Information .....
  - Facility History and Outstanding SOC 6
  - Distinction between State and Federal Discharges 6
  - Facility Location Legal Description 8
  - Facility Operations Description 8
  - Stormwater 11
  - Site Geology and Hydrology 11
  - NPDES Outfall Monitoring Station Legal Description 12
  - Permitted Facility Map 13
  - Surface Water Monitoring Locations 13
  - Groundwater Monitoring Locations 13
- Components and Treatment Technology 17
  - Current Information 17
  - Changes to Facility or Operation 18
  - Make-up Water 18
  - Recent Compliance History 19
  - Recent Monitoring History 20

Receiving Water 21
- Use Classification 21
- Impairments, Listings, and Total Maximum Daily Load Studies 22

Existing Permit Effluent Limits 23
- Technology Based Effluent Limits 23
- Water Quality Based Effluent Limits 23

Proposed Permit Limits and Monitoring 24
- Technology Based Effluent Limits 24

DRAFT

Water Quality Based Compliance Limits 24
Salty Discharge Monitoring 26
Iron and Manganese Monitoring 27
Compliance in Surface Water 28
Sulfate Monitoring 30

Additional Requirements 31

Compliance Schedules 31

Total Facility Requirements 37

Nondegredation and Anti-backsliding 37

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Purpose and Participation

Purpose
The Commissioner of the Minnesota Pollution Control Agency (MPCA) has made a preliminary decision to reissue a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit to U. S. Steel Corp. (USS) for operation of its Minntac tailings basin. This fact sheet has been prepared according to Title 40 of the Federal Code of Regulations (CFR) parts 124.8 and 124.56 and Minn. R. 7001.0100, subp. 3 to provide information regarding the proposed reissuance of the NPDES/SDS permit.

This fact sheet outlines the principal issues related to the preparation of this draft permit and documents the decisions that were made in the determination of the effluent limitations and conditions of this permit.

Public Participation
You may submit written comments on the terms of the draft permit or on the Commissioner's preliminary determination. Your written comments must include the following:

1. A statement of your interest in the permit application or the draft permit.
2. A statement of the action you wish the Minnesota Pollution Control Agency (MPCA) to take, including specific references to sections of the draft permit that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the Commissioner to investigate the merits of your position.

You may also request that the MPCA Commissioner hold a public informational meeting. A public informational meeting is an informal meeting which the MPCA may hold to help clarify and resolve issues.

In accordance with Minn. R. 7000.0650 and Minn. R. 7001.0110, your petition requesting a public informational meeting must identify the matter of concern and must include the following: items 1 through 3 identified above; a statement of the reasons the MPCA should hold the meeting; and the issues you would like the MPCA to address at the meeting.

In addition, you may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1 and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page 1 of this notice. All written comments, requests, and petitions received during

the public comment period will be considered in the final decisions regarding the permit. The Commissioner has pre-determined that the draft permit will be presented to the MPCA's Citizens' Board (Board) for final decision. You may participate in the activities of the Board as provided in Minn. R. 7000.0650.

In order to be considered, comments, petitions, and/or requests must be submitted by the last day of the public comment period to:

Erik Smith
Minnesota Pollution Control Agency
520 Lafayette Rd. North
St. Paul, MN 55155

The permit will be reissued if the MPCA determines that the proposed Permittee or Permittees will, with respect to the facility or activity to be permitted, comply or undertake a schedule to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the MPCA and the conditions of the permit and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the facility may be found in the Permit document.

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Facility Description

Background Information

Facility History and Outstanding Schedule of Compliance

The Minntac Tailings Basin has been in operation since approximately 1967, prior to passage of the Clean Water Act, and was first issued an NPDES/SDS permit on September 30, 1987. This permit expired on July 31, 1992. The Permittee continues to operate the Facility under the expired permit according to Minn. R. 7001.0160.

There has been a long-standing issue with increasing concentrations of pollutants in the tailings basin (notably sulfate, specific conductance, and hardness), and the impact this has had on groundwater and surface water. Beginning in 2001 or earlier, the Agency and the Permittee have entered into agreements to conduct studies and perform remedial measures to reduce concentrations of Sulfate and other pollutants in the tailings basin and surrounding waters leading to the June 9, 2011 SOC, which still has outstanding actions to be performed by the regulated party.

Distinction Between State and Federal Discharges

Within this fact sheet, the term discharge can have several meanings. The intended meaning will be denoted as follows:

- Discharge(H) – (Hydrologic definition) The flow of water, including any suspended solids, dissolved chemicals, and or biological materials from one water body or aquifer to another, or through a given cross-sectional area.

- Discharge(CWA) – (NPDES - CWA definition) Any addition of any pollutant to **navigable waters** from any point source. Navigable waters means waters of the United States, including the territorial seas. Waters of the United States is defined by 40 CFR 122.2.

- Discharge(S) – (Minn. Stat. § 115.01 definition) The addition of any pollutant to the **waters of the state** or to any disposal system.

    - -"Waters of the state" means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof. {with the exception that disposal systems or treatment works operated under permit or certificate of compliance of the agency are not "waters of the state." - Minn. R. 7050.0130(2)}

This permit contains conditions and limits on the management and discharge(H) of the facility's industrial process wastewater, stormwater, and onsite domestic wastewater effluent. The conditions and limits are derived from both state and federal authority. Those derived from state authority govern discharge(S) of wastewater from the tailings basin to groundwater, which is a water of the state but not a water of the United States (navigable water). Additionally, any

impacts to surface waters from pollutants that were transported from the tailings basin via groundwater are addressed under state statute based on the reasoning discussed below. Seepage that emerges either from the side of the basin dike, or within the vicinity of the toe of the dike, that creates surface flow or ponded features that would not exist in the absence of the tailings basin, has historically been regulated by MPCA under federal NPDES guidelines. That practice will continue under this permit. The differentiation between this seepage and discharge(H & S) to groundwater is discussed below.

MPCA uses the term "deep seepage," to refer to wastewater from the basin that enters the underlying surficial aquifer and travels as groundwater, which may emerge into the surrounding wetlands, lakes or stream channels as baseflow, or may remain in the subsurface within the regional groundwater flow system. The surficial aquifer beneath and surrounding the tailings basin consists of unconsolidated glacial sediments and as such, the movement of water through it is consistent with the physics of porous media flow. Within the aquifer, which at this facility extends laterally for several miles, water can move in any direction depending on the hydraulic head (water table) conditions, which can, and do vary aerially and over time. This flow system is neither confined nor discrete and is not consistent with the examples of underground conveyances explicitly mentioned in the CWA definition of a point source (i.e., is not a tunnel or discrete fissure). Flow through porous media is also subject to lateral dispersion, which is the mixing and spreading of the pollutant perpendicular to the path of fluid flow. There is a scaling factor to this phenomenon, whereby the degree of dispersion often increases at a greater rate as the flow path lengthens. Consequently, the area over which impacted groundwater may discharge(H) to surface water features can be thousands of feet in length, covering hundreds, to thousands of acres, particularly when discharging(H) to wetlands. Although deep seepage may eventually commingle with surface water, the flow path that the pollutants travel from the basin to surface water is not a discernible, confined, and discrete conveyance. Therefore the transfer of pollutants from the tailings basin to surface water via groundwater does not meet the CWA definition of a point source, and consequently it is not a discharge(CWA) under the CWA.

In addition to the ways that deep seepage does not conform to the physical description of a point source, EPA's published opinions have excluded groundwater from coverage under the CWA. The U. S. EPA has recently proposed a revision to the definition of **waters of the United States** in which "groundwater, including groundwater drained through subsurface drainage systems" is explicitly excluded from classification as a "water of the United States" See Federal Register, Vol. 79, No. 76 / Monday, April 21, 2014 / Proposed Rules. Also, when initially developing Effluent Limit Guidelines and New Source Performance Standards for the mining industry, EPA stated "the Agency does not propose to regulate seepage from impoundments at ore mines and mills other than those extracting uranium. The extent to which such seepage adversely affects navigable waters (as opposed to groundwater) is highly problematic. Frequently, even when seepages reaches navigable waters, it does not constitute a point source discharge – a discernible, confined and discrete conveyance – and is therefore not subject to effluent limitations." (Federal Register Vol. 47, No. 114, Monday, June 14, 1982)

Although Federal regulations do not govern discharges(H) to groundwater or seepage from tailings basins, Minn. Stat. § 115.03, subd. 1, item e gives MPCA authority to require permits for the operation of disposal systems discharging (S & H) to waters of the state, and a person

operating a disposal system is required to have a permit under Minn. Stat. § 115.07. The Minntac tailings basin meets the definition of disposal system in Minn. Stat. § 115.01, subd. 5 and **Waters of the state** include all accumulations of water, surface or underground (Minn. Stat. § 115.01, subd. 23). Consequently, MPCA intends to regulate deep seepage as a discharge(S) to a water of the state in accordance with State Disposal System Permit guidelines.

In addition to deep seepage, discharge(H) from the tailings basin may occur as seepage points along the exterior toe of the outer basin dikes. These features are analogous to base of hillslope springs. Some are small and ephemeral, while some of the larger seeps create ponded features with measureable flows of several hundred gallons per minute into the adjacent wetlands and streams. The source of this water, particularly at the larger, persistent seeps, is likely a combination of the following:

A. flow from the basin, through the dike, emerging very near the base (dike seepage);
B. flow under the dike, on a curving flowpath through the native sediments (shallow groundwater flow); and
C. precipitation falling on the outer portion of the dike and percolating through it (throughflow).

Historically, MPCA has issued an NPDES permit establishing effluent limits and other conditions to control these seeps and intends to do so under this permit also. The flow from the large seeps is often observable and with installation of a berm and outlet weir it can be measured, similar to flow from a ditch or channel. This allows quantification of flow volume and pollutant load, such that the reasonable potential to cause or contribute to exceedance of a water quality standard can be evaluated and, if necessary, effluent limits can be determined and applied.

Facility Location Legal Description

The US Steel - Minntac Tailings Basin Area facility (Facility) is located in multiple Sections of Township 59 North, Ranges 18 and 19 West, Mountain Iron, St. Louis County, Minnesota.

The facility covers approximately 8700 acres (13.6 square miles) and consists of the Minntac tailings basin, the drainage area contributing surface runoff to the basin, and all wastewater disposal systems within the area designated on the map on page 13. The contributing drainage area includes part of an overburden/rock stockpile area to the southwest of the basin, as well as part of the Minntac plant area. That portion of the plant area which drains to the basin includes the concentrator, the agglomerator, the sewage treatment plant, the lube storage area, a substation, the plant area reservoir, and part of the crushing facilities.

Facility Operations Description

The principal activity at this facility is taconite processing. At the maximum operating rate, the facility will generate 15 million long tons of taconite pellets per year. The Minntac plant consists of a series of crushers and screens, a crusher thickener, a concentrator, an agglomerator, and various auxiliary facilities. The concentrator utilizes a series of mills, magnetic separators, classifiers, hydroclones, hydroseparators, screens and thickeners, as well as a flotation process. Chemical additives include flocculants and various flotation reagents. The flocculants comprise Calgon M-5729, added to the crushing plant dust collector slurry at a rate of one pound per hour

(lb/hr), and Calgon M-5372 or equivalent cationic homopolymers added to the concentrator tailings slurry prior to the thickening stage, at a rate of 170 lb/hr. The flotation reagents comprise: (a) an alkyl ether primary amine acetate or alkyl ether diamine acetate collector, Arosurf MG-83, Arosurf MG-83A, Tomah DA-17-5% Acetate, or equivalent (alkyl chain R no greater than C_{14}), added at a maximum rate of 295 lb/hr; (b) an alcohol frother, methyl isobutyl carbinol, Arosurf 2057, Nalflote 8848, or equivalent (mixed C_4 to C_9 aliphatic alcohols only), added at a maximum rate of 101 lb/hr; and (c) anti-foaming agents Oreprep D-202 or Nalco 7810 Antifoam, added at a maximum rate of 162 lb/hr.

The agglomerator receives the concentrate, which is then dewatered by disc filters. The filter cake is then mixed with bentonite and formed into pellets in balling drums. The pellets are dried, heated, and fired in a grate kiln, and then loaded for rail transport.

Wastewater inputs to the tailings basin consist of the following, with their estimated average rates:

• Fine tailings slurry/concentrator process water	22,000 gpm
• Agglomerator process water	14,800 gpm
• Sewage plant discharge, formerly covered under NPDES/SDS Permit MN0050504	40 gpm
• Laboratory wastewater (neutralized)	3,650 gal/yr
• Plant non-process water (wet scrubber discharge, floor wash, roof runoff, non-contact cooling water	Unknown
• Runoff from plant area, stockpile areas and adjacent upland areas	Unknown

The agglomerator process water, sewage plant discharge, laboratory wastewater, plant non-process water and surface runoff from the plant area enter the south side of the basin through a series of pipes and ditches to the north of the concentrator and agglomerator buildings, in Section 28. Surface runoff from the upland area to the southeast of the basin enters through a series of four culverts through the perimeter dam. Runoff from the stockpile area and upland area to the southwest of the basin enters by seepage through the perimeter dam.

An average of 21 million long tons of dry fine tailings and 14 million long tons of dry coarse tailings are disposed of each year in the tailings basin. The coarse tailings are generated from the classifier, following the first stage of milling and magnetic separation. The fine tailings are generated from the crusher thickener overflow and the tailings thickener underflow. The fine tailings slurry and concentrator process water is directed by gravity flow through pipes from the Step I, II, and III thickeners to a series of open ditches to the Minntac tailings basin. The flow from the flotation process is restricted to Step I thickeners. The fine tailings slurry and flotation wastewater is routed to the tailings basin via one of two flow routes (east or west). Internal waste stream WS006 is representative of the fine tailings slurry wastewater flow to the east while WS007 is representative of the wastewater flow to the west. The basin is segmented into several cells, and the fine tailings spigot point is periodically moved from one cell to another. A permanent pumping station located within the basin returns water to the plant site reservoir. The station is located on the east side of Cell 1 (SE ¼, Section 15). Calcium chloride is occasionally used as a chemical dust suppressant on the basin and haul-roads in the facility. Some coarse

tailings are used for sanding on roads in the facility during the winter, and others are sold as aggregate product.

The various basin cells are separated by dikes, each constructed of a single berm of coarse tailings placed by truck and various pieces of auxiliary equipment. Most of the perimeter dam for the tailings basin is constructed by spigotting a fine tailings slurry into the core between parallel inner and outer coarse tailings dikes; that part of the perimeter dam on the southwest side of the basin is constructed in the same manner as the interior basin dikes. The coarse tailings dikes are constructed by truck in ten foot lifts. The perimeter dam spigot lines are located on the dry side of the core; this creates a surface slope from the dry side down to the wet side, thus causing the water from the slurry to pond on the wet side of the core and seep through the wet side dike to the retained water within the disposal facility. Peat was removed from the original ground area to be occupied by the perimeter dam, and a ten foot deep key-way was dug in the core portion of this area.

A demolition debris landfill (Solid Waste Permit SW-240) is located on the southeast corner of Cell A-2. The abandoned Minntac dump site (Agency Landfill Inventory Number SL-183) is located in the southwest corner of Cell 1 (SW ¼, SE ¼, Section 21 and NW ¼, NE ¼, Section 28). Paper, lunch wastes, wood scrapes, scrap metal, mill grease, and waste oil were disposed of at this dump during its period of operation.

A minor permit modification was done in 2010 to allow for the construction of a Seep Collection and Return System (SCRS) as required by a Schedule of Compliance originally entered into by the Company and the MPCA on November 14, 2007, and as amended by Amendment No. 1 on February 25, 2010.

Due to safety issues at the current internal monitoring station, WS001, the minor permit modification in 2010 also included the relocation of monitoring station WS001 to two separate monitoring stations, now identified as WS006 and WS007. These stations are representative of the entire fine tailings slurry flow from the Concentrator which also includes wastewater flow from the flotation process. The fine tailings slurry is directed through one of two routes at any given time, either to the east portion of the tailings basin past WS006 or to the west portion of the tailings basin past WS007, for uniform tailings distribution and disposal. These locations were used to monitor for the presence of free amine in the fine tailings slurry flow and any associated toxicity. Since monitoring results have not indicated the presence of amines or shown toxicity, and since WET testing is required at the discharge location (SD001) and in surface water under the reissued permit, toxicity monitoring at WS006 and WS007 will no longer be required.

A domestic wastewater treatment plant for the facility was previously covered under SDS permit number MN0050504, but will be incorporated into this reissued permit. The plant consists of a lift station which discharges to bar screens followed by an activated sludge package plant. The package plant is an extended aeration Infilco Accelo-BIOX Type "C" Plant. It provides continual aeration, mixing, recirculation, settling, and clarification within a single circular unit. Raw domestic wastewater is introduced at the bottom, outer zone of the unit; aeration and mixing is provided by a sparge ring at the bottom of this outer zone. Mixed liquor from the outer zone

overflows into an inner cone that provides settling; the settling sludge is returned by gravity to the outer zone as return activated sludge (RAS). A cylindrical clarification zone within the inner cone then discharges through a peripheral launder. The effluent is disinfected using sodium hypochlorite prior to routing from the system to the tailings basin. Monitoring of the effluent to the basin will occur at WS008. Waste activated sludge is periodically pumped directly from the outer zone as needed and transported to the Mt. Iron WWTP. The WWTP was originally designed for an average flow of 0.06 mgd and a maximum flow of 0.09 mgd. The WWTP is a Class C facility.

Stormwater

Facilities that discharge storm water associated with industrial activity as defined at 40 CRF 122.26(b)(14) are required to either apply for an NPDES storm water permit or include in their permit application information pertaining to storm water sufficient to allow the permitting authority to include storm water requirements into the facility's NPDES/SDS permit.

Storm water permits typically require the Permittee to meet the effluent limitations in the permit, develop a storm water pollution prevention plan that contains descriptions of the measures and controls the Permittee will implement to meet the effluent limitations, and perform monitoring and inspection.

Storm water effluent limitations can be numeric or in the form of best management practices, which are control measures used by the Permittee to eliminate or reduce the exposure of pollutants to rain, snow, snowmelt, and the runoff generated from these events. A storm water pollution prevention plan typically requires the organization of a pollutant prevention team, development of a site map, including the location of potential pollutant sources and drainage patterns, and the description of the measures used to limit the exposure of pollutants to storm water or to treat polluted storm water prior to discharging it to local waterways.

Since all storm water at this Facility is contained within the tailings basin, additional monitoring points and numeric limitations specific to storm water are not needed. Management of storm water will be done utilizing best management practices and a pollution prevention plan.

Site Geology and Hydrology

Geology at the site consists of a thin layer (0 to 50 feet) of heterogeneous glacial outwash sediments comprised of variably interbedded and intergraded silty sands, gravels and thin clay units. The sediments are overlain by a thin layer of organic rich soils, including peat deposits in the lowest-lying areas. The glacial sediments are generally thinnest at the southern part of the site along the Laurentian Divide and deepen to the north. The underlying bedrock is granitic and is thought to be relatively impermeable except for a shallow zone of weathering at its surface. The bedrock surface is irregular and generally mimics the surface topography in that local highlands are underlain by elevated bedrock knobs and wetlands and surface water features are generally situated over bedrock depressions.

The tailings basin also straddles a north-south trending watershed divide and has buried the headwaters of the major streams in those watersheds, the Dark River to the west and the Sand

River to the east. The headwaters for both streams are now adjacent to the basin dike and are presumably fed by emergent groundwater originating from the basin ("deep seepage", as previously defined). Each stream is situated over a roughly U-shaped bedrock depression that is up to about 90 feet deep. The western half of the northern dike is also on the southern boundary of the Johnson Creek watershed which extends north of the tailings basin. There is no channelized surface flow leading away from the basin in this watershed.

Given the position of the tailings basin on the edge of the Laurentian Divide, and the greatly elevated hydraulic head (30+ feet) that has been created within it, it is presumed that the general groundwater flow is away from the basin to the east, north and west and that after more than 40 years of operation, essentially all groundwater in the surficial aquifer beneath the basin is tailings-impacted. Due to the extreme head gradient across the dikes (~0.05), and the relatively shallow gradient in the surrounding wetlands (~0.001 to 0.003), considerable emergent flow at and near the base of the dikes is expected, and has been observed. This is supported by monitoring and modeling results which show the presence of an upwards vertical gradient near the basin that diminishes with distance from the basin. Emergent groundwater seepage at the toe of the basin dike which flows into the Dark River and Sand River has been allowed under the existing permit at compliance/monitoring locations SD001 and SD002, respectively. Average flows over the past decade have been approximately 0.14 million gallons per day (MGD) at SD001 and 0.28 MGD at SD002 (prior to seep collection). Air photos indicate that there are other areas of shallow seepage that do not report to the monitoring stations and represent unaccounted for flow.

In 2010, the permittee installed a seep collection and return system (SCRS) along roughly 1 ¾ miles of the east side of the basin including SD002. The SCRS system consists of catch basins located in each of the 13 identified seepage locations, hydraulically connected by subsurface HDPE piping to pump stations. Each of the seepage areas have been shaped and graded to promote seepage flow to the catch basins. Sheet pile cut-off walls were installed downgradient of each catch basin, connecting areas of higher elevation on either side of each discrete seepage location, to a depth of approximately 15 feet below existing ground level to ensure that surrounding wetlands are minimally impacted. The SCRS system consists of two subsystems, one collecting seepage from the northern section and the other from the southern section. Each subsystem terminates in a pump station consisting of a concrete vault containing a duplex pump system capable of returning the collected seepage back to the tailings basin clear pool reservoir. An average of 0.78 MGD was collected by this system in October of 2010, which is 0.5 MGD greater than the average flow previously reporting to SD002. Construction of a similar system on the west and northwest sides of the basin is required under the June 9th, 2011 SOC. The Dark River SCRS is currently being revised to minimize wetland impacts and it is anticipated to be installed and operational during the term of this reissued permit.

<u>NPDES Outfall Monitoring Station Legal Description</u>
SD001 (formerly 020) on the west toe in the SE ¼, NE ¼, NW ¼, Section 18 is the only monitored outfall subject to compliance with NPDES guidelines under the CWA in this joint SDS/NPDES permit. Monitoring has been conducted at the SD001 sampling station due to its position at the headwaters of the Dark River, and because it is thought to be representative of the multiple dike seeps existing on the west and northwest perimeter of the tailings basin.

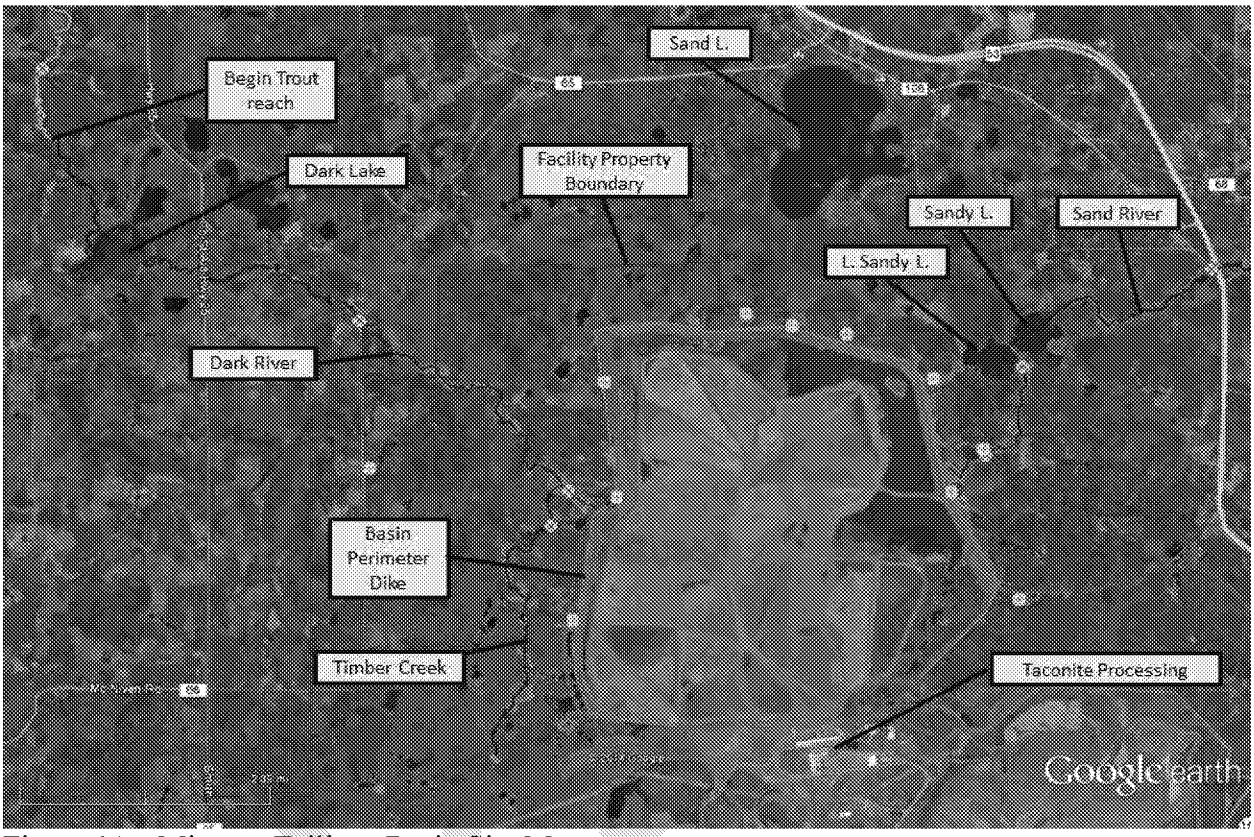

Figure 01 – Minntac Tailings Basin Site Map

Surface Water Monitoring Locations

Under this permit, the Permittee will be required to establish Sampling Stations (described below) for monitoring of surface water quality in surface water downgradient of the tailings basin. Where the tailings basin is causing or contributing to exceedance of water quality standards, interim and/or final compliance limits are established in this permit.

Surface water monitoring for compliance with numeric water quality standards and narrative criteria is proposed in streams and lakes listed in the State of Minnesota Public Waters Inventory (PWI) that originate within one mile of the tailings basin. On the west side, this includes the Dark River and Timber Creek. On the east side there is the Sand River which originates near the basin and passes through Admiral Lake, Little Sandy Lake and Sandy Lake. To the north, there are no PWI features within one mile, only a few shallow wetland features, and Sand Lake, which is just greater than one mile from the basin. There is a lesser gradient to the north than to either the east or west and there is no known impact to Sand Lake from the basin. Sampling conducted there in 2010 and 2011 indicated an average sulfate concentration of 3.2 mg/L and specific conductance of approximately 100 uS/cm, which are in the anticipated range of background concentrations for these parameters in this region. Therefore, no monitoring of Sand Lake is proposed at this time.

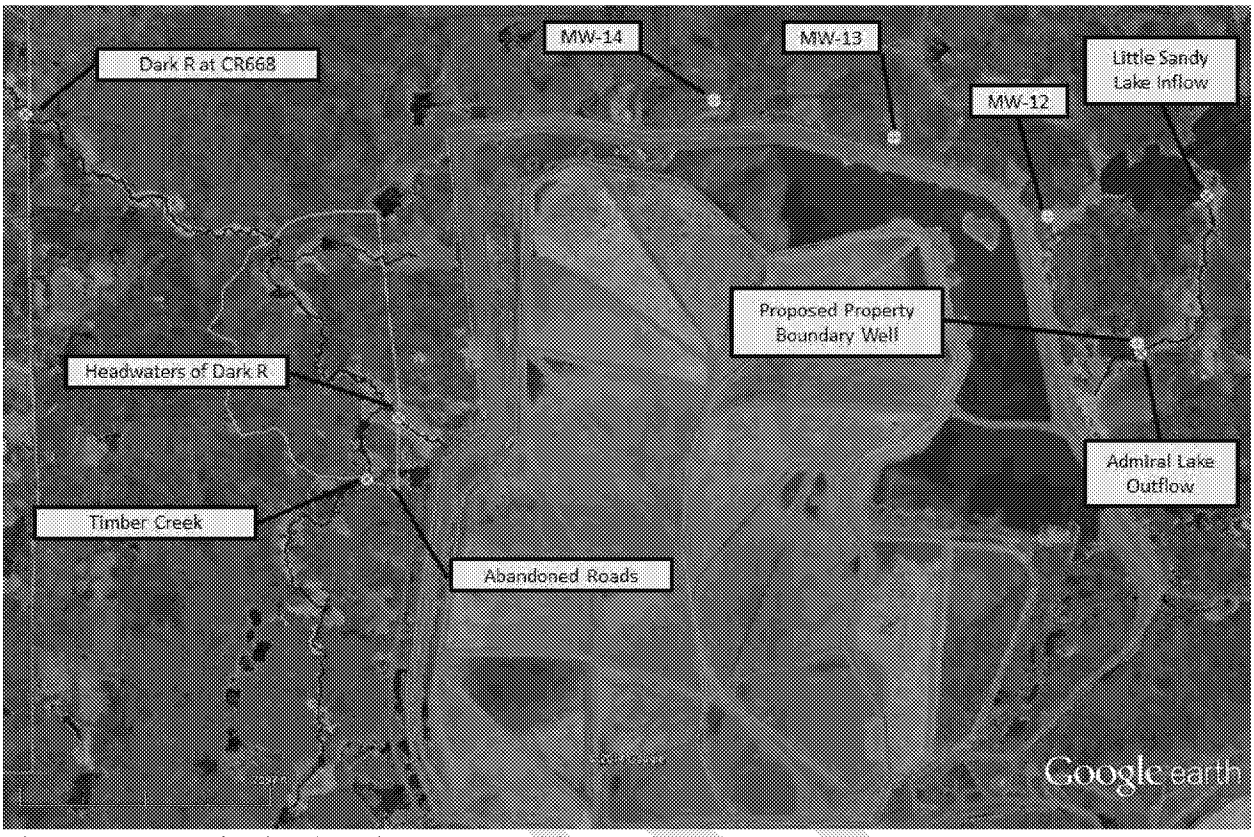

Figure 02 – Monitoring locations new to this permit

Timber Creek (Class 2B, 3C, 4A, 4B, 5 and 6) originates on the north flank of the Laurentian Divide and flows to the north, generally parallel to the west side of the basin and at an average distance of about ½ mile from it. With a total length of about 4.4 miles, Timber Creek flows into the Dark River approximately 2000 feet downstream from its headwaters at the toe of the basin. There is no known flow or analytical information for Timber Creek. Based on air photo analysis, it appears to be roughly 10 feet wide in those portions of the stream that are channelized, however in many areas the stream passes through shallow, flooded wetlands and would likely be difficult to follow on the ground. Compliance monitoring is proposed for Timber Creek because seeps on the southwest corner of the basin appear in air photos to be tributary to it, and it is likely to be receiving emergent groundwater that originated at the tailings basin as a portion of its baseflow. A surface water sampling station for compliance monitoring is proposed at where the creek crosses an abandoned roadway, roughly one-half mile prior to Timber Creek's confluence with the Dark River (Figure 02). This location was chosen because it would allow for assessment of impacts from possible groundwater and surface water contamination that could occur along almost the full length of the stream and because the abandoned roadway may provide a means of access from a basin perimeter road roughly one-third of a mile away.

The Dark River (Class 2B, 3C, 4A, 4B, 5 and 6) originates just outside of the tailings basin near current monitoring station SD-001 and flows approximately 7.5 miles before entering Dark Lake (Class 2B, 3C, 4A, 4B, 5 and 6). It continues flowing north out of Dark Lake for 1.59 miles where its designation changes to a trout stream (Class 1B, 2A, 3B, 4A, 4B, 5 and 6) for the next 7.91 miles. After the trout stream reach, the river continues for 1.36 additional miles before

entering the Sturgeon River, which flows north for 28.27 miles before entering the Little Fork River. Sampling has been conducted for a limited set of parameters at two downstream locations on the Dark River under the SOC. Sample location D-1 is where the Dark River crosses County Road 668 (~4 river miles from the basin) and location D-1a is where the river crosses County Road 65, which is within the trout stream reach (Class 2A, 3B, 4A, 4B, 5 and 6), roughly 1 ¼ miles downstream from where the designation starts. These locations are shown on figure 02. Elevated concentrations of sulfate, total dissolved solids, bicarbonate, hardness, and specific conductance have been observed at locations D-1 and D-1A; some concentrations exceed applicable surface water standards.

Impacts to the Dark River from the tailings basin are presumed to be from surface flow originating at seeps, including SD-001, and shallow and deep seepage groundwater flow that enters the Dark River as baseflow both near the basin and at unknown distances downgradient from the basin. Under the 2011 SOC, a SCRS is to be constructed along the western basin margin which will presumably capture the current surface flow from SD-001 as well as shallow groundwater flow. This will likely result in a change in the observable location of the headwaters of the Dark River, as well as a significant decrease in concentrations of parameters in this area, particularly during times when baseflow is not the dominant component of headwaters stream flow (i.e. snow melt). Due to this, the possibility exists that under some hydrologic conditions, downstream tailings-impacted baseflow contributions could cause an increase in the concentrations of some parameters from what is observed at the headwaters. To assess this, and to ensure that compliance is maintained along the length of the stream, monitoring for compliance is proposed in the Dark River at a headwaters location and a downstream location where it is likely that most or all of the tailings-impacted baseflow has emerged (figure 02). The proposed headwaters location is just prior to where Timber Creek joins the River. Although this is about 1700 feet further from the basin than SD-001, this location is chosen because due to its distance from the basin, it will likely have measureable flow even after the SCRS is operational. It should be noted that the exact location of both the Timber Creek and Dark River headwaters sampling stations will be determined by field conditions.

Insufficient information exists regarding the groundwater flow patterns and groundwater-surface water interactions along the Dark River to know at what point the river has ceased receiving tailings-impacted baseflow. Determining this would likely require a significant study in terms of time and expenditure. The existing SOC sampling point D-1 at the County Road 668 crossing is 4.4 river miles downstream from the basin and 2.3 miles from the northwest corner of it. It is very likely that this location is far enough from the basin that there is not any significant loading to the river downstream of this point, and it is the first downstream point on the river that has existing maintained access. For these reasons, this location (CR 668 crossing) is proposed as the downstream sampling point on the Dark River. Compliance monitoring requirements would also be developed at this location in order to ensure and evaluate compliance with water quality standards for those parameters that are unique to the downstream portion of the Dark River that is a designated trout stream. Concentrations of key parameters at the CH65 location within the trout stream reach are fairly consistently about one-half of those observed at the CR668 sampling point during same-day sampling events; thus, establishing permit compliance limits at the CR668 sampling point to protect the downstream trout stream use of the Dark River is reasonable and defensible.

The Sand River (Class 2B, 3C, 4A, 4B, 5 and 6) originates just outside of the tailings basin near former monitoring station SD-002 and flows approximately 1/4 mile before entering Admiral Lake. It exits the east side of the lake and flows roughly 1 ¼ miles to Little Sandy Lake, which flows directly into Sandy Lake through an approximately 60 foot wide opening in a peninsula which otherwise separates the two lakes, which are also known as the Twin Lakes (Class 2B, 3C, 4A, 4B, 5 and 6). The river exits the east end of Sandy Lake and flows east 11.84 miles where it joins the Pike River. Under the existing permit, monitoring was done for sulfate and flow at SW-001 which is where the Sand River crosses highway 53, approximately 2 ½ miles downstream from Sandy Lake (Figure 02). Additionally, under an agreement between the Bois Forte Band of Chippewa and U.S. Steel, monitoring has been conducted since 2010 by the 1854 Treaty Authority at four locations; the inlet to Little Sandy Lake, the middle of Little Sandy Lake, the middle of Sandy Lake, and the outlet of Sandy Lake, identified as Twin 1, 2, 3, and 4, respectively. Monitoring at these locations as well as SW-001 has shown elevated concentrations of sulfate, total dissolved solids, bicarbonate, and specific conductance with some concentrations exceeding applicable water quality standards. Not all parameters for which there are applicable water quality standards have been monitored for however.

Like the monitoring proposed for the Dark River and for similar hydrologic reasons, compliance monitoring is proposed along the Sand River and its associated lakes at a near headwaters location and a downstream location. With operation of the SCRS on the east side of the tailings basin, there is no longer any observable flow at SD-002. The segment of the Sand River from between the basin and Admiral Lake is poorly channelized and hard to discern. For this reason the "headwaters" sampling station is proposed to be where the Sand River exits Admiral Lake on its east side. There is no known monitoring data for Admiral Lake, and a compliance point here would be representative of the water quality in the lake resulting from both stream inflow and groundwater contributions and possibly allow for flow monitoring if a definable channel is present or can be established. Flow monitoring is desirable because coupled with chemical analysis, it will allow for mass transport calculations to be performed, which can be used to determine where contaminant mass may be entering the river system.

Sampling conducted by the 1854 Treaty Authority from 2010 through 2012 has shown that concentrations of water quality parameters impacted by the tailings basin are greatest at the upstream Twin 1 location and decrease at each successive downstream sampling location. For this reason, the "downstream" sampling location on the Sand River is proposed to be at the inflow of the river to Little Sandy Lake, at the general location of the current Twin 1 sampling point. Also, since MPCA staff have made a preliminary draft staff recommendation that Little Sandy Lake and Sandy Lake can be considered waters used for the production of wild rice, the river's inflow to these two lakes is the logical point to monitor for compliance with the sulfate standard for wild rice production waters.

Sampling at SW001 shall continue under the reissued permit so that the gross pollutant loading to the Sand River can be monitored and compared to a significant period of record to assess the ongoing impact of the tailings basin, the effectiveness of mitigation efforts, and to determine if limits are needed to protect surface water along this portion of the Sand River.

Groundwater Monitoring Locations
Under this permit, the Permittee will be required to monitor groundwater quality downgradient of the tailings basin at existing and proposed monitoring wells. Where the tailings basin is causing or contributing to exceedance of groundwater quality standards at the property boundary, final compliance limits are established in this permit.

Monitoring is currently conducted at ten monitoring wells, installed to depths of 14.5 to 34.8 feet below the ground surface around the basin. Wells GW003, GW004, GW006, GW007, and GW008 are located roughly adjacent to the outer basin dike and all show impact from the basin. Well GW009 is about 2 ¼ miles west of the basin and does not appear to be impacted by pollutants from the basin. GW010 is located roughly 1200 feet east of the southeast corner of the basin and appears to be cross-gradient, but monitoring results are variable and may reflect impact from the basin. Monitoring at these wells will continue under the reissued permit to assess ongoing impacts to groundwater, however since they are all distant from the property boundary, limits will not be established. Wells GW012, GW013, and GW014 are located along the property boundary, therefore compliance limits are established at these wells. Under the reissued permit an additional groundwater monitoring location (GW011) shall be installed near the property boundary in the vicinity of Admiral Lake. A well nest, consisting of shallow (water table), intermediate and deep wells, is to be installed to monitor groundwater flow in the bedrock trench which roughly underlies the Sand River. Following installation, three rounds of sampling will be performed, and the well with the highest concentration of sulfate will receive the GW011 designation and be used as the compliance monitoring location.

Components and Treatment Technology
Current Information
The facility uses a wastewater treatment system for the blowdown from the Agglomerator Line wet scrubber. The wastewater treatment system includes: a scrubber water recirculation tank, a equalization/precipitation tank, lime slurry make-up and feed system, 1st stage thickener, polymer make-up and feed system, scrubber solids settling/storage pond, and all related piping and equipment.

Scrubber blowdown water from the recirculation tank is sent to the equalization/precipitation tank at an average rate of 50 gallons per minute (gpm). Lime is added at the equalization/precipitation tank to increase calcium concentrations and promote calcium sulfate (gypsum) precipitation. Settling of the precipitated solids occurs in the 1st Stage Thickener. Polymer may be added to the 1st Stage Thickener to enhance solids settling. The solids are sent to a 25 acre-foot, composite lined settling/storage pond located on-site for the dewatering, and possible ultimate disposal, of the solids generated from the treatment system. The overflow from the 1st Stage Thickener is sent to either the Concentrate Thickener or Slurry Mix Tank. Available alkalinity in the concentrate slurry converts from bicarbonate to carbonate and allows calcium carbonate precipitation. The calcium carbonate precipitate is then removed in the disc filters along with the concentrate and made into pellets. The filtrate from the disc filters is then used as process water and eventually sent to the tailings basin. The treatment system is specifically designed to achieve a "no net increase" in mass loading of sulfate and calcium to the tailings basin. Fluoride removal also occurs due to the reactive nature of fluoride with excess calcium.

Waste stream monitoring stations WS002, WS003, and WS004 are included for the scrubber wastewater treatment system. WS002 is located at the plant water make-up to the scrubber system, WS003 is located at the overflow from the 1st Stage Thickener, and WS004 is located on the concentrate slurry to the Concentrate Thickener or Slurry Mix Tank.

A minor modification of the permit was done in 2007 to include the addition of waste stream monitoring station WS005, and the revision of the requirement for "no net increase" in calcium mass loading to the tailings basin to more appropriately require a "no net increase" in hardness (calcium + magnesium) mass loading to the tailings basin. WS005 is located at the influent to the Step I Reclaim Thickener. Monitoring at WS005 is required since the Step I Reclaim Thickener can receive overflow from the 1st Stage Thickener in order to comply with the "no net increase" in hardness requirement as described in this permit.

Changes to Facility or Operation

Make note of any changes in operation or components. Check with Permittee.

Make-up Water

The operation currently imports approximately 4.64 million gallons per day (MGD) of water from the Mt. Iron Pit at the mining area to make up for losses that occur during taconite processing and recirculation of the water through the tailings basin ponds. Part 7.ppp of the June 9, 2011 Schedule of Compliance, identified the use of alternate make up water with a lower sulfate concentration than Mt. Iron pit water as a means to mitigate the increased loading of sulfate to the basin water, and required a study to evaluate alternative water sources. Sump 6 at the mining area was identified as a suitable source and a proposal to utilize this water has been approved by MPCA. It is scheduled to become operational by January 31, 2015.

To enable possible further reductions in loading of sulfate and hardness to the basin, this permit authorizes USS to manage its intake water supply source(s), without modification to this permit, when the following conditions are met:

1. The proposed water source is of an equivalent or better water quality, with respect to concentrations of total sulfate, hardness (ca + mg), total dissolved solids and bicarbonate, than the water source (sole or composite) being utilized at the time of the requested change, and of any Mt. Iron Pit or Sump 6 water source that may be available but is not being utilized at that time;
2. The appropriation has received an applicable permit from DNR, if required;
3. The appropriation has received other applicable permits (401/404 permits) if required;
4. Utilization of the water source complies with all applicable dam safety regulations;
5. The appropriation has completed the environmental review process if required;
6. The water has been analyzed in accordance with the guidelines described in Total Facility - General Requirements - Sampling subsection of the permit for the following parameters: alkalinity (bicarbonate as CaCO3), aluminum (total), ammonia, antimony (total), arsenic (total), barium (total), bicarbonates (HCO3), boron (total), cadmium, chloride, cobalt, (total), copper, Fluoride, Hardness (Ca+Mg as CaCO3), Iron (total), Lead, Manganese (total), Mercury, Molybdenum, pH, Phosphorous, Salinity, Selenium,

Silver, Sodium, Specific Conductance, Strontium MCLG, Sulfate, Total Dissolved Solids, Temperature, Thallium, Turbidity, TSS, and Zinc; and,

7. If concentrations of any parameters identified in subheading 6 in the proposed source water exceed that of the existing make up water (excluding sulfate, hardness, total dissolved solids, or bicarbonate, which may not exceed existing concentrations), US Steel must submit documentation that utilization of the water source is not likely to cause or contribute to exceedances of applicable water quality standards in waters of the State downgradient and downstream of the Facility.

Recent Compliance History

The most recent compliance inspection occurred on November 15, 2011. Identified concerns and corrective actions are summarized below.

Inspection Summary

A Compliance Evaluation Inspection was conducted on November 15, 2011, by John Thomas and Andrew Streitz of the MPCA to determine the facility's compliance with the terms and conditions of its NPDES/SDS Permit. Mr. Tom Moe (USS Minntac) accompanied the MPCA inspectors during the inspection. The following is a summary of the findings and comments resulting from that inspection.

Areas of Concern or General Comments:

1. During the review period of July, 2010 through September, 2011, DMRs were submitted complete and on-time. The Permittee began submitting DMRs electronically in August, 2010. During the review period there were no effluent limit violations at SD001 or SD002.

2. There has been no discharge at SD002 after June, 2010, when the seep collection and return system became fully operational.

3. The Seepage Collection and Return system was fully operational by July, 2011. Flow meters are installed at each of the pumping stations. There are two pump stations - one is located at catchbasin #5, which receives gravity flow from catchbasins #1 - #4 and #6 - #9. The second pumpstation is located at catchbasin 10, which is located near proposed monitoring well #11 (west of Admiral Lake). Catchbasin #10 receives gravity flow from shallow de-watering wells #11 - #13. De-watering well #13 is located at the northeast corner of the tailings basin, near peizometer #5.

4. Flow through the weir at SD001 was unrestricted – there was sufficient drop on the outfall side of the weir to allow accurate flow measurement at SD001.

Alleged Violations/Corrective Actions:

1. Violation: NPDES/SDS Permit No. MN0057207 Chapter 4 Part 3.1 states, in-part that on an annual basis, the mass of sulfate leaving the scrubber system shall be less than or equal to the mass of sulfate entering the scrubber system.

For calendar year 2010, there was a net increase of 57,558 pounds of sulfate mass to the tailings basin due to operation of the Line 3 scrubber system.

Corrective Action: The June 9, 2011 Schedule of Compliance between the U.S. Steel and MPCA contains requirements to address this ongoing violation. No further response is required to address this violation at this time.

2. Violation: NPDES/SDS Permit No. MN0057207 Chapter 4 Part 3.2 states, in-part that on an annual basis, the number of moles of excess hydroxide ion (Step 4) must be equal to or greater than the number of moles of excess calcium and magnesium (Step 3) in the thickener overflow stream.

For calendar year 2010, there was a net increase of 741,468 pounds of hardness mass to the tailings basin due to operation of the scrubber system.

Corrective Action: The June 9, 2011 Schedule of Compliance between U.S. Steel and MPCA contains requirements to address this ongoing violation. No further response is required to address this violation at this time.

3. Violation: NPDES/SDS Permit No. MN0057207 Chapter 7 Part 10.1 indicates:

The Permittee shall properly operate and maintain the systems used to achieve permit compliance. Proper operation and maintenance includes effective performance, adequate funding, adequate staffing and training, and adequate process and laboratory controls, including appropriate quality assurance procedures.

NPDES/SDS Permit No. MN0057207 Chapter 7 Part 10.2 states:

The Permittee is responsible for insuring system reliability and shall install adequate backup or support systems to achieve permit compliance and prevent the discharge of untreated or inadequately treated waste. These systems may include alternative power sources, auxiliary treatment works and sufficient storage volume for untreated wastes.

Information submitted with the August, 2011 DMRs for NPDES/SD Permit No. MN0057207 indicates that pipelines used to pump line 3 thickener overflow to the Step I Reclaim Thickener or the Concentrate Thickener became plugged either due to scaling or plugging with excess solids. In addition, the Step I reclaim thickener was taken out of service between August 3 and October 13 due to operational error that caused damage of thickener components. The result was that during the period of August 13 – August 20 the wastestream from the line 3 scrubber bypassed the hardness reduction component of the line 3 scrubber wastewater treatment system.

Corrective Action: within 30-days of receipt of this report submit a written response indicating measures that will be taken to ensure that:

1. the extent of hardness scaling of pipelines will be regularly assessed such that line cleaning and/or replacement will occur prior to pipeline plugging.
2. overflow from the classifiers which handle spillage from the grate will be monitored to prevent excess coarse material from plugging the pipelines from the 287 sump.
3. the Step I Reclaim Thickener will not be overloaded with solids.

Recent Monitoring History
A table with the last 12 months of monitoring results is included at the end of this document.

Receiving Water(s)

Use Classification
For the SD001 outfall the receiving water is the Dark River (Class 2B, 3C, 4A, 4B, 5 and 6, with additional 1B, 2A and 3B classification for the designated trout stream portion). These use classifications include aquatic life and recreation, industrial consumption, agriculture and wildlife, and aesthetic enjoyment and navigation, and other beneficial uses not specifically listed. Aquatic life and recreation classification includes waters that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes and for which water quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare.

Use Classification Descriptions

Class 2 waters, aquatic life, and recreation.
Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes, and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats, or the public health, safety, or welfare.

Class 3 waters, industrial consumption.
Industrial consumption includes all waters of the state that are or may be used as a source of supply for industrial process or cooling water, or any other industrial or commercial purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 4 waters, agriculture, and wildlife.
Agriculture and wildlife includes all waters of the state that are or may be used for any agricultural purposes, including stock watering and irrigation, or by waterfowl or other wildlife, and for which quality control is or may be necessary to protect terrestrial life and its habitat, or the public health, safety, or welfare.

Class 5 waters, aesthetic enjoyment, and navigation.
Aesthetic enjoyment and navigation includes all waters of the state that are or may be used for any form of water transportation or navigation or fire prevention, and for which quality control is or may be necessary to protect the public health, safety, or welfare.
Impairments

Class 6 waters, other uses, and protection of border waters.
Other uses include all waters of the state that serve or may serve the uses in subparts 2 to 6, or any other beneficial uses not listed in this part, including, without limitation, any such uses in this or any other state, province, or nation of any waters flowing through or originating in this state, and for which quality control is or may be necessary for the declared purposes in this part, to conform with the requirements of the legally constituted state or national agencies having jurisdiction over such waters, or for any other considerations the MPCA may deem proper.

Impairments
The receiving water impairments downstream of the Minntac tailings basin are shown in the table below.

West Side Discharge (SD001):

Downstream Impairments	Number of Impaired Reaches	TMDL Status
Sturgeon River	**2**	
Mercury in Fish Tissue	2	*See WLA section below.*
Little Fork River	**11**	
Mercury in Fish Tissue	7	*See WLA section below.*
Turbidity	4	These impairments are part of the Littlefork Major Watershed project. Currently stressor ID is underway and a draft TMDL has not been completed.
Rainy River	**7**	
Mercury in Fish Tissue	7	*See WLA section below.*
Lake of the Woods: Main Lake	**3**	
Mercury in Fish Tissue	1	*See WLA section below.*
Nutrient/Eutrophication Biological Indicators	2	A draft TMDL is expected to be completed sometime in 2016-2017. There is no WLA assigned to this discharge at this time. (*10/28/13 phone conversation with Cary Hernandez)*

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Existing Permit Effluent Limits

The existing NPDES/SDS Permit MN0057207 included technology based effluent limits for seepage discharges(CWA) and monitoring without limits for surface water, groundwater and internal waste streams. A summary of monitored parameters is shown in the table below.

Parameter	Limit	Units	Limit Type	Effective Period	Frequency
GW003, 004, 006-010					
Amines		mg/L	Single Value	Apr, Jul, Oct	1 x month
Elevation of GW Relative to Mean Sea Level		ft.a.m.s.l.	Single Value	Apr, Jul, Oct	1 x month
Temperature		Deg C	Single Value	Apr, Jul, Oct	1 x month
pH		SU	Single Value	Apr, Jul, Oct	1 x month
Specific Conductance		umh/cm	Single Value	Apr, Jul, Oct	1 x month
Total Sulfate		mg/L	Single Value	Apr, Jul, Oct	1 x month
SD001 & SD002					
Amines		mg/L	CalMoAvg / Daily Max	Jan-Dec	1 x month
pH	6.0-9.0	SU	InstantMin / InstantMax	Jan-Dec	1 x month
Specific Conductance		umh/cm	CalMoMax	Jan-Dec	1 x month
Total Sulfate		mg/L	CalMoMax	Jan-Dec	1 x month
Flow		mgd	CalMoTot / CalMoAvg / Daily Max	Jan-Dec	2 x month
Oil & Grease	10 / 15	mg/L	CalMoAvg / Daily Max	Jan-Dec	2 x month
Total Susp. Solids	30 / 60	mg/L	CalMoAvg / Daily Max	Jan-Dec	2 x month
SW001					
Total Sulfate		mg/L	Single Value	Jan-Dec	1 x month
Flow		mgd	Single Value	Jan-Dec	1 x month
SW002					
Amines		mg/L	Single Value	Jan-Dec	2 x year
Toxicity, Whole Effluent (Acute)		TUa	Single Value	Jan-Dec	2 x year
WS002					
Calcium, Dissolved (as Ca)		mg/L	CalMoAvg	Jan-Dec	1 x week
Chloride, Total		mg/L	CalMoAvg	Jan-Dec	1 x week
Hardness, Ca & Mg, Calculated (as CaCO3)		mg/L	CalMoAvg	Jan-Dec	1 x week
Sulfate, Dissolved (as SO4)		ug/L	CalMoAvg	Jan-Dec	1 x week
Flow		mgd	CalMoAvg	Jan-Dec	1 x week
WS003					
Calcium, Dissolved (as Ca)		mg/L	CalMoAvg	Jan-Dec	1 x week
Chloride, Total		mg/L	CalMoAvg	Jan-Dec	1 x week
Fluoride, Total (as F)		mg/L	CalMoAvg	Jan-Dec	1 x month
Hardness, Ca & Mg, Calculated (as CaCO3)		mg/L	CalMoAvg	Jan-Dec	1 x week
pH		SU	CalMoMin	Jan-Dec	1 x week
Flow		mgd	CalMoAvg	Jan-Dec	1 x week
WS004					
pH		SU	CalMoMax	Jan-Dec	1 x week
WS005					
pH		SU	CalMoMax	Jan-Dec	1 x week
WS006 & WS007					
Amines		mg/L	Single Value	Jan-Dec	1 x year
Toxicity, Whole Effluent (Acute)		TUa	Single Value	Jan-Dec	1 x year
Evaporation, accumulated		in	CalMoTot	Jan-Dec	1 x month
Precipitation		in	CalMoTot	Jan-Dec	1 x month

Technology Based Effluent Limits (TBELs)
40 CFR Subpart A—Iron Ore Subcategory § 440.10 establishes TBELs for pH (6.0-9.0 SU), TSS (30 mg/L daily max. / 20 mg/L mo. Avg.), and dissolved iron (2.0 mg/L daily max. / 1.0 mg/L mo. Avg.). These values were instituted as compliance limits at SD001 and SD002.

Water Quality Based Effluent Limits (WQBELs)
There are no WQBEL's in the existing permit.

Proposed Permit Limits and Monitoring

Technology Based Effluent Limits
40 CFR Subpart A—Iron Ore Subcategory § 440.10 establishes TBELs for pH (6.0-9.0 SU), TSS (30 mg/L daily max. / 20 mg/L mo. Avg.), and dissolved iron (2.0 mg/L daily max. / 1.0 mg/L mo. Avg.). These values will continue as compliance limits at SD001 under the reissued permit.

Water Quality Based Limits

Reasonable Potential for Chemical Specific Pollutants (40 CFR § 122.44 (d)(1)
Federal regulations require MPCA to evaluate the discharge to determine whether the discharge has the reasonable potential to cause or contribute to a violation of water quality standards. The MPCA must use acceptable technical procedures, accounting for variability (coefficient of variation [CV]), when determining whether the effluent causes, has the reasonable potential to cause, or contribute to an excursion of an applicable water quality standard. Projected Effluent Quality (PEQ) derived from effluent monitoring data is compared to Preliminary Effluent Limits (PELs) determined from mass balance inputs. Both determinations account for effluent variability. Where PEQ exceeds the PEL, there is reasonable potential to cause or contribute to a water quality standards excursion. When Reasonable Potential is indicated the permit must contain a WQBEL for that pollutant.

SD001 is the effluent monitoring station in this permit. There was sufficient DMR data to conduct reasonable potential analysis for sulfate and specific conductance at this station. Both parameters were found to have reasonable potential to cause or contribute to a water quality standards excursion. Since there is a compliance schedule to mitigate the discharge from SD001, interim limits were established using the procedure described in the section "Compliance Limits in Surface Waters". The following table shows the values used in the reasonable potential calculations.

Parameter		Sulfate (mg/L)	Specific Conductance (mg/L)
Plant Flow	(mliters/d)	0.53	0.53
(ADW)	(mgd)	0.14	0.14
River $7Q_{10}$	(mliters/d)	0.00	0.00
(Class 2B)	(mgd)	0	0
River 7Q10	(cfs)		
Background Conc.		0.8	0.8
Continuous Std (cs)		1000	1000
Maximum Std (ms)			
Final Acute Value			
Waste Ld Allocation:			
	WLAcs	1000	1000
	WLAms		
Coeff of Variation (CV)		0.10855119	0.097333503
Variance		0.01171448	0.009429216
Std. Dev.		0.10823344	0.097104149
Duration (n days)		30	30
Long Term Ave.-LTA			
	u_4/u_{30}	6.86166164	6.866424161
	u	6.85600075	6.861867425
	LTAcs	955.14	959.66
	u_1		
	LTAms		
Use LTAcs < LTAms:			
WQBEL: Daily Max.		1221.4	1197.2
	s^2_n	0.00587439	0.004725722
	s_n	0.07664459	0.068743884
	u_n	6.85892079	6.864219172
Mo.Av. (2x)		1080.31	1072
Max Meas Effl Value		**1320.00**	**3180**
# data points		166	166
PEQ factor		1	1
Proj Effl Qual.(PEQ)		**1320**	**3180**
PEQ > Daily Max		TRUE	TRUE
PEQ> Monthly Ave		TRUE	TRUE
PEQ > FAV		NA	NA
Reasonable Potential		Yes	Yes

Salty Discharge Monitoring

As a result of increased concern regarding salty discharges, MPCA staff determined that there is a need to obtain more information from dischargers. Industrial and municipal facilities with continuous, periodic/seasonal, or intermittent waste flows where the receiving water stream flow to effluent design flow dilution ratio under low flow conditions is less than 5:1 (annual climatic 7Q10:Average Dry Weather Design Flow [domestic] or Maximum Daily Design Flow [industrial]) will be required to monitor effluent for parameters listed in Table 2. Additionally, facilities with salty waste streams from concentrating treatment technologies (e.g., reverse osmosis, ion exchange, membrane filtration, etc.) and food processing industries using density-based (saline) sorting processes will be required to monitor for the parameters in Table 2, regardless of the receiving water to effluent flow dilution ratio. This includes POTWs that accept salty waste streams from water treatment plants or certain sectors of industrial facilities.

Permittees may request a reduction in monitoring if after two years of data (or 10 data points for controlled discharges at ponds), if the monitoring does not indicate a reasonable potential to exceed a water quality standard. The permit shall contain language to this effect in the surface discharge chapter.

Industrial Facilities: Monitoring frequencies will be determined on an individual basis and generally consistent with domestic wastewater facilities. The determination will be made based on the industrial facility process(es) and whether the parameters of concern are known to be present or suspected to be present. The typical monitoring frequency for the salty discharge parameters for industrial facilities, such as ethanol facilities, is once per month. If an industrial discharger proposes to direct salty waste streams to a domestic (or other permitted) facility, the receiving facility permit should be modified if necessary to add appropriate pollutant monitoring and/or limits.

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Table 2. Monitoring Parameters
(More items may have to be monitored if the receiving water is classified for use as a source of drinking water.)

Analyte	**Units (Jan – Dec MoMax)**	**WQ Standard/Justification**
Chloride	mg/L	Class 2 and 3
Ca and Mg Hardness as CaCO3	mg/L	Class 3
Specific Conductance	umhos/cm	Class 4A
Total Dissolved Salts (a.k.a:solids)	mg/L	Class 4A
Sulfates as SO4	mg/L	Class 4A,4B
Bicarbonates (HCO3)	mg/L	Class 4A
Sodium	mg/L	Class 4A
*Calcium	mg/L	Class 4A
*Magnesium	mg/L	Class 4A
*Potassium	mg/L	Class 4A
Whole Effluent Toxicity (WET)**		Use U.S. EPA Method 821-R-02-013 for chronic WET testing for fathead minnows and Ceriodaphnia dubia, if the receiving water is a Class 2(fisheries waters) or 821-R-02-012 for acute WET testing fathead minnows Ceriodaphnia dubia and Daphnia magna, if the discharge does not impact a Class 2 water

* Analytes necessary to calculate Sodium as %total cations. The sodium water quality standard is 60% of total cations
**WET testing will be applied to permittees on a case-by-case basis.

Iron and Manganese Monitoring
Monitoring for iron and manganese in groundwater will be conducted under this permit without limits. The geochemical behavior of these elements is such that the concentration of dissolved iron and manganese ions is controlled more by the local redox state of the groundwater than by proximity to an elevated source. (Hem, Study and Interpretation of the Chemical Characteristics of Natural Water. 3rd ed., U.S. Geological Survey Water Supply Paper 2254)) At this facility, as well as other facilities, there is little correlation between the concentrations discharged to groundwater and those measured in the downgradient monitoring wells. Observed manganese concentrations in the tailings basin water have been roughly 280 ug/L, while monitoring well results have ranged from 102 ug/L to 4558 ug/L. Concentrations in groundwater at GW009, which is an unimpacted background well, have been 139 to 167 ug/L, which is higher than several wells that are impacted by the basin. Iron and manganese are unique in that their concentrations do not correlate with any other parameter related to tailings basin discharge. Also, most dissolved species of the ions will readily precipitate when exposed to dissolved oxygen concentrations typical of surface water or groundwater in contact with the atmosphere. Consequently, the ability of elevated concentrations to persist downgradient is generally limited.

Monitoring data collected under this permit and for studies undertaken by DNR will be evaluated at the next reissuance to determine if limits are appropriate.

Compliance Limits in Surface Waters

As part of state conditions controlling discharges(S) to groundwater, this permit will establish surface water monitoring stations in waters that are potentially impacted by groundwater from this facility. The permit will establish limits for these surface waters based on applicable water quality ambient standards. The permit will require monthly monitoring.

Interim Limits

When a compliance schedule is being used to mitigate exceedances of state water quality standards it is appropriate to establish interim limits based on the more stringent of the current operating conditions at the Facility or existing permit limits. At this facility, there are no existing limits in surface water, so the interim limits will be based on existing conditions. Using recent monitoring data, the limit will be set at the 95th percentile of the lognormal distribution that is defined by the monitoring data collected at each sampling station. The formula to determine the 95th percentile of a lognormal distribution is as follows:

Exp (μ + 1.65 Σ), where μ is the mean of the log of the original data and Σ is the standard deviation of the log values.

The value calculated from this formula shall be the monthly average limit for that sampling station. A minimum of 10 data points will be needed for this calculation and the data must meet the following requirements to be used in the calculation:

- Each data point must have been collected in a discreet calendar month and the data set must have been collected over an interval of at least one year;
- data must have been collected within three years of the date at which the interim limit calculation is performed;
- for stations where there is greater than one year of record, all the data available within the preceding three years will be used in the calculation; and,
- the data set used must have at least 5 percent of the data collected in each of the calendar quarters (i.e. if there are 20 samples, at least one sample must have been collected in each of the four quarters);

For stations newly established under this permit, and for existing stations that do not have a valid data set as defined above, the interim limit for a surface water station will be calculated after data have been collected monthly for a minimum of one year, and at least 10 monthly measurements have been reported. In the calendar month following fulfillment of these requirements, an interim limit will be calculated using the formula described above. Also calculated at this time will be the 99th percentile of the lognormal distribution [Exp (μ + 2.326 Σ)]. If this value exceeds the applicable state water quality standard, the interim limit will become enforceable under this permit. If it does not exceed the state water quality standard, monitoring for that parameter will continue under this permit, without limits. The use of the 99th percentile to determine if the water may have a reasonable potential to exceed the state water quality standards based on ambient monitoring is consistent with the statistical technique used to

conduct reasonable potential for the critical effluent concentration for a point source discharge, and is therefore a reasonable methodology.

The following table shows the data and calculations used to derive interim limits at Dark River monitoring locations.

Calculation of Interim Limits at 95th Percentile

Dark River at CR 668

	Hardness		TDS		Spec. Cond.		Sulfate		Alkalinity	
	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)
Minimum	389	5.963579	526	6.265301			187	5.231109	187	5.231109
	430	6.063785	548	6.306275	744	6.612041	238	5.472271	188	5.236442
	555	6.318968	744	6.612041	826	6.716595	298	5.697093	209	5.342334
	590	6.380123	749	6.618739	988	6.895683	335	5.814131	244	5.497168
	811	6.698268	1050	6.956545	1091	6.99485	459	6.12905	375	5.926926
	1100	7.003065	1600	7.377759	1416	7.255591	689	6.535241	417	6.033086
	1200	7.090077	1610	7.383989	2026	7.613819	741	6.608001	432	6.068426
	1220	7.106606	1620	7.390181	2103	7.65112	750	6.620073	463	6.137727
	1220	7.106606	1650	7.408531	2137	7.667158	763	6.637258	476	6.165418
	1320	7.185387	1658	7.413367	2164	7.679714	767	6.642487	479	6.171701
	1420	7.258412	1880	7.539027	2367	7.769379	814	6.70196	505	6.224558
	1430	7.26543	1920	7.56008	2422	7.792349	909	6.812345	547	6.304449
Maximum	1550	7.34601	1950	7.575585	2424	7.793174	920	6.824374	682	6.52503
Mean	1018.1	6.829717	1346.5	7.108263	1725.7	7.370123	605.4	6.286569	400.3	5.912644
Log norm distr mean(mg/L)		1041		1378		1756		625		406
St Dev	393.0961	0.466986	518.4389	0.470852	632.0395	0.430107	252.8276	0.52892	147.0768	0.417509
Var	167401.6	0.236248	291177.1	0.240177	435789.7	0.201809	69248.59	0.30307	23434.23	0.18884
90th Percentile (mg/L)		1689		2243		2765		1063		633
95th Percentile (mg/L)		1999		2658		3229		1286		736
99th Percentile (mg/L)		2741		3654		4318		1839		976

red denotes that the concentration exceeds the water quality standard

Dark River at CH65

	Hardness		TDS		Spec. Cond.		Sulfate		Alkalinity	
	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)	(mg/L)	(LN)
Minimum	236	5.463832	348	5.852202			125	4.828314	101	4.615121
	306	5.723585	416	6.030685	488	6.190315	164	5.099866	119	4.779123
	311	5.739793	460	6.131226	587	6.375025	167	5.117994	126	4.836282
	437	6.079933	576	6.356108	602	6.400257	236	5.463832	206	5.327876
	496	6.206576	605	6.405228	823	6.712956	244	5.497168	208	5.337538
	636	6.455199	796	6.679599	877	6.776507	361	5.888878	251	5.525453
	678	6.519147	829	6.72022	1161	7.057037	390	5.966147	252	5.529429
	702	6.553933	865	6.76273	1178	7.071573	392	5.971262	287	5.659482
	710	6.565265	920	6.824374	1239	7.12206	399	5.988961	288	5.66296
	764	6.638568	986	6.893656	1319	7.184629	426	6.054439	308	5.7301
Maximum	788	6.669498	1040	6.946976	1412	7.252762	489	6.192362	312	5.743003
Mean	551.3	6.237757	712.8	6.509364	968.6	6.814312	308.5	5.642657	223.5	5.340579
Log norm distr mean(mg/L)		560		721		980		314		227
St Dev	192.0805	0.406529	230.342	0.358579	318.4253	0.362584	118.6817	0.442217	74.29225	0.391402
Var	40584.42	0.181792	58363.16	0.141436	112660.7	0.146074	15493.87	0.215111	6071.273	0.168515
90th Percentile (mg/L)		865		1066		1454		499		346
95th Percentile (mg/L)		1001		1213		1657		585		398
99th Percentile (mg/L)		1317		1546		2117		789		519

Final Limits

To protect the class 3 (industrial consumption) and class 4a (agriculture) designated uses of surface water bodies, monthly monitoring results must be below the state water quality ambient standard for an applicable pollutant greater than 90 percent of the time. Therefore the Permittee

will be in violation of permit conditions during a given monitoring period when the following occurs:

1. the monitoring result for that month exceeds the permit limit; and
2. the compliance limit has been exceeded for that monitoring location greater than 10 percent of the time over the preceding 12 months in which monitoring was completed, ending during the most recent reporting month.

This method is reasonable and protective of water quality because of the following:

- It is consistent with how impairments for similar non-toxic, conventional pollutants are determined;
- the uses (industrial and agricultural) being protected by these standards are unlikely to be disrupted by excursions that represent a limited percentage of total water volume appropriated for the use; and,
- it accounts for the statistical possibility that an analytical result may falsely exceed the limit due to deviation from the true concentration that is within the acceptable range of accuracy for that analytical technique.

Sulfate Limits

Minn. R. 7050.0224 includes a 10 mg/L water quality standard for sulfates applicable to water used for the production of wild rice, during periods when the rice may be susceptible to damage by high sulfate levels.

On July 25, 2013, MPCA staff made a Draft Recommendation that Little Sandy and Sandy Lakes, also known as Twin Lakes, is a water used for production of wild rice based on the following information:

- Wild rice in the Twin Lakes is documented in the Sandy Lake and Little Sandy Lake Monitoring (2010-2012) Technical Report and the Minntac Water Inventory Reduction Draft EIS. The Minntac Draft EIS states "historical references cite that, in 1982 there existed 121 acres of wild rice in Sandy Lake and 89 acres of wild rice in Little Sandy Lake".
- The Sandy Lake and Little Sandy Lake Monitoring Technical Report identifies various locations within the Twin Lakes where wild rice has been observed in various field studies in 2006, 2007, 2010, 2011 and 2012.
- Wild rice is also identified in Sandy Lake and Little Sandy Lake in Appendix B of the 2008 DNR Report.

This draft MPCA staff recommendation for the east side of the US Steel Minntac tailings basin is based on information currently available. MPCA staff will consider additional information that may become available in the future, whether from project proposers or from other interested/affected parties, and reserves the right to modify the draft staff recommendation accordingly. Based on current knowledge and Rules, the final compliance limit of 10 mg/L total sulfate, to be achieved greater than 90 percent of the time in monthly monitoring, as monitored at the SW005 the inlet to Little Sandy Lake shall be the mitigation target for Little Sandy and

Sandy Lakes. An interim limit will be established under this permit using the procedure detailed above.

Additional Requirements

Compliance Schedules

There are two compliance schedules contained in this permit. One addresses discharges(S) to groundwater that impact waters of the state, and one addresses surface discharge(CWA) to waters of the state and waters of the United States.

As required by Minn. R. 7001.0150 Subp. 2. Special conditions, this permit contains a compliance schedule to mitigate the tailings basin's discharge(S) to groundwater that has caused waters of the state (groundwater and surface water) to exceed applicable water quality criteria and numeric standards (hereinafter referred to as the "Compliance Schedule"). A separate compliance schedule, or "schedule of compliance" as described in 40 CFR 122.2, addresses dike seepage that discharges(CWA) to the Dark River and its tributary wetlands (hereinafter referred to as the "SD Compliance Schedule").

The Compliance Schedule for mitigation of discharge(S) to groundwater is intended to eliminate the exceedance of applicable water quality criteria and numeric standards for the designated uses of the waters of the state surrounding and downstream of the tailings basin. Monitoring and investigative activities have shown concentrations of certain parameters in surface water and groundwater that exceed applicable numeric standards. For surface water, the known parameters are bicarbonate, hardness, specific conductance, sulfate and total dissolved salts (solids) and for groundwater they are sulfate and total dissolved solids. Exceedances for some or all of these parameters have been observed in the Dark River, Little Sandy Lake, Sandy Lake, and groundwater at the northeast property boundary and basin perimeter. Based on the area hydrology, it is presumed that there are similar exceedances in Timber Creek, Admiral Lake, and the Sand River from the tailings basin to Little Sandy Lake, although MPCA does not have monitoring data from those locations.

Minn. R. 7001.0150 Subp. 2 states that "Each draft and final permit must contain conditions necessary for the permittee to achieve compliance with applicable Minnesota or federal statutes or rules, including each of the applicable requirements in parts 7045.0450 to 7045.0649 and 7045.1390, and any conditions that the agency determines to be necessary to protect human health and the environment. If applicable to the circumstances, the conditions must include; A schedule of compliance that leads to compliance with the appropriate Minnesota or federal statute or rule. The schedule of compliance must require compliance in the shortest reasonable period of time or by a specified deadline if required by Minnesota or federal statute or rule. If appropriate, the schedule of compliance must include interim dates, which in no case may be separated by more than one year. A permit with a schedule of compliance must require the submission to the commissioner of progress reports. The progress reports must be submitted not later than 14 days after each interim and final date of compliance regarding the permittee's compliance or noncompliance with the schedule of compliance and they must explain any instance of noncompliance and state the actions that have been taken to correct the noncompliance." Since the Compliance Schedule only addresses discharge(S) to waters of the

state, there is no applicable federal statute or rule requiring compliance by a specified deadline, so all activities under this schedule require compliance with final limits in "the shortest reasonable period of time".

The Compliance Schedule has broken the route to compliance into four broad activities that are meant to inform and define each subsequent activity, leading to implementation of the determined final solution(s). The first activity is an "Investigation Work Plan" due 30 days after permit reissuance, the purpose of which is to identify impacts to waters of the state, and the sources and routes of pollutants. This plan is due only 30 days after permit issuance because much work has already been done on this over the past decade or more of monitoring and SOC activities, and because MPCA provided the Permittee with information on the likely compliance points for this permit and identified where it believed additional knowledge would be needed to inform mitigation efforts during meetings in February and March of 2014.

The majority of the work performed under the Investigation Work Plan should be accomplished within a year of permit reissuance although some studies or monitoring may continue past that time. However, sufficient knowledge should be obtained in time to submit a "Compliance Strategy Plan" within 13 months of permit reissuance. This plan should include a report on the findings to date of the Investigation Work Plan and use that information to propose how the Permittee intends to evaluate mitigation technologies with the goal of identifying potential technologies for non-mechanical and/or mechanical treatment, mitigation alternatives, or combinations of actions that upon implementation could reduce water quality impacts from the tailings basin sufficient to attain long-term compliance with permit final compliance limits for the parameters of concern at surface water and groundwater locations in the shortest reasonable period of time.

Completion of activities under the Compliance Strategy Plan will provide the information necessary to prepare and submit a "Final Compliance Plan" within 25 months of permit reissuance. This plan will identify the specific treatment systems and/or mitigation that will be implemented to achieve compliance with permit limits in the shortest reasonable period of time, including a schedule for pilot testing, if necessary. The Compliance Schedule requires that at all steps in the process of choosing a final solution(s), mitigation options are reviewed with consideration of facility closure, so that stop gap measures which could lead to worsening water quality are avoided.

The fourth activity under the Compliance Plan is the submission of detailed plans for any construction that may be required, along with a timeline for implementing the final solution(s), including permitting and construction, if necessary, and a means to monitor progress towards compliance with final limits.

MPCA believes that this schedule is achievable by the Permittee and that its implementation will help to achieve compliance in the shortest reasonable period of time. Much site investigation and research into treatment and remedial technologies has been done by the Permittee under a series of SOC's since 2001. The Compliance Schedule essentially provides three years for the Permittee to evaluate, choose and pilot a remedy. It is difficult to schedule a timeframe for implementation of a remedy, the nature and scale of which is currently unknown, therefore it is

reasonable that the timeline for those activities remains to be determined. Additionally, since it is also unknown where the remedy will be implemented (e.g. treatment of basin water or interception of groundwater), and due to the varying time of travel between waters of the state and possible remedial locations, it is impossible to predict the time to compliance for a specific water body, presently. To ensure timely submittal of plans, which fulfill all specified requirements, the Permittee shall meet with MPCA three months prior to each plan submittal deadline to present a progress report and draft plan, if available.

The Compliance Schedule as detailed in the draft permit is as follows:

Compliance Schedule for Mitigation of Discharge(S) to Groundwater

1) The Permittee shall meet the terms of the compliance schedule detailed below to mitigate impacts to waters of the state and to attain compliance with the water quality-based final compliance limits contained in this permit. Compliance with final limits for these locations shall be attained in the shortest reasonable period of time in accordance with Minn. R. 7001.0150, subp. 2(A).
2) For as long as this compliance schedule is in effect, it shall be the responsibility of the Permittee to make progress towards attainment of the water quality-based final compliance limits until such time as compliance is attained. The requirements in conditions 3 through 16 cease to apply if the Permittee achieves compliance with applicable water quality-based final compliance limits, and receives written confirmation of compliance from MPCA.
3) If any of the submitted Plan(s) described herein propose actions requiring permits and/or approvals, the Permittee shall obtain all applicable permits and approvals prior to any construction.
4) As new information becomes available during the course of the Compliance Schedule, the Permittee may submit revisions to the submitted Investigation Work Plan, Compliance Strategy Plan or the Final Compliance Plan. Such revisions shall be incorporated as enforceable provisions into the respective Plans.
5) Within 30 days after permit reissuance, the Permittee shall submit, a **Minntac Tailings Basin Compliance Investigation Work Plan (Investigation Work Plan)**. This plan shall describe how the Permittee proposes to investigate and evaluate site conditions that are critical to the selection and implementation of mitigation efforts and/or other activities that could be taken to reduce water quality impacts from the tailings basin sufficient to attain compliance with water quality-based final compliance limits for the identified parameters of concern, including bicarbonate, hardness, sulfate, specific conductance and total dissolved solids.
6) The Investigation Work Plan shall include, but is not limited to, the following:

    a) Field data collection plan necessary to:
        i) identify the significant surface and subsurface flow paths from the tailings basin to surrounding surface and ground-waters under existing and foreseeable hydrologic conditions at the tailings basin;
        ii) evaluate water quality along the identified flow paths;
        iii) determine aggregate acute and chronic toxic effects to aquatic organisms from the Permittee's operations at compliance locations in the Sand River and Dark River Watersheds; and

iv) develop an understanding of the fate and transport of Tailings Basin-derived chemical constituents at a level sufficient to assess the effectiveness of considered mitigation technologies and strategies, including, at a minimum; a system mass balance that accounts for the transport or transformation of parameters of concern to within plus or minus ten percent of the mass calculated to be emanating from the tailings basin.

b) A determination of sources and potential quantities of contaminants released from the basin, including sources such as coarse tails, fine tails, recirculating process water, air emissions control contributions, and tailings lock-up water (pore water).

c) An estimate of the timeframe over which the tailings basin will continue to release pollutants from tailings lock-up water and oxidation of emplaced tails.

d) A detailed schedule for implementation of items a-c that includes adequate justification for the time periods proposed to accomplish each action.

7) Upon submittal of the Investigation Work Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.

8) Within 13 months of permit issuance, the Permittee shall submit a **Compliance Strategy Plan** that at a minimum includes the following:

a) The findings of the Investigation Work Plan, including information addressing all tasks in items a-c.

b) Evaluation of mitigation technologies with the goal of identifying potential technologies for non-mechanical and/or mechanical treatment, mitigation alternatives, or combinations of actions that upon implementation could reduce water quality impacts from the tailings basin sufficient to attain long-term compliance with permit final compliance limits for the parameters of concern at surface water and groundwater locations in the shortest reasonable period of time.

c) A detailed description of how each of the identified passive and/or active treatment technologies, mitigation alternatives or combinations of actions will be evaluated with respect to their technical and economic feasibility and their effectiveness in mitigating impacts to waters of the state and achieving long-term compliance with final permit compliance limits in the shortest reasonable period of time.

d) Development of a site conceptual model that describes sources, fate and transport of Tailings Basin contaminants sufficiently for the purpose of predicting future hydrogeological and water quality conditions at the tailings basin during its operation, and post closure, and to evaluate the efficacy of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions will allow the site to meet final compliance limits.

e) Evaluation of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions will allow the site and surrounding receiving waters to meet applicable water quality standards post closure, including:

i) an estimate of operation and maintenance costs associated with each option to maintain compliance with water quality standards;

ii) an estimate of the length of time that active treatment or maintenance of passive systems would be required to maintain compliance with water quality standards.

f) Analysis of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions may impact site closure in accordance with MDNR requirements, which include a dry basin.

9) Upon submittal of the Compliance Strategy Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.
10) Within 25 months of permit issuance, the Permittee shall submit a **Final Compliance Plan** that at a minimum includes the following:
    a) The findings of the Compliance Strategy Plan, including information addressing all tasks in items a-f.
    b) A detailed proposal identifying the specific treatment systems and/or mitigation that will be implemented to achieve compliance with permit limits in the shortest reasonable period of time.
    c) A basis for design, site plan, process schematic(s), preliminary design and specifications for major components of the specific treatment systems, or pilot treatment systems if needed, and/or mitigation to be implemented.
    d) A schedule which will incorporate any pilot testing, if necessary, to finalize the design process.
    e) discussion of final closure requirements
11) Upon submittal of the Final Compliance Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.
12) Within 37 months of permit issuance the Permittee shall submit to MPCA:
    a) A "near final" design package which will include additional detail to the previous submittal and specifications for components based on any pilot testing conducted,
    b) A preliminary monitoring plan that will allow quantifiable biannual assessment of the performance of the treatment system and/or mitigation relative to its ability to achieve compliance with final limits by the specified date.
    c) A timeline, based on information collected under the Investigation Work Plan for when the reduction of pollutant load to the watershed will be observed at the monitoring stations.
    d) A detailed schedule of milestones, occurring at intervals of annually or less, which include, at a minimum, start of construction, completion of construction, start-up, and initiation of operation, with adequate justification for the timeline described in the schedule meeting the in the shortest reasonable period of time requirement.
    e) Upon submittal, the milestone deadlines will become fully enforceable commitments of this compliance schedule, and failure to achieve these commitments will constitute a permit violation enforceable by MPCA.
13) Biannually after the chosen remedy is operational, the Permittee shall submit to the MPCA a Semi-annual Compliance Schedule Progress Report. The Compliance Schedule Progress Reports shall include, but are not limited to:
    a) Description of the improvements in water quality observed at the monitoring stations. If the observed reductions in pollutant load in the receiving waters are less than anticipated

the Permittee will include an explanation as to why the observations are not in line with expectations.

b) A description of the activities that have occurred in the previous 6 months relative to completion of the actions required in the approved Plans;
c) A summary of ongoing monitoring data and the progression toward attaining compliance with the water quality-based final compliance limits; and
d) Anticipated activities to be completed in the next 6 months relative to completion of the actions required in the approved Plans and relative to any adaptive management necessary to improve pollutant load reduction in order to meet water quality standards.

14) The Permittee shall attain compliance with the water quality-based final compliance limits in the shortest reasonable period of time.
15) If any of the submitted Plan(s) described herein propose actions requiring permits and/or approvals, the Permittee shall obtain all applicable permits and approvals prior to any construction.
16) As new information becomes available during the course of the Compliance Schedule, the Permittee may submit revisions to the submitted Investigation Work Plan, Compliance Strategy Plan or the Final Compliance Plan. Such revisions shall be incorporated as enforceable provisions into the respective Plans.

<u>SD Compliance Schedule - for Eliminating Discharge(CWA) to the Dark River</u>

This compliance schedule incorporates the remaining activities from the 2011 SOC related to the construction of a Seepage Collection and Return System (SCRS) for the Dark River Watershed. As was discussed previously, MPCA has historically regulated seepage that emerges either from the side of the basin dike, or within the vicinity of the toe of the dike under federal NPDES guidelines. Consequently, this SD Compliance Schedule is intended to meet the definition and implementing guidelines for a schedule of compliance as described in 40 CFR § 122.2 and § 122.47. The remedy for the impacts to the Dark River from this seepage is to eliminate the discharge(CWA), therefore final compliance with the conditions of the SD Compliance Schedule contained within this permit will be considered to have occurred upon implementation of the SCRS and cessation of discharge from identifiable seeps. This shall occur as soon as possible, and in no case later than December 31, 2016. This date is reasonable because the SCRS is in the final stages of receiving state and federal wetlands permits, therefore construction will presumably begin in 2015.

Monitoring was required under the previous permit at the SD001 sampling station due to its position at the headwaters of the Dark River. Analysis of samples from this location has demonstrated that this discharge(CWA) has reasonable potential to cause or contribute to exceedances of water quality standards in the Dark River for the pollutants bicarbonate, hardness, specific conductance, sulfate and total dissolved solids (TDS).

Construction of a Seepage Collection and Return System to eliminate the discharge of surface seepage to the Dark River Watershed is required under the June 9, 2011 Schedule of Compliance between MPCA and U.S. Steel. Collection of surface seepage from the west side of the Minntac tailings basin for return to the recirculating process water system would eliminate the remaining surface discharge (CWA) to waters of the United States.

Remaining requirements from the SOC are incorporated in this permit and include the following:

The Permittee shall commence construction of the SCRS following the latter of either MPCA approval of the SCRS Plans and Specifications or the expiration of any appeal period for the permit issued by MPCA or other appropriate regulatory agencies pursuant to the application(s) submitted to such agencies and provided that no judicial or administrative appeal(s) or citizen suit(s) challenging such permit(s) have been filed. If these conditions are satisfied during the period of April 15 through September 30, then initiation of construction of the SCRS within 30 days is required, otherwise initiation of construction shall be delayed until the next construction season. A construction season is defined as April 15 through December 15.
The Regulated Party shall notify the MPCA of SCRS construction commencement within 10 days of construction initiation.

The Regulated Party shall complete construction of the SCRS within eight consecutive construction-season months during one or more construction season(s).

The Regulated Party must initiate operation of the SCRS within 30-days of completion of the SCRS and notify the MPCA of SCRS initiation within 10 days of initiation.

The SCRS shall be constructed and operational as soon as possible and in no case later than December 31, 2016.

Total Facility Requirements (TFR)

All NPDES/SDS permits issued in the state of Minnesota contain certain conditions that remain the same regardless of the size, location or type of discharge. The standard conditions satisfy the requirements outlined in 40 CFR § 122.41, Minn. R. 7001.0150, and Minn. R. 7001.1090. These conditions are listed in the Total Facility Requirements chapter of an NPDES/SDS permit. These requirements cover a wide range of areas, including recordkeeping, sampling, equipment calibrations, equipment maintenance, reporting, facility upsets, bypass, solids handling, and changes in operation, facility inspections and permit reissuance.

Nondegredation and Anti-Backsliding

All instances of the word discharge in this section refer to the CWA definition of a point source discharge.
In accordance with Minnesota Pollution Control Agency rules regarding nondegredation for all waters (that are not Outstanding Resource Value Waters), nondegredation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is 1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day (gpd) or 2) an expanded discharge that expands by greater than 200,000 gpd that discharges to any non-ORVW water other than a Class 7 water or 3) a new or expanded discharge containing any toxic pollutant at a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality.

The discharge from the Minntac Tailings basin existed prior to January 1, 1988, therefore it is not a new discharge. In determining if it is an expanded discharge, the earliest available Discharge Monitoring Reports (DMR's) for the facility are from 1991, so those records were used. The average discharge rates from SD001 and SD002 during the 1991 calendar year were 84,000 gpd and 365,000 gpd, respectively. Discharge from those same points over the past 3 years were 130,000 gpd and 0 gpd. There are also other seepage points along the basin perimeter, but these have not been monitored comprehensively enough to assess changes in gross discharge from the basin, however, with the installation of the Sand River SCRS it is presumed that the current gross discharge is less than it was in 1988. Given this, and that the Permittee will install a comparable SCRS for discharges to the Dark River Watershed, there is not a new or expanded discharge at the facility, therefore, a nondegradation review is not necessary.

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding. Any point source discharger of sewage, industrial, or other wastes for which a national pollutant discharge elimination system permit has been issued by the agency that contains effluent limits more stringent than those that would be established by parts 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.

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DMR Summary Report

Exhibit 8

US Steel Corp - Minntac Tailings Basin Area (MN0057207)

First DMR in Delta: 1/1999

Ground Water Station GW003 (Monitoring Well 3)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1460.5			1460.5						1460.6			**1,460.533**
pH, Field	SU	SingleVal	7.0			6.9						6.9			**6.933**
Specific Conductance, Field	umh/cm	SingleVal	2029			2062						2055			**2,048.667**
Sulfate, Total (as SO4)	mg/L	SingleVal	702			725						710			**712.333**
Temperature, Water (C)	Deg C	SingleVal	12.7			12.3						9.1			**11.367**

Ground Water Station GW004 (Monitoring Well 4)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1469.2			1469.2						1469.6			**1,469.333**
pH, Field	SU	SingleVal	6.4			6.2						6.3			**6.3**
Specific Conductance, Field	umh/cm	SingleVal	1381			1383						1418			**1,394.0**
Sulfate, Total (as SO4)	mg/L	SingleVal	490			488						511			**496.333**
Temperature, Water (C)	Deg C	SingleVal	14.0			10.9						7.9			**10.933**

Ground Water Station GW006 (Monitoring Well 6)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1461.2			1461.2						1461.2			**1,461.2**
pH, Field	SU	SingleVal	6.6			6.5						6.5			**6.533**
Specific Conductance, Field	umh/cm	SingleVal	2025			2024						1938			**1,995.667**
Sulfate, Total (as SO4)	mg/L	SingleVal	813			826						840			**826.333**
Temperature, Water (C)	Deg C	SingleVal	16.3			13.2						10.6			**13.367**

Ground Water Station GW007 (Monitoring Well 7)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			0.25						<0.25			**0.25**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1451.1			1451.1						1451.2			**1,451.133**
pH, Field	SU	SingleVal	7.2			6.9						7.1			**7.067**
Specific Conductance, Field	umh/cm	SingleVal	1792			2224						2408			**2,141.333**

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

DMR Summary Report

Exhibit 8

US Steel Corp - Minntac Tailings Basin Area (MN0057207)

First DMR in Delta: 1/1999

Ground Water Station GW007 (Monitoring Well 7)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Sulfate, Total (as SO4)	mg/L	SingleVal	583			759						734			**692.0**
Temperature, Water (C)	Deg C	SingleVal	14.2			12.0						6.5			**10.9**

Ground Water Station GW008 (Monitoring Well 8)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1480.5			1480.5						1480.8			**1,480.6**
pH, Field	SU	SingleVal	7.1			6.7						6.5			**6.767**
Specific Conductance, Field	umh/cm	SingleVal	1468			1820						1898			**1,728.667**
Sulfate, Total (as SO4)	mg/L	SingleVal	396			520						13.5			**309.833**
Temperature, Water (C)	Deg C	SingleVal	17.1			12.7						340			**123.267**

Ground Water Station GW009 (Monitoring Well 9)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1432.3			1431.5						1433.0			**1,432.267**
pH, Field	SU	SingleVal	5.8			5.7						5.7			**5.733**
Specific Conductance, Field	umh/cm	SingleVal	68			58						68			**64.667**
Sulfate, Total (as SO4)	mg/L	SingleVal	<1.0			<2.0						<2.0			
Temperature, Water (C)	Deg C	SingleVal	12.7			12.3						5.8			**10.267**

Ground Water Station GW010 (Monitoring Well 10)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal	<0.25			<0.25						<0.25			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal	1530.3			1528.1						1531.7			**1,530.033**
pH, Field	SU	SingleVal	6.5			6.3						6.2			**6.333**
Specific Conductance, Field	umh/cm	SingleVal	1448			139						141			**576.0**
Sulfate, Total (as SO4)	mg/L	SingleVal	22.2			17.6						20.2			**20.0**
Temperature, Water (C)	Deg C	SingleVal	12.8			11.2						7.0			**10.333**

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

DMR Summary Report

US Steel Corp - Minntac Tailings Basin Area (MN0057207)

First DMR in Delta: 1/1999

Surface Discharge Station SD001 (Seepage outfall 020)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Flow	MG	CalMoTot	3.0	3.66	3.04	3.39	3.66	3.49	4.14	4.52	4.49	3.94	3.77	3.64	**3.728**
Flow	mgd	CalMoAvg	0.10	0.12	0.10	0.11	0.12	0.11	0.13	0.16	0.14	0.13	0.12	0.12	**0.122**
Flow	mgd	DailyMax	0.12	0.12	0.11	0.11	0.16	0.12	0.16	0.16	0.16	0.14	0.12	0.12	**0.133**
Oil & Grease, Total Recoverable (Hexane Extraction)	10 mg/L	CalMoAvg	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	1.6	<1.4	<1.4	<1.4	**1.6**
Oil & Grease, Total Recoverable (Hexane Extraction)	15 mg/L	DailyMax	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	2.0	<1.4	<1.4	<1.4	**2.0**
pH	9.0 SU	InstantMax	7.1	7.0	7.2	7.2	7.1	7.2	7.2	7.2	7.2	7.1	7.1	7.1	**7.142**
pH	6.0 SU	InstantMin	7.1	7.0	7.0	7.1	7.0	7.2	6.9	7.1	7.2	7.1	7.1	7.0	**7.067**
Solids, Total Suspended (TSS)	30 mg/L	CalMoAvg	5.6	2.2	3.4	2.3	2.4	4.0	2.9	1.3	2.0	1.3	3.0	3.6	**2.833**
Solids, Total Suspended (TSS)	60 mg/L	DailyMax	6.0	2.8	3.6	3.6	3.2	4.4	4.8	1.6	2.8	1.6	3.6	4.8	**3.567**
Specific Conductance	umh/cm	CalMoMax	2663	2699	2699	2686	2649	2641	2780	2806	2767	2708	2696	2699	**2,707.75**
Specific Conductance	umh/cm	CalMoMax	2663	2699	2699	2686	2649	2641	2780	2806	2767	2708	2696	2699	**2,707.75**
Sulfate, Total (as SO4)	mg/L	CalMoMax	1060	1120	1090	1070	1090	1000	1110	1080	1100	1090	1060	1060	**1,077.5**

Surface Discharge Station SD002 (Seepage outfall 030)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Flow	MG	CalMoTot	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Oil & Grease, Total Recoverable (Hexane Extraction)	10 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Oil & Grease, Total Recoverable (Hexane Extraction)	15 mg/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
pH	9.0 SU	InstantMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
pH	6.0 SU	InstantMin	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	60 mg/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Specific Conductance	umh/cm	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Specific Conductance	umh/cm	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Sulfate, Total (as SO4)	mg/L	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

DMR Summary Report

Exhibit 8

US Steel Corp - Minntac Tailings Basin Area (MN0057207)

First DMR in Delta: 1/1999

Surface Water Station SW001 (Sandy River Station 701)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Flow	mgd	SingleVal	13.1	8.08	0.37	0.22	3.05	2.81	3.12	2.73	4.8	4.78	66.0	41.5	**12.547**
Sulfate, Total (as SO4)	mg/L	SingleVal	49.8	12.1	1.3	68.1	44.1	120	220	235	331	285	55.0	36.2	**121.467**

Surface Water Station SW002 (McNiven Creek Station 702)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal						<0.25							
Toxicity, Whole Effluent (Acute)	TUa	SingleVal						<1.0							

Waste Stream Station WS002 (Plant water to Line 3 scrubber)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Flow	mgd	CalMoAvg	0.18	0.19	0.20	0.16	0.18	0.19	0.18	0.17	0.18	0.19	0.17	0.14	**0.178**
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	CalMoAvg	1026	1039	1078	1116	1110	1150	1223	1307	1320	1108	1045	930	**1,121.0**
Sulfate, Dissolved (as SO4)	ug/L	CalMoAvg	838000	867000	889000	886000	923000	948000	950000	1057000	1026000	834000	730000	723000	**889,250.0**

Waste Stream Station WS003 (1st Stage Thickener Overflow)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Chloride, Total	mg/L	CalMoAvg	541	393	685	691	665	633	669	665	528	650	600	601	**610.083**
Flow	mgd	CalMoAvg	0.14	0.14	0.13	0.13	0.14	0.15	0.14	0.13	0.13	0.13	0.14	0.12	**0.135**
Fluoride, Total (as F)	mg/L	CalMoAvg	8.2	3.1	6.9	5.0	7.1	9.1	12.6	4.7	3.1	16.3	3.8	5.6	**7.125**
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	CalMoAvg	2166	2418	2412	2140	2435	2654	2788	2550	1923	2393	2355	2463	**2,391.417**
pH	SU	CalMoMin	9.5	10.9	7.4	8.4	8.4	5.4	9.2	9.3	9.3	8.8	6.1	10.3	**8.583**
Sulfate, Dissolved (as SO4)	ug/L	CalMoAvg	1520000	1500000	1502000	1602000	1940000	2118000	2100000	2040000	1970000	1880000	1598000	1547000	**,776,416.667**

Waste Stream Station WS004 (Concentrate Slurry)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
pH	SU	CalMoMax	8.4	8.3	8.3	8.3	8.3	8.3	8.1	8.2	8.2	8.3	8.0	8.3	**8.25**

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

DMR Summary Report

US Steel Corp - Minntac Tailings Basin Area (MN0057207)

First DMR in Delta: 1/1999

Waste Stream Station WS005 (Step I Reclaim Thickener influent)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
pH	SU	CalMoMax	9.0	9.2	8.9	8.7	8.9	8.7	8.6	8.5	8.5	8.5	8.6	8.7	**8.733**

Waste Stream Station WS006 (Concentrator Fine Tailings Slurry Discharge - Eastern Tailings Basin Disposal)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal						NoFlo							
Evaporation, Accumulated	in	CalMoTot						NoFlo							
Precipitation	in	CalMoTot						NoFlo							
Toxicity, Whole Effluent (Acute)	TUa	SingleVal						NoFlo							

Waste Stream Station WS007 (Concentrator Fine Tailings Slurry Discharge - Western Tailings Basin Disposal)

Parameter Name	Limit and Units	Limit Type	7/13	8/13	9/13	10/13	11/13	12/13	1/14	2/14	3/14	4/14	5/14	6/14	Ave
Amines, Organic Total	mg/L	SingleVal						<0.25							
Evaporation, Accumulated	in	CalMoTot						20.83							**20.83**
Precipitation	in	CalMoTot						27.82							**27.82**
Toxicity, Whole Effluent (Acute)	TUa	SingleVal						<1.00							

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

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STATE OF MINNESOTA

Minnesota Pollution Control Agency

Industrial Division

National Pollutant Discharge Elimination System (NPDES)/
State Disposal System (SDS) Permit MN0057207

PERMITTEE:	US Steel Corp - Minntac
FACILITY NAME:	US Steel - Minntac Tailings Basin Area
RECEIVING WATER:	Dark River (Class 2B,3C,4A,4B,5,6 water)

CITY OR TOWNSHIP:	Mountain Iron	**COUNTY:**	St. Louis
ISSUANCE DATE:		**EXPIRATION DATE:**	

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to operate a disposal system at the facility named above and to discharge from this facility to the receiving water named above, in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with Minnesota and US statutes and rules, including Minn. Stat. chs. 115 and 116, Minn. R. chs. 7001, 7050, 7053, 7060, 7090, and the US Clean Water Act.

This permit is effective on the issuance date identified above, and supersedes the previous permit that was issued for this facility on September 30, 1987. This permit expires at midnight on the expiration date identified above.

Signature: _____

Jeff Udd, PE, Supervisor
Water Section
Industrial Division

for The Minnesota Pollution Control Agency

Submit eDMRs
Submit via the MPCA Online Services Portal at https://netweb.pca.state.mn.us/private/

Submit Other WQ Reports to:
Attention: WQ Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Rd N
St Paul, MN 55155-4194

Questions on this permit?

- For eDMR and other permit reporting issues, contact: Belinda Nicholas, 651-757-2613.
- For specific permit requirements or permit compliance status, contact: John Thomas, 218-302-6616.
- General permit or NPDES program questions, contact: MPCA, 651-282-6143 or 1-800-657-3938.

Table of Contents

Permitted Facility Description 4
Map of Permitted Facility 8
Summary of Stations and Station Locations 9
Limits and Monitoring Requirements 11

Chapter 1. Special Requirements 24
1. Special Requirements
Chapter 2. Compliance Schedule 24
1. Compliance Schedule
2. Special Requirements
3. Reporting
Chapter 3. Domestic Wastewater (non-POTW) 28
1. Operator Certification
2. Bypass Structures
3. Sanitary Sewer Extension Permit
4. Solids Management
Chapter 4. Industrial Process Wastewater 29
1. Prohibited Discharges
2. Toxic Substance Reporting
3. Polychlorinated Biphenyls (PCBs)
4. New Proposed Dewatering
5. Application for Permit Reissuance
Chapter 5. Metallic Mining 31
1. Mine Tailings Basin
2. Mobile and Rail Equipment Service Areas
Chapter 6. Mercury Minimization Plan 32
1. Mercury Pollutant Minimization Plan
Chapter 7. Whole Effluent Toxicity (WET) Testing – Chronic 33
1. General Requirements
2. Species and Procedural Requirements
3. Quality Control and Report Submittals
4. Positive Toxicity Result for WET
5. WET Data and Test Acceptability Criteria (TAC) Submittal
6. Permit Re-opening for WET
7. Whole Effluent Toxicity Requirement Definitions
Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing) 35
1. Authorization
2. Water Quality Standards

3. Stormwater Pollution Prevention Plan
4. Employee Training Program
5. Inspection and Maintenance
6. Sedimentation Basin Design and Construction
7. Industry Specific Stormwater Controls
8. Reporting
9. Records
10. Notification
11. No Exposure
12. Definitions

Chapter 9. Ground Water Stations 40
1. Monitoring Wells
2. Requirements for Specific Stations

Chapter 10. Surface Discharge Stations 41
1. Requirements for Specific Stations
2. Sampling Location
3. Surface Discharges
4. Winter Sampling Conditions
5. Mercury Limits and Monitoring Requirements
6. Discharge Monitoring Reports

Chapter 11. Surface Water Stations 42
1. Requirements for Specific Stations
2. Special Requirements
3. Discharge Monitoring Reports
4. Sampling Location
5. Sampling Protocol
6. Winter Sampling Conditions

Chapter 12. Waste Stream Stations 44
1. Requirements for Specific Stations
2. Special Requirements
3. Sampling Location
4. Sampling Frequency

Chapter 13. Total Facility Requirements 46
1. General Requirements

Facility Description

Facility Location Legal Description

The US Steel - Minntac Tailings Basin Area facility (Facility) is located in multiple Sections of Township 59 North, Ranges 18 and 19 West, Mountain Iron, St. Louis County, Minnesota.

The facility covers approximately 8700 acres (13.6 square miles) and consists of the Minntac tailings basin, the drainage area contributing surface runoff to the basin, and all wastewater disposal systems within the area designated on the map on page 8. The contributing drainage area includes part of an overburden/rock stockpile area to the southwest of the basin, as well as part of the Minntac plant area. That portion of the plant area which drains to the basin includes the concentrator, the agglomerator, the sewage treatment plant, the lube storage area, a substation, the plant area reservoir, and part of the crushing facilities.

Facility Operations Description

The principal activity at this facility is taconite processing. At the maximum operating rate, the facility will generate 15 million long tons of taconite pellets per year. The Minntac plant consists of a series of crushers and screens, a crusher thickener, a concentrator, an agglomerator, and various auxiliary facilities. The concentrator utilizes a series of mills, magnetic separators, classifiers, hydroclones, hydroseparators, screens and thickeners, as well as a flotation process. Chemical additives include flocculants and various flotation reagents. The flocculants comprise Calgon M-5729, added to the crushing plant dust collector slurry at a rate of one pound per hour (lb/hr), and Calgon M-5372 or equivalent cationic homopolymers added to the concentrator tailings slurry prior to the thickening stage, at a rate of 170 lb/hr. The flotation reagents comprise: (a) an alkyl ether primary amine acetate or alkyl ether diamine acetate collector, Arosurf MG-83, Arosurf MG-83A, Tomah DA-17-5% Acetate, or equivalent (alkyl chain R no greater than C_{14}), added at a maximum rate of 295 lb/hr; (b) an alcohol frother, methyl isobutyl carbinol, Arosurf 2057, Nalflote 8848, or equivalent (mixed C_4 to C_9 aliphatic alcohols only), added at a maximum rate of 101 lb/hr; and (c) anti-foaming agents Oreprep D-202 or Nalco 7810 Antifoam, added at a maximum rate of 162 lb/hr.

The agglomerator receives the concentrate, which is then dewatered by disc filters. The filter cake is then mixed with bentonite and formed into pellets in balling drums. The pellets are dried, heated, and fired in a grate kiln, and then loaded for rail transport.

Wastewater inputs to the tailings basin consist of the following, with their estimated average rates:

• Fine tailings slurry/concentrator process water	22,000 gpm
• Agglomerator process water	14,800 gpm
• Sewage plant discharge, formerly covered under NPDES/SDS Permit MN0050504	40 gpm
• Laboratory wastewater (neutralized)	3,650 gal/yr
• Plant non-process water (wet scrubber discharge, floor wash, roof runoff, non-	Unknown

contact cooling water

- Runoff from plant area, stockpile areas and adjacent upland areas Unknown

The agglomerator process water, sewage plant discharge, laboratory wastewater, plant non-process water and surface runoff from the plant area enter the south side of the basin through a series of pipes and ditches to the north of the concentrator and agglomerator buildings, in Section 28. Surface runoff from the upland area to the southeast of the basin enters through a series of four culverts through the perimeter dam. Runoff from the stockpile area and upland area to the southwest of the basin enters by seepage through the perimeter dam.

An average of 21 million long tons of dry fine tailings and 14 million long tons of dry coarse tailings are disposed of each year in the tailings basin. The coarse tailings are generated from the classifier, following the first stage of milling and magnetic separation. The fine tailings are generated from the crusher thickener overflow and the tailings thickener underflow. The fine tailings slurry and concentrator process water is directed by gravity flow through pipes from the Step I, II, and III thickeners to a series of open ditches to the Minntac tailings basin. The flow from the flotation process is restricted to Step I thickeners. The fine tailings slurry and flotation wastewater is routed to the tailings basin via one of two flow routes (east or west). Internal waste stream WS006 is representative of the fine tailings slurry wastewater flow to the east while WS007 is representative of the wastewater flow to the west. The basin is segmented into several cells, and the fine tailings spigot point is periodically moved from one cell to another. A permanent pumping station located within the basin returns water to the plant site reservoir. The station is located on the east side of Cell 1 (SE ¼, Section 15). Calcium chloride is occasionally used as a chemical dust suppressant on the basin and haul-roads in the facility. Some coarse tailings are used for sanding on roads in the facility during the winter, and others are sold as aggregate product.

The various basin cells are separated by dikes, each constructed of a single berm of coarse tailings placed by truck and various pieces of auxiliary equipment. Most of the perimeter dam for the tailings basin is constructed by spigotting a fine tailings slurry into the core between parallel inner and outer coarse tailings dikes; that part of the perimeter dam on the southwest side of the basin is constructed in the same manner as the interior basin dikes. The coarse tailings dikes are constructed by truck in ten foot lifts. The perimeter dam spigot lines are located on the dry side of the core; this creates a surface slope from the dry side down to the wet side, thus causing the water from the slurry to pond on the wet side of the core and seep through the wet side dike to the retained water within the disposal facility. Peat was removed from the original ground area to be occupied by the perimeter dam, and a ten foot deep key-way was dug in the core portion of this area.

A demolition debris landfill (Solid Waste Permit SW-240) is located on the southeast corner of Cell A-2. The abandoned Minntac dump site (Agency Landfill Inventory Number SL-183) is located in the southwest corner of Cell 1 (SW ¼, SE ¼, Section 21 and NW ¼, NE ¼, Section 28). Paper, lunch wastes, wood scrapes, scrap metal, mill grease, and waste oil were disposed of at this dump during its period of operation.

A minor permit modification was done in 2010 to allow for the construction of a Seep Collection and Return System (SCRS) as required by a Schedule of Compliance originally entered into by the Company and the MPCA on November 14, 2007, and as amended by Amendment No. 1 on February 25, 2010.

Due to safety issues at the current internal monitoring station, WS001, the minor permit modification in 2010 also included the relocation of monitoring station WS001 to two separate monitoring stations, now identified as WS006 and WS007. These stations are representative of the entire fine tailings slurry flow from the Concentrator which also includes wastewater flow from the flotation process. The fine tailings slurry is directed through one of two routes at any given time, either to the east portion of the tailings basin past WS006 or to the west portion of the tailings basin past WS007, for uniform tailings distribution and disposal. These locations were used to monitor for the presence of free amine in the fine tailings slurry flow and any associated toxicity. Since monitoring results have not indicated the presence of amines or shown toxicity, and since WET testing is required at the discharge location (SD001) and in surface water under the reissued permit, toxicity monitoring at WS006 and WS007 will no longer be required.

A domestic wastewater treatment plant for the facility was previously covered under SDS permit number MN0050504, but will be incorporated into this reissued permit. The plant consists of a lift station which discharges to bar screens followed by an activated sludge package plant. The package plant is an extended aeration Infilco Accelo-BIOX Type "C" Plant. It provides continual aeration, mixing, recirculation, settling, and clarification within a single circular unit. Raw domestic wastewater is introduced at the bottom, outer zone of the unit; aeration and mixing is provided by a sparge ring at the bottom of this outer zone. Mixed liquor from the outer zone overflows into an inner cone that provides settling; the settling sludge is returned by gravity to the outer zone as return activated sludge (RAS). A cylindrical clarification zone within the inner cone then discharges through a peripheral launder. The effluent is disinfected using sodium hypochlorite prior to routing from the system to the tailings basin. Monitoring of the effluent to the basin will occur at WS008. Waste activated sludge is periodically pumped directly from the outer zone as needed and transported to the Mt. Iron WWTP. The WWTP was originally designed for an average flow of 0.06 mgd and a maximum flow of 0.09 mgd. The WWTP is a Class C facility.

The location of designated monitoring stations is specified on the "Summary of Stations and Station Locations" (page 9).

The location of the facility is shown on the Facility Map (page 8).

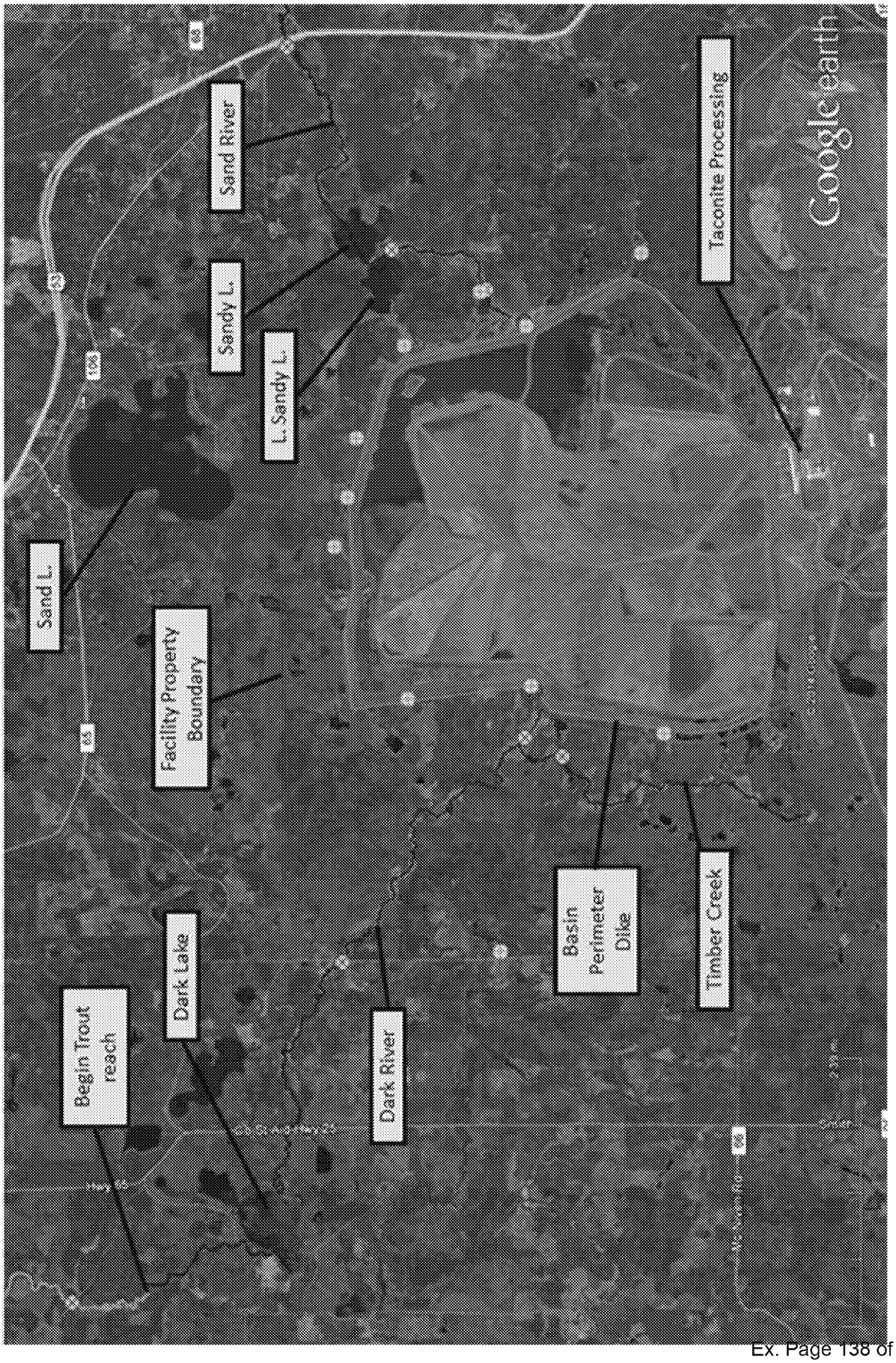
In accordance with MPCA rules regarding nondegradation for all waters that are not Outstanding Resource Value Waters, nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is 1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day to any water other than a Class 7 water or 2) an expanded discharge that expands by greater than 200,000 gallons per day that discharges to any water other than a Class 7 water or 3) a new or expanded discharge containing any toxic pollutant at a mass loading rate likely to

increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality.

The discharge from the Minntac Tailings basin existed prior to January 1, 1988, therefore it is not a new discharge. In determining if it is an expanded discharge, the earliest available Discharge Monitoring Reports (DMR's) for the facility are from 1991, so those records were used. The average discharge rates from SD001 and SD002 during the 1991 calendar year were 84,000 gpd and 365,000 gpd, respectively. Discharge from those same points over the past 3 years were 130,000 gpd and 0 gpd. There are also other seepage points along the basin perimeter, but these have not been monitored comprehensively enough to assess changes in gross discharge from the basin, however, with the installation of the Sand River SCRS it is presumed that the current gross discharge is less than it was in 1988. Given this, and that the Permittee will install a comparable SCRS for discharges to the Dark River Watershed, there is not a new or expanded discharge at the facility, therefore, a nondegradation review is not necessary.

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

Any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the MPCA that contains effluent limits more stringent than those that would be established by parts 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.


Sand River
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Facility Property Boundary
Begin Trout reach
Dark Lake
Dark River
Basin Perimeter Dike
Timber Creek
Taconite Processing
Google earth

US Steel - Minntac Tailings Basin Area
Summary of Stations

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Ground Water Stations

Station	Type of Station	Local Name	PLS Location
GW003	Well, Downgradient	Monitoring Well 3	NE Quarter of the SE Quarter of Section 15, Township 59 North, Range 18 West
GW004	Well, Downgradient	Monitoring Well 4	SW Quarter of the NW Quarter of Section 4, Township 59 North, Range 18 West
GW006	Well, Downgradient	Monitoring Well 6	NW Quarter of the SE Quarter of Section 7, Township 59 North, Range 18 West
GW007	Well, Downgradient	Monitoring Well 7	NW Quarter of the NE Quarter of Section 18, Township 59 North, Range 18 West
GW008	Well, Downgradient	Monitoring Well 8	NW Quarter of the SW Quarter of Section 19, Township 59 North, Range 18 West
GW009	Well, Downgradient	Monitoring Well 9	NE Quarter of the SE Quarter of Section 10, Township 59 North, Range 19 West
GW010	Well, Upgradient	Monitoring Well 10	NW Quarter of the SE Quarter of Section 23, Township 59 North, Range 18 West
GW011	Well, Downgradient	Monitoring Well 11	SE Quarter of the SE Quarter of Section 10, Township 59 North, Range 18 West
GW012	Well, Downgradient	Monitoring Well 12	SE Quarter of the NE Quarter of the NW Quarter of Section 10, Township 59 North, Range 18 West
GW013	Well, Downgradient	Monitoring Well 13	SE Quarter of the NW Quarter of the SE Quarter of Section 04, Township 59 North, Range 18 West
GW014	Well, Downgradient	Monitoring Well 14	NE Quarter of the NW Quarter of the SE Quarter of Section 05, Township 59 North, Range 18 West

Surface Discharge Stations

Station	Type of Station	Local Name	PLS Location
SD001	Effluent To Surface Water	Seepage outfall 020	SE Quarter of the NE Quarter of the NW Quarter of Section 18, Township 59 North, Range 18 West

Surface Water Stations

Station	Type of Station	Local Name	PLS Location
SW001	Stream/River/Ditch, Other	Sandy River Station 701	NW Quarter of the NW Quarter of Section 6, Township 59 North, Range 17 West
SW003	Stream/River/Ditch, Downstream	Dark River at CR668	SE Quarter of the SE Quarter of the NE Quarter of Section 3, Township 59 North, Range 19 West
SW004	Stream/River/Ditch, Downstream	Dark River at CH65	NE Quarter of Section 30, Township 60 North, Range 19 West
SW005	Lake/Reservoir	Little Sandy Lake Inlet	NW Quarter of the NE Quarter of the NW Quarter of Section 11, Township 59 North, Range 18 West
SW006	Stream/River/Ditch, Downstream	Timber Creek	SW Quarter of the SE Quarter of the NE Quarter of Section 13, Township 59 North, Range 19 West
SW007	Lake/Reservoir	Admiral Lake	SE Quarter of the SE Quarter of the SE Quarter of Section 10, Township 59 North, Range 18 West
SW008	Stream/River/Ditch, Downstream	Dark River near Basin	NE Quarter of the NE Quarter of the NE Quarter of Section 13, Township 59 North, Range 19 West

Waste Stream Stations

Station	Type of Station	Local Name	PLS Location
WS002	Internal Waste Stream	Plant water to Line 3 scrubber	NE Quarter of the SE Quarter of Section 28, Township 59 North, Range 18 West
WS003	Internal Waste Stream	1st Stage Thickener Overflow	NE Quarter of Section 21, Township 59 North, Range 18 West
WS004	Internal Waste Stream	Concentrate Slurry	NE Quarter of Section 21, Township 59 North, Range 18 West
WS005	Internal Waste Stream	Step I Reclaim Thickener influent	NE Quarter of Section 21, Township 59 North, Range 18 West

US Steel - Minntac Tailings Basin Area
Summary of Stations

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Waste Stream Stations

Station	Type of Station	Local Name	PLS Location
WS006	Internal Waste Stream	Concentrator Fine Tailings Slurry Discharge - Eastern Tailings Basin Disposal	NE Quarter of the SW Quarter of Section 28, Township 59 North, Range 18 West
WS007	Internal Waste Stream	Concentrator Fine Tailings Slurry Discharge - Western Tailings Basin Disposal	NE Quarter of the SW Quarter of Section 28, Township 59 North, Range 18 West
WS008	Internal Waste Stream	Domestic plant effluent to basin	Section 28, Township 59 North, Range 18 West

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

GW 003, GW 004, GW 006, GW 007, GW 008, GW 009, GW 010, GW 011

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Elevation of GW Relative to Mean Sea Level	Monitor Only	feet	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Iron, Dissolved (as Fe)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Minimum	Apr, Jul, Oct	Grab	1 x Month	2
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum of Daily Average	Apr, Jul, Oct	Grab	1 x Month	2

GW 012, GW 013, GW 014

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Chloride, Total	250	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Elevation of GW Relative to Mean Sea Level	Monitor Only	feet	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Iron, Dissolved (as Fe)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Minimum	Apr, Jul, Oct	Grab	1 x Month	2
Solids, Total Dissolved (TDS)	500	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Sulfate, Total (as SO4)	250	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

GW 012, GW 013, GW 014

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum of Daily Average	Apr, Jul, Oct	Grab	1 x Month	2

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	meq/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Chronic Toxicity Testing		TUc	Annual WET Testing	Jan-Dec	24-Hour Flow Composite	1 x Year	
Chronic Toxicity Testing		TUc	Quarterly WET Testing	Jan-Dec	24-Hour Flow Composite	1 x Quarter	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement	2 x Month	
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Iron, Dissolved (as Fe)	1.0	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Iron, Dissolved (as Fe)	2.0	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Mercury, Dissolved (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	
Oil & Grease, Total Recoverable (Hexane Extraction)	10	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Oil & Grease, Total Recoverable (Hexane Extraction)	15	mg/L	Daily Maximum	Jan-Dec	Grab	2 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH	9.0	SU	Instantaneous Maximum	Jan-Dec	Grab	1 x Month	
pH	6.0	SU	Instantaneous Minimum	Jan-Dec	Grab	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Solids, Total Suspended (TSS)	20	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	30	mg/L	Daily Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance, Field	2810	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Sulfate, Total (as SO4)	1130	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

SW 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	14.7	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	2000	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SW 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	2660	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	3230	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	1290	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	8	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	1000	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	1215	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	1660	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	590	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 005, SW 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SW 005, SW 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 006, SW 008

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

WS 006, WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement	1 x Month	1
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1

WS 008

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, 05 Day (20 Deg C)	25	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
BOD, 05 Day (20 Deg C)	50	mg/L	Maximum Calendar Week Average	Jan-Dec	Grab	2 x Month	
Chlorine, Total Residual	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Chlorine, Total Residual	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Fecal Coliform, MPN or Membrane Filter 44.5C	200	#100ml	Calendar Month Geometric Mean	Jan-Dec	Grab	2 x Month	
Fecal Coliform, MPN or Membrane Filter 44.5C	400	#100ml	Daily Maximum	Jan-Dec	Grab	2 x Month	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	mgd	Calendar Month Maximum	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement, Continuous	1 x Day	
pH, Field	9.0	SU	Instantaneous Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH, Field	6.0	SU	Instantaneous Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Solids, Total Suspended (TSS)	30	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	45	mg/L	Maximum Calendar Week Average	Jan-Dec	Grab	2 x Month	

Period: Limits Applicable in the Final Period

GW 003, GW 004, GW 006, GW 007, GW 008, GW 009, GW 010, GW 011

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Elevation of GW Relative to Mean Sea Level	Monitor Only	feet	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

GW 003, GW 004, GW 006, GW 007, GW 008, GW 009, GW 010, GW 011

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Iron, Dissolved (as Fe)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Minimum	Apr, Jul, Oct	Grab	1 x Month	2
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum of Daily Average	Apr, Jul, Oct	Grab	1 x Month	2

GW 012, GW 013, GW 014

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Chloride, Total	250	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Elevation of GW Relative to Mean Sea Level	Monitor Only	feet	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Iron, Dissolved (as Fe)	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Measurement, Instantaneous	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
pH, Field	Monitor Only	SU	Calendar Month Minimum	Apr, Jul, Oct	Grab	1 x Month	2
Solids, Total Dissolved (TDS)	500	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Sulfate, Total (as SO4)	250	mg/L	Calendar Month Maximum	Apr, Jul, Oct	Grab	1 x Month	2
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum of Daily Average	Apr, Jul, Oct	Grab	1 x Month	2

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: ***Limits Applicable in the Final Period***

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	5	meq/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Chronic Toxicity Testing		TUc	Annual WET Testing	Jan-Dec	24-Hour Flow Composite	1 x Year	
Chronic Toxicity Testing		TUc	Quarterly WET Testing	Jan-Dec	24-Hour Flow Composite	1 x Quarter	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement	2 x Month	
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	500	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Iron, Dissolved (as Fe)	1.0	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Iron, Dissolved (as Fe)	2.0	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Manganese, Dissolved (as Mn)	Monitor Only	ug/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Mercury, Dissolved (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter	
Oil & Grease, Total Recoverable (Hexane Extraction)	10	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Oil & Grease, Total Recoverable (Hexane Extraction)	15	mg/L	Daily Maximum	Jan-Dec	Grab	2 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH	9.0	SU	Instantaneous Maximum	Jan-Dec	Grab	1 x Month	
pH	6.0	SU	Instantaneous Minimum	Jan-Dec	Grab	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	700	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Solids, Total Suspended (TSS)	20	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	30	mg/L	Daily Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance, Field	1000	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	1000	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SW 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	5	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	500	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	700	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	1000	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	1000	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SW 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	5	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	250	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	700	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	1000	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	250	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 005, SW 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	5	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	500	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SW 005, SW 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	700	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	1000	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	10	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

SW 006, SW 008

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	5	meq/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Daily Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	500	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
pH, Field	Monitor Only	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Potassium, Dissolved (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	700	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance, Field	1000	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Sulfate, Total (as SO4)	1000	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Temperature, Water (C)	Monitor Only	Deg C	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	

WS 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Calcium, Dissolved (as Ca)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Chloride, Total	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

WS 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Calcium, Dissolved (as Ca)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Chloride, Total	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Fluoride, Total (as F)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Week	

WS 004, WS 005

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
pH	Monitor Only	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Week	

WS 006, WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement	1 x Month	1
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	1

WS 008

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
BOD, 05 Day (20 Deg C)	25	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
BOD, 05 Day (20 Deg C)	50	mg/L	Maximum Calendar Week Average	Jan-Dec	Grab	2 x Month	
Chlorine, Total Residual	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	

US Steel - Minntac Tailings Basin Area
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

WS 008

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Chlorine, Total Residual	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Fecal Coliform, MPN or Membrane Filter 44.5C	200	#100ml	Calendar Month Geometric Mean	Jan-Dec	Grab	2 x Month	
Fecal Coliform, MPN or Membrane Filter 44.5C	400	#100ml	Daily Maximum	Jan-Dec	Grab	2 x Month	
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	mgd	Calendar Month Maximum	Jan-Dec	Measurement, Continuous	1 x Day	
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement, Continuous	1 x Day	
pH, Field	9.0	SU	Instantaneous Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH, Field	6.0	SU	Instantaneous Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Solids, Total Suspended (TSS)	30	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	45	mg/L	Maximum Calendar Week Average	Jan-Dec	Grab	2 x Month	

Notes:
1 -- Report "no discharge" for this station on the DMR if tailings slurry is not being routed to this station at the time of discharge.
2 -- Three times annually: between March 28 and May 14; between July 1 and July 31; and between October 1 and October 31.

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Chapter 1. Special Requirements

1. Special Requirements

Alternate Sources of Make-up Water

1.1 To enable possible further reductions in loading of sulfate and hardness to the basin, this permit authorizes USS to manage its intake water supply source(s), without modification to this permit, when the following conditions are met:

1. The proposed water source is of an equivalent or better water quality, with respect to concentrations of total sulfate, hardness (ca + mg), total dissolved solids and bicarbonate, than the water source (sole or composite) being utilized at the time of the requested change, and of any Mt. Iron Pit or Sump 6 water source that may be available but is not being utilized at that time;

2. The appropriation has received an applicable permit from DNR, if required;

3. The appropriation has received other applicable permits (401/404 permits) if required;

4. Utilization of the water source complies with all applicable dam safety regulations;

5. The appropriation has completed the environmental review process if required;

6.The water has been analyzed in accordance with the guidelines described in Total Facility - General Requirements - Sampling subsection of the permit for the following parameters: alkalinity (bicarbonate as $CaCO_3$), aluminum (total), ammonia, antimony (total), arsenic (total), barium (total), bicarbonates (HCO_3), boron (total), cadmium, chloride, cobalt, (total), copper, Fluoride, Hardness (Ca+Mg as $CaCO_3$), Iron (total), Lead, Manganese (total), Mercury, Molybdenum, pH, Phosphorous, Salinity, Selenium, Silver, Sodium, Specific Conductance, Strontium MCLG, Sulfate, Total Dissolved Solids, Temperature, Thallium, Turbidity, TSS, and Zinc.

1.2 If concentrations of any parameters identified in subheading 6 in the proposed source water exceed that of the existing make up water (excluding sulfate, hardness, total dissolved solids, or bicarbonate, which may not exceed existing concentrations), US Steel must submit documentation that utilization of the water source is not likely to cause or contribute to exceedances of applicable water quality standards in waters of the State downgradient and downstream of the Facility.

Chapter 2. Compliance Schedule

1. Compliance Schedule

Background

1.1 The Permittee shall meet the terms of the compliance schedule detailed below to mitigate impacts to waters of the state and to attain compliance with the water quality-based final compliance limits contained in this permit. Compliance with final limits for these locations shall be attained in the shortest reasonable period of time in accordance with MN Rule 7001.0150 Subpart 2(A). (7001.0150 Subpart 2(A))

1.2 For as long as this compliance schedule is in effect, it shall be the responsibility of the Permittee to make progress towards attainment of the water quality-based final compliance limits until such time as compliance is attained. The requirements in conditions XX through XX cease to apply if the Permittee achieves compliance with applicable water quality-based final compliance limits, and receives written confirmation of compliance from MPCA.

1.3 If any of the submitted Plan(s) described herein propose actions requiring permits and/or approvals, the Permittee shall obtain all applicable permits and approvals prior to any construction.

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Chapter 2. Compliance Schedule

1. Compliance Schedule

1.4 As new information becomes available during the course of the Compliance Schedule, the Permittee may submit revisions to the submitted Investigation Work Plan, Compliance Strategy Plan or the Final Compliance Plan. Such revisions shall be incorporated as enforceable provisions into the respective Plans.

Investigation Work Plan

1.5 Within 30 days after permit reissuance, the Permittee shall submit, a Minntac Tailings Basin Compliance Investigation Work Plan (Investigation Work Plan). This plan shall describe how the Permittee proposes to investigate and evaluate site conditions that are critical to the selection and implementation of mitigation efforts and/or other activities that could be taken to reduce water quality impacts from the tailings basin sufficient to attain compliance with water quality-based final compliance limits for the identified parameters of concern, including bicarbonate, hardness, sulfate, specific conductance and total dissolved solids.

1.6 The Investigation Work Plan shall include, but is not limited to, the following:
A)Field data collection plan necessary to:
i)identify the significant surface and subsurface flow paths from the tailings basin to surrounding surface and ground-waters under existing and foreseeable hydrologic conditions at the tailings basin;
ii)evaluate water quality along the identified flow paths;
iii)determine aggregate acute and chronic toxic effects to aquatic organisms from the Permittee's operations at compliance locations in the Sand River and Dark River Watersheds; and
iv)develop an understanding of the fate and transport of Tailings Basin-derived chemical constituents at a level sufficient to assess the effectiveness of considered mitigation technologies and strategies, including, at a minimum; a system mass balance that accounts for the transport or transformation of parameters of concern to within plus or minus ten percent of the mass calculated to be emanating from the tailings basin.
B)A determination of sources and potential quantities of contaminants released from the basin, including sources such as coarse tails, fine tails, recirculating process water, air emissions control contributions, and tailings lock-up water (pore water).
C)An estimate of the timeframe over which the tailings basin will continue to release pollutants from tailings lock-up water and oxidation of emplaced tails.
D)A detailed schedule for implementation of items A-C that includes adequate justification for the time periods proposed to accomplish each action.

1.7 Upon submittal of the Investigation Work Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.

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Chapter 2. Compliance Schedule

1. Compliance Schedule

Compliance Strategy Plan

1.8 Within 13 months of permit issuance, the Permittee shall submit a Compliance Strategy Plan that at a minimum includes the following:

1.9 The findings of the Investigation Work Plan, including information addressing all tasks in items a-c in section 1.6.

1.10 Evaluation of mitigation technologies with the goal of identifying potential technologies for non-mechanical and/or mechanical treatment, mitigation alternatives, or combinations of actions that upon implementation could reduce water quality impacts from the tailings basin sufficient to attain long-term compliance with permit final compliance limits for the parameters of concern at surface water and groundwater locations in the shortest reasonable period of time.

1.11 A detailed description of how each of the identified passive and/or active treatment technologies, mitigation alternatives or combinations of actions will be evaluated with respect to their technical and economic feasibility and their effectiveness in mitigating impacts to waters of the state and achieving long-term compliance with final permit compliance limits in the shortest reasonable period of time.

1.12 Development of a site conceptual model that describes sources, fate and transport of Tailings Basin contaminants sufficiently for the purpose of predicting future hydrogeological and water quality conditions at the tailings basin during its operation, and post closure, and to evaluate the efficacy of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions will allow the site to meet final compliance limits.

1.13 Evaluation of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions will allow the site and surrounding receiving waters to meet applicable water quality standards post closure, including:

a. an estimate of operation and maintenance costs associated with each option to maintain compliance with water quality standards;
b. an estimate of the length of time that active treatment or maintenance of passive systems would be required to maintain compliance with water quality standards.

1.14 Analysis of how the identified potential passive and/or active treatment technologies, mitigation alternatives or combinations of actions may impact site closure in accordance with MDNR requirements, which include a dry basin.

1.15 Upon submittal of the Compliance Strategy Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.

Final Compliance Plan

1.16 Within 25 months of permit issuance, the Permittee shall submit a Final Compliance Plan that at a minimum includes the following:
a. the findings of the Compliance Strategy Plan, including information addressing all tasks in sections 1.10 through 1.14;
b. a detailed proposal identifying the specific treatment systems and/or mitigation that will be implemented to achieve compliance with permit limits in the shortest reasonable period of time;
c. a basis for design, site plan, process schematic(s), preliminary design and specifications for major components of the specific treatment systems, or pilot treatment systems if needed, and/or mitigation to be implemented;
d. a schedule which will incorporate any pilot testing, if necessary, to finalize the design process; and,
e. discussion of final closure requirements.

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Chapter 2. Compliance Schedule

1. Compliance Schedule

1.17 Upon submittal of the Final Compliance Plan and schedule, the Permittee shall initiate the plan of action identified in the Plan in accordance with the schedule contained therein. Written notification shall be submitted to the MPCA within 14 days of implementation of the Work Plan.Submit notice to proceed by 14 days after submittal of the plan.

Design and Construction

1.18 Within 37 months of permit issuance the Permittee shall submit to MPCA:

a. A near final design package which will include additional detail to the previous submittal and specifications for components based on any pilot testing conducted,
b. A preliminary monitoring plan that will allow quantifiable biannual assessment of the performance of the treatment system and/or mitigation relative to its ability to achieve compliance with final limits by the specified date.
c)A timeline, based on information collected under the Investigation Work Plan for when the reduction of pollutant load to the watershed will be observed at the monitoring stations.

1.19 Within 37 months of permit issuance the Permittee shall submit to MPCA:

A detailed schedule of milestones, occurring at intervals of annually or less, which include, at a minimum, start of construction, completion of construction, start-up, and initiation of operation, with adequate justification for the timeline described in the schedule meeting the shortest reasonable period of time requirement.

Upon submittal, the milestone deadlines will become fully enforceable commitments of this compliance schedule, and failure to achieve these commitments will constitute a permit violation enforceable by MPCA.

Dark River Seepage Collection and Return System

1.20 The Permittee shall commence construction of the SCRS following the latter of either MPCA approval of the SCRS Plans and Specifications or the expiration of any appeal period for the permit issued by MPCA or other appropriate regulatory agencies pursuant to the application(s) submitted to such agencies and provided that no judicial or administrative appeal(s) or citizen suit(s) challenging such permit(s) have been filed. If these conditions are satisfied during the period of April 15 through September 30, then initiation of construction of the SCRS within 30 days is required, otherwise initiation of construction shall be delayed until the next construction season. A construction season is defined as April 15 through December 15.

1.21 The Regulated Party shall notify the MPCA of SCRS construction commencement within 10 days of construction initiation.

1.22 The Regulated Party shall complete construction of the SCRS within eight consecutive construction-season months during one or more construction season(s).

1.23 The Regulated Party must initiate operation of the SCRS within 30-days of completion of the SCRS and notify the MPCA of SCRS initiation within 10 days of initiation.

1.24 The SCRS shall be constructed and operational as soon as possible and in no case later than December 31, 2016.

2. Special Requirements

2.1 To ensure timely submittal of plans, which fulfill all specified requirements, the Permittee shall meet with MPCA three months prior to each plan submittal deadline to present a progress report and draft plan, if available.

3. Reporting

3.1 Written notification shall be submitted to the MPCA within 14 days of the chosen remedy or of each portion of a multi-component remedy becoming operational.

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Chapter 2. Compliance Schedule

3. Reporting

3.2 Biannually after the chosen remedy is operational, the Permittee shall submit to the MPCA a Semi-annual Compliance Schedule Progress Report. The Compliance Schedule Progress Reports shall include, but are not limited to:

a. Description of the improvements in water quality observed at the monitoring stations. If the observed reductions in pollutant load in the receiving waters are less than anticipated the Permittee will include an explanation as to why the observations are not in line with expectations.
b. A description of the activities that have occurred in the previous 6 months relative to completion of the actions required in the approved Plans;
c. A summary of ongoing monitoring data and the progression toward attaining compliance with the water quality-based final compliance limits; and
d. Anticipated activities to be completed in the next 6 months relative to completion of the actions required in the approved Plans and relative to any adaptive management necessary to improve pollutant load reduction in order to meet water quality standards.

Chapter 3. Domestic Wastewater (non-POTW)

1. Operator Certification

1.1 The Permittee shall provide a Class C state certified operator who is in direct responsible charge of the operation, maintenance and testing functions required to ensure compliance with the terms and conditions of this permit.

1.2 The Permittee shall provide the appropriate number of operators with a Type IV certification to be responsible for the land application of biosolids or semisolids from commercial or industrial operations.

1.3 If the Permittee chooses to meet operator certification requirements through a contractual agreement, the Permittee shall provide a copy of the contract to the MPCA, WQ Submittals Center. The contract shall include the certified operator's name, certificate number, company name if appropriate, the period covered by the contract and provisions for renewal; the duties and responsibilities of the certified operator; the duties and responsibilities of the permittee; and provisions for notifying the MPCA 30 days in advance of termination if the contract is terminated prior to the expiration date.

1.4 The Permittee shall notify the MPCA within 30 days of a change in operator certification or contract status.

2. Bypass Structures

2.1 All structures capable of bypassing the treatment system shall be manually controlled and kept locked at all times.

3. Sanitary Sewer Extension Permit

3.1 The Permittee may be required to obtain a Sanitary Sewer Extension Permit from the MPCA for any addition, extension or replacement to the sanitary sewer. If a sewer extension permit is required, construction may not begin until plans and specifications have been submitted and a written permit is granted except as allowed in Minn. Stat. 115.07, Subd. 3(b).

4. Solids Management

4.1 This permit authorizes the permittee to store and/or transfer only wastewater biosolids and/or septage to another permitted treatment facility for final treatment and disposal in accordance with the provision in this chapter and Minn. R. ch. 7041. For the purpose for this permit chapter, septage is referred to as biosolids. Land application of biosolids and/or septage is not authorized by this permit.

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Chapter 3. Domestic Wastewater (non-POTW)

4. Solids Management

4.2 The permittee shall submit a Biosolids Annual Report by December 31 of each year for biosolids storage and/or transfer activities occurring during the cropping year previous to December 31. The report must indicate whether or not biosolids were transferred and/or stored. If biosolids were transferred, the report must describe how much was transferred, where it was transferred to, the name of the facility that accepted the transfer and the contact person at that facility. "Cropping year" means a year beginning on September 1 of the year prior to the growing season and ending August 31 the year the crop is harvested. For example, the 2012 cropping year began September 1, 2011, and ended August 31, 2012.

4.3 The Permittee shall submit the Biosolids Annual Report to:

Biosolids Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Chapter 4. Industrial Process Wastewater

1. Prohibited Discharges

1.1 This permit does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.

1.2 The Permittee shall prevent the routing of pollutants from the facility to a municipal wastewater treatment system in any manner unless authorized by the pretreatment standards of the MPCA and the municipal authority.

1.3 The Permittee shall not transport pollutants to a municipal wastewater treatment system that will interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards.

2. Toxic Substance Reporting

2.1 The Permittee shall notify the MPCA immediately of any knowledge or reason to believe that an activity has occurred that would result in the discharge of a toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10 or listed below that is not limited in the permit, if the discharge of this toxic pollutant has exceeded or is expected to exceed the following levels:

a. for acrolein and acrylonitrile, 200 ug/L;

b. for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol, 500 ug/L;

c. for antimony, 1mg/L;

d. for any other toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10, 100 ug/L; or

e. five times the maximum concentration value identified and reported for that pollutant in the permit application. (Minnesota Rules, pt. 7001.1090, subp. 2.A)

2.2 The Permittee shall notify the MPCA immediately if the Permittee has begun or expects to begin to use or manufacture as an intermediate or final by-product a toxic pollutant that was not reported in the permit application under Minnesota Rules, pt. 7001.1050, subp. 2.J. (Minnesota Rules, pt. 7001.1090, subp. 2.B)

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Chapter 4. Industrial Process Wastewater

3. Polychlorinated Biphenyls (PCBs)

3.1 PCBs, including but not limited to those used in electrical transformers and capacitors, shall not be discharged or released to the environment.

4. New Proposed Dewatering

4.1 The Permittee shall obtain a permit modification before discharging from a new dewatering outfall.

4.2 In addition to the requirements in the Permit Modifications section of this permit, the Permittee shall submit to the MPCA detailed plans and specifications for the proposed methods of achieving discharge limits for turbidity and total suspended solids, based in part upon representative water quality data for untreated wastewater and a detailed map and diagram description of the proposed design for the flow control structures, and route of the discharge to receiving waters.

5. Application for Permit Reissuance

5.1 The permit application shall include analytical data as part of the application for reissuance of this permit. These analyses shall be done on individual samples taken during the twelve-month period before the reissuance application is submitted.

5.2 The permit application shall include analytical data for at least the following parameters at monitoring station SD001 or XX. Analysis of all parameters must comply with their specific 40 CFR Part 136 analytical methodologies or any updates to those methodologies. The reporting limits shall meet the minimum levels as defined by this permit and all state and federal regulations.

a. biochemical oxygen demand, chemical oxygen demand, total organic carbon, gasoline range organics, diesel range organics, fecal coliform, ammonia, temperature;

b. color, fluoride, nitrate-nitrite (as nitrogen), total organic nitrogen, oil and grease, total phosphorus, chloride, sulfate, sulfide (as sulfur), surfactants, bicarbonates, alkalinity, total salinity, total dissolved solids, specific conductance;

c. aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, tin, titanium, vanadium, zinc (all in total form) according to 40 CFR Part 136.3;

d. total mercury using EPA Method 1631;

e. gross alpha particles, radium-226, radium-228, radon-222, uranium;

f. PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260; and

g. a scan of constituents using EPA Methods 624 and 625, in 40 CFR Part 136.

The Permittee shall identify, in addition to those pollutants noted in Methods 624 and 625 (Appendix D, Table II), the concentrations of at least ten of the most abundant constituents of the acid and base/neutral organic fractions shown to be present by peaks on the total ion plots (reconstructed gas chromatograms) within ten percent of the nearest internal standard. Identification shall be through the use of U.S. EPA/NIH computerized library of mass spectra, with visual confirmation and potential quantification.

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Chapter 4. Industrial Process Wastewater

5. Application for Permit Reissuance

5.3 The Permittee shall include, as part of the application for reissuance of this permit:

a. a current map of the tailings basin, showing the dikes, dams, cells, and current topographic and water level elevations in the basin;

b. an updated water balance for the facility; and

c. an updated Operating Plan for the tailings basin for the next five (5) years.

Chapter 5. Metallic Mining

1. Mine Tailings Basin

1.1 The Permittee shall conduct a detailed field survey of seepage zones from the perimeter dikes of the tailings basin during October of each year.

1.2 The Permittee shall submit a Dike Seepage Survey Report on January 31 of each calendar year following permit issuance. The anual Dike Seepage Survey Report shall include a current map of the Tailings Basin area that details the dikes, berms, dams, roads, and cells; as well as the current topographic and water level elevations.

1.3 The Dike Seepage Survey Report shall include the following information:

a. a clearly labeled map indicating the locations of the visible seepage zones;

b. the estimated flow rates for the seepage zones;

c. the specific conductance, pH and temperature values for the seepage zones;

d. a brief description of the changes in the nature of the seepage from previous observations; and

e. photographs as needed to document items a. - d.

1.4 The Permittee shall summarize the results of the Dike Seepage Survey in a Dike Seepage Survey Report.

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Chapter 5. Metallic Mining

2. Mobile and Rail Equipment Service Areas

2.1 Mobile equipment and rail equipment service areas in the facility shall be operated in compliance with the following:

a. The Permittee shall collect and dispose of locomotive traction sand, degreasing wastes, motor oil, oil filters, oil sorbent pads and booms, transmission fluids, power steering fluids, brake fluids, coolant/antifreeze, radiator flush wastewater and spent solvents in accordance with applicable solid and hazardous waste management rules. These materials shall not be discharged to surface or ground waters of the state.

b. The steam-cleaning of mobile equipment and rail equipment, except for limited outdoor cleaning of large drills and shovels, shall be conducted in wash bays that drain to wastewater treatment systems that include the removal of suspended solids and flammable liquids. The only washing of mobile equipment done in outside areas shall be to remove mud and dirt that has accumulated during outside work.

c. The Permittee shall not use solvent-based cleaners, such as those available for brake cleaning and degreasing, to wash mobile and rail equipment unless the cleaning fluids are completely contained and not allowed to flow to surface or ground waters of the state. Soaps and detergents used in washing shall be biodegradable.

d. Mobile and rail equipment maintenance and repairs shall not be conducted in wash bays.

e. Hazardous materials shall not be stored or handled in wash bays.

f. The Permittee shall inspect wastewater containment systems regularly, and repair any leaks that are detected immediately.

g. If the Permittee discovers that recoverable amounts of petroleum products have entered wastewater containment systems, they shall be recovered immediately and reported to the MPCA.

h. Spill cleanup procedures shall be posted in mobile and rail equipment maintenance and repair areas.

Chapter 6. Mercury Minimization Plan

1. Mercury Pollutant Minimization Plan

1.1 The Permittee is required to complete and submit a Mercury Pollutant Minimization Plan (MMP) to the MPCA as detailed in this section. If the Permittee has previously submitted a MMP, it must update its MMP and submit the updated MMP to the MPCA. The purpose of the MMP is to evaluate collection and treatment systems to determine possible sources of mercury as well as potential mercury reduction options. Guidelines for developing a MMP are detailed in this section.

1.2 The specific mercury monitoring requirements are detailed in the limits and monitoring section of this permit. Information gained through the MMP process can be used to reduce mercury concentrations. As part of its mercury control strategy, the Permittee should consider selecting activities based on the potential of those activities to reduce mercury loadings to the tailings basin.

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Chapter 6. Mercury Minimization Plan

1. Mercury Pollutant Minimization Plan

1.3 The Permittee shall submit a Mercury Minimization Plan by 180 days after permit issuance. At a minimum, the MMP must include the following:

a) A summary of mercury influent and effluent concentrations using the most recent five years of monitoring data, if available.
b) Identification of existing and potential sources of mercury concentrations and/or loading to the facility. As appropriate for your facility. You should consider influent mercury sources, such as stormwater inputs, makeup water inputs, fuels, stockpiles, and waste streams to the facility.
c) An evaluation of past and present treatment operations, if applicable, to determine those operating procedures that maximize mercury removal.
d) A summary of any mercury reduction activities implemented during the last five years.
e) A plan to implement mercury management and reduction measures during the next five years.

Chapter 7. Whole Effluent Toxicity (WET) Testing - Chronic

1. General Requirements

1.1 This permit does not include a chronic whole effluent toxicity limit; however the facility is required to conduct chronic toxicity tests for the Sand and Dark Rivers. Results of chronic toxicity tests will be evaluated against a monitoring threshold value of 1.0 TUc.

1.2 The Permittee shall conduct quarterly chronic toxicity test batteries on Outfall SD001 (or the next active downstream monitoring location if there is insufficient flow at SD001) and at the SW005 sampling station beginning with the first full calendar year quarter following the issuance date of the permit. The first quarter results are due the last day of the first full calendar quarter following permit issuance. (For example, if the permit is issued April 28, the first quarterly results are due by September 30.) The quarterly monitoring requirement is for one full calendar year, beginning with the start of the first full calendar quarter following the issuance date of the permit, and is annual thereafter.

1.3 Annual chronic test batteries shall be conducted in each succeeding year for the remainder of the permit. The first annual results are due one year from the due date of the final quarter results and annually thereafter.

1.4 The Permittee shall conduct annual chronic toxicity test batteries on Outfall SD001 (or the next active downstream monitoring location if there is insufficient flow at SD001) and at the SW005 sampling station, beginning with the issuance date of the permit. The first set of annual results are due the last day of the first full calendar quarter following permit issuance and annually thereafter. (For example, if the permit is issued April 28, the test results are due on or before September 30 of each year.)

1.5 Any test that exceeds 1.0 TUc shall be re-tested according to the Positive Toxicity Results requirement(s) that follow to determine if toxicity is still present above 1.0 TUc.

2. Species and Procedural Requirements

2.1 Any test that is begun with an effluent sample that exceeds a total ammonia concentration of 5 mg/l shall use the carbon dioxide-controlled atmosphere technique to control pH drift.

2.2 Test organisms for each test battery shall include the fathead minnow (Pimephales promelas)-Method 1000.0 and Ceriodaphnia dubia-Method 1002.0.

2.3 Static renewal chronic serial dilution tests of the effluent shall consist of a control,12.5, 25, 50, 75 and 100% effluent.

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Chapter 7. Whole Effluent Toxicity (WET) Testing - Chronic

2. Species and Procedural Requirements

2.4 All effluent samples shall be grab samples. Test solutions shall be renewed daily. Testing of the effluent shall begin within 36 hours of sample collection. Chronic toxicity tests shall be conducted in accordance with procedures outlined in EPA-821-R-02-013 "Short-term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" - Fourth Edition (Chronic Manual) and any revisions to the Manual.

2.5 Any other circumstances not addressed in the previous requirements or that require deviation from that specified in the previous requirements shall first be approved by the MPCA.

3. Quality Control and Report Submittals

3.1 Any test that does not meet quality control measures, or results which the Permittee believes reflect an artifact of testing shall be repeated within two (2) weeks. These reports shall contain information consistent with the report preparation section of the Chronic Manual. The MPCA shall make the final determination regarding test validity.

4. Positive Toxicity Result for WET

4.1 Should a test exceed 1.0 TUc for whole effluent toxicity based on results from the most sensitive test species, the Permittee shall conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after completion of the positive test. These tests will be used to determine if toxicity exceeding 1.0 TUc remains present for any test species. For both retests, if no toxicity is present above 1.0 TUc for any test species, the Permittee shall return to the test frequency specified by the permit. If either of the repeat test batteries indicate toxicity above 1.0TUc for any test species, the Permittee shall submit for MPCA review a plan for conducting a Toxicity Reduction Evaluation (TRE), including the Facility Performance Review (to be submitted to the MPCA WQ Submittals Center within 60 days after toxicity discovery date) and, at a minimum, provide quarterly reports starting from the date of TRE submittal, regarding progress towards the identity, source, and any plans for the removal of the toxicity. The TRE shall be consistent with EPA guidance or subsequent procedures approved by the MPCA in attempting to identify and remove the source of the toxicity. Routinely scheduled chronic toxicity test batteries required in this permit section shall be suspended for the duration of the TRE.

4.2 Following successful completion of the TRE the Permittee shall conduct one year of quarterly testing, with the results of the first quarterly test due the first full calendar quarter following TRE completion (For example, if the TRE is completed on April 28, the first quarterly results are due on or before September 30.) Following completion of one year of quarterly testing the return to routine annual acute toxicity testing is subject to the discretion of the MPCA. Amendments to the initial TRE shall be approved by MPCA staff and the schedules identified therein.

5. WET Data and Test Acceptability Criteria (TAC) Submittal

5.1 All WET test data and TAC must be submitted to the MPCA by the dates required by this section of the permit using the Minnesota Pollution Control Agency Ceriodaphnia dubia Chronic Toxicity Test Report and/or Minnesota Pollution Control Agency Fathead Minnow Chronic Toxicity Test Report and associated instruction forms. Data not submitted on the correct form(s), or submitted incomplete, will be returned to the permittee and deemed incomplete until adequately submitted on the designated form (identified above). Data should be submitted to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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Chapter 7. Whole Effluent Toxicity (WET) Testing - Chronic

6. Permit Re-opening for WET

6.1 Based on the results of the testing, the permit may be modified to include additional toxicity testing and a whole effluent toxicity limit.

7. Whole Effluent Toxicity Requirement Definitions

7.1 "Chronic Whole Effluent Toxicity (WET) Test is a static renewal test conducted on an exponentially diluted series of effluent. The purpose is to calculate appropriate biological effect endpoints (NOEC or IC25), specified in the referenced chronic manual. A statistical effect level less than the Receiving Water Concentration (RWC) constitutes a positive test for chronic toxicity. The RWC equals the 100% percent effluent concentration or 1.0 TUc.

7.2 "Chronic toxic unit (TUc)" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period. For example, a TUc equals [7Q10flow (mgd) + effluent average dry weather flow (mgd)]/[effluent average dry weather flow (mgd)].

7.3 "Test" refers to an individual species.

7.4 "Test Battery" consists of WET testing of all test species for the specified test. For chronic WET testing, all test species includes Fathead minnows and ceriodaphnia dubia.

Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

1. Authorization

1.1 This chapter authorizes the Permittee to discharge stormwater associated with industrial activity from industrial activity associated with SIC code(s) 1011 in accordance with the terms and conditions of this chapter.

1.2 This permit, unless specifically authorized by another chapter, does not authorize the discharge of sewage, wash water, scrubber water, floor drains from process areas, spills, oils, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands, or other surface waters of the state.

2. Water Quality Standards

2.1 The Permittee shall operate and maintain the facility and shall control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060.

2.2 The Permittee shall limit and control the use of materials at the facility that may cause exceedances of ground water standards specified in Minnesota Rules, ch. 7060. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

3. Stormwater Pollution Prevention Plan

3.1 The Permittee shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to address the specific conditions at the facility. The goal of the SWPPP is to eliminate or minimize contact of stormwater with significant materials that may result in pollution of the runoff. If contact cannot be eliminated or reduced, stormwater that has contacted significant material should be treated before it is discharged from the site.

Guidance for preparing the SWPPP can be found on the web at: http://www.pca.state.mn.us/r4ard68.

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Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

3. Stormwater Pollution Prevention Plan

3.2 At a minimum, the SWPPP must include:

a. a description of appropriate Best Management Practices (BMPs) (including structural and non-structural) for protection of surface and groundwater quality at the facility and a schedule for implementing the practices;
b. a drainage map for the entire facility;
c. an inventory of exposed significant materials;
d. an evaluation of the facility areas with exposure of significant materials to stormwater;
e. an evaluation of all discharge conveyances from the site; a preventative maintenance program;
f. a spill prevention and response procedure;
g. procedures to be followed by designated staff employed by the Permittee to implement the SWPPP; and
h. a description of stormwater controls.

3.3 In addition, the SWPPP must include the following:

a. Facility Map. Identify where any of the following may be exposed to stormwater: mining or milling site boundaries; access and haul roads; outline of drainiage areas of each monitoring location within the facility with indications of the types of discharges from the drainage areas; location of all permitted discharge points, outdoor equipment storage, fueling and maintenance areas; materials handling areas; outdoor manufacturing, outdoor storage and material disposal areas; outdoor chemicals and explosives storage areas; overburden, materials, soils or waste storage areas; location of mine drainage or other process water; tailings piles and ponds; heap leach pads; off site points of discharge for mine drainage and process water; surface waters; boundary of tributary areas that are subject to effluent limits; location(s) of sites undergoing reclamation and reclaimed areas.

b. Potential Pollutant Sources. For each area of the mine or mill site where stormwater discharges associated with industrial activities occur, the Permittee shall identify the types of pollutants (e.g. heavy metals, sediment) likely to be present in significant amounts. The Permittee shall consider the following factors: the mineralogy of the ore and waste rock (e.g. acid forming); toxicity and quantity of chemicals used, produced or discharged; the likelihood of contact with stormwater; vegetation of site (if any); history of significant leaks or spills of toxic or hazardous pollutants, including a summary of any existing ore or waste rock or overburden characterization data and test results for potential generation of acid rock. If any new data is acquired due to changes in ore type being mined, the Permittee shall update the SWPPP with this information.

3.4 The SWPPP shall be developed and implemented within 180 days after permit issuance and shall be available for inspection.

4. Employee Training Program

4.1 The Permittee shall conduct training at active and temporarily inactive sites. All training regardless of site type shall be documented in the facility's SWPPP.

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Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

4. Employee Training Program

4.2 The Permittee must develop and implement an employee training program to inform appropriate personnel of the components and goals of the SWPPP. At a minimum, training must address:

a. spill/leak prevention and response;
b. good housekeeping;
c. petroleum product management;
d. process chemical management;
e. fueling procedures;
f. proper procedures for using fertilizer, herbicides, and pesticides;
g. erosion and sedimentation controls;
h. inspections;
i. preventative maintenance;
j. runoff management; and
k. materials management practices.

The SWPPP must identify periodic dates for such training as well as personnel responsible for managing and implementing the SWPPP and those responsible for the reporting requirements of this permit. This must include the facility contact person as indicated on the permit application. Identified personnel must be available at reasonable times of operation.

Guidance regarding employee training programs is available on the web at:
http://www.pca.state.mn.us/r4ard68.

5. Inspection and Maintenance

5.1 The Permittee must develop and implement an inspection schedule that includes a minimum of one facility inspection per calendar month. A minimum of one inspection per calendar year must be conducted during a runoff event. Inspections must be conducted by appropriately trained personnel at the facility. The purpose of inspections is to:

1) determine whether structural and non-structural BMPs require maintenance or changes, and
2) evaluate the completeness and accuracy of the SWPPP.

Inspection results and documentation must remain on-site whenever Permittee staff are on the site and must be available upon request. The inspection form is located on the MPCA's website at:
http://www.pca.state.mn.us/r4ard68.

5.2 Inspections must be documented. Documentation must include the following information:

a. inspection date and time;
b. weather conditions;
c. inspector name;
d. findings; and
e. a description of any necessary corrective actions and a schedule for corrective action completion.

A copy of all inspection documentation must be stored with the SWPPP.

5.3 If the facility is inactive and unstaffed, temporarily inactive and unstaffed, or is a site undergoing reclamation, the Permittee is waived from the requirement to conduct monthly facility inspections and shall conduct semiannual inspections. If circumstances change, and the facility becomes active, and/or staffed, this exception no longer applies and compliance with the monthly inspection requirements in accordance with requirement 5.1 shall begin immediately.

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Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

5. Inspection and Maintenance

5.4 The Permitteee shall inspect the site when the Permittee has reason to believe that severe weather or natural disasters may have damaged stormwater control measures or increased discharges.

5.5 If conditions are observed at the site that require changes in the SWPPP, such changes must be made to the SWPPP prior to submission of the annual report for that calendar year.

5.6 If the findings of a site inspection indicate that BMPs are not meeting the objectives as identified above, corrective actions must be initiated within thirty days and the BMP restored to full operation as soon as conditions allow.

6. Sedimentation Basin Design and Construction

6.1 The Permittee is authorized to use designed infiltration devices or industrial stormwater ponds/sedimentation basins for stormwater management. Stormwater ponds/sedimentation basins must be designed by a registered professional engineer and installed under the direct supervision of a registered professional engineer. If a new stormwater pond/sedimentation basin will be constructed, the Permittee must follow the guidance located on the website at: http://www.pca.state.mn.us/r4ard68.

7. Industry Specific Stormwater Controls

7.1 When capping is necessary to minimize pollutant discharges in stormwater, identify the source being capped and the material used to construct the cap.

8. Reporting

8.1 Submit a Stormwater Annual Report by February 28 of each year following permit issuance. A copy of the Stormwater Annual Report Form is located on the MPCA's website at: http://www.pca.state.mn.us/r4ard68.

8.2 The Permittee shall, upon request of the Agency, submit within a reasonable time the information and reports that are relevant to compliance with this Chapter, including the Plan, inspection reports, annual reports, original laboratory sheets from analyses conducted on the waste stream, and BMP plans and specifications.

Application of Chemical Dust Suppressants

8.3 If chemical dust suppressants are applied, the Permittee shall submit a chemical Dust Suppressant Annual Report due 31 days after the end of each calendar year following the application of a chemical dust suppressant.

8.4 The Chemical Dust Suppressant Annual Report shall include:
a. a record of the dates, methods, locations and amounts by volume of chemical application at the facility;
b. whether the product was applied in the preceding year; and,
c. the results of a chemical analysis of the materials applied each year.

8.5 If a material applied is mixed with water or another solvent before application, the chemical analysis shall be done on the aqueous or other mixture that is representative of the solution applied. This analysis shall be conducted during the same calendar year of application. This analysis shall include the parameters that may be determined by U.S. Environmental Protection Agency (EPA) Methods 624 and 625 which are described in 40 CFR Part 136.

8.6 Chemical dust suppressants, if used, shall not be applied within 100 feet of offsite surface waters or offsite ditches that conduct surface flow to surface waters.

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Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

9. Records

9.1 The SWPPP must be retained for the duration of the permit. A copy of the SWPPP must remain on the permitted site whenever Permittee staff is on the site and be available upon request. The Permittee must maintain the following records for the period of permit coverage:

a. dates and findings of inspections;
b. completed corrective actions;
c. documentation of all changes to the SWPPP; and
d. a copy of all annual reports.

10. Notification

10.1 If the Permittee discharges stormwater into a regulated Municipal Separate Storm Sewer System (MS4), the Permittee must notify the operator of the first MS4 of the existence of this permit within 30 days of its issuance.

11. No Exposure

11.1 If the Permittee meets the eligibility criteria for No Exposure and is eligible for the conditional exclusion for No Exposure, as regulated by 40 CFR 122.26(b)(14)(i) through (ix) and (xi), it may submit:

a. a No Exposure certification to the MPCA in accordance with Minn. R. 7090.3060; and
b. a permit application for a modification of the NPDES/SDS Permit.

11.2 The Permittee must apply to the MPCA for the No Exposure certification once every five years.

11.3 The No Exposure exclusion is conditional. The facility must maintain a condition of No Exposure at the facility in order for the No Exposure exclusion to remain applicable. In the event of any change or circumstance that causes exposure of industrial activities or materials to stormwater, the facility must comply with the stormwater requirements of this chapter.

11.4 The no exposure certification is non-transferrable in accordance with Minn. R. 7090.3060, subp. 5(D). In the event that the facility operator changes, then the new operator must submit written notification of the change to the MPCA, Attn: WQ Submittal Center, 520 Lafayette Road North, St Paul, Minnesota 55155-4194.

11.5 The MPCA retains the authority to require the facility operator to comply with the requirements of this chapter, even when an industrial operator certifies no exposure, if the MPCA has determined that the discharge is contributing to the violation of, or interfering with the attainment or maintenance of water quality standards, including designated uses.

12. Definitions

12.1 "Active Metal Mining Facility" means a place where work or other activity related to the extraction, removal or recovery of metal ore is being conducted. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. This definition is derived from the definition of "active mining area" found at 40 CFR pt. 440.132(a).

12.2 "Best Management Practices" or "BMPs" means practices to prevent or reduce the pollution of waters of the state, including schedules of activities, prohibitions of practices, other management practices, and also includes treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge, waste disposal or drainage from raw material storage.

12.3 "Inactive metal mining facility" means a site or portion of a site where metal mining and/or milling occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the State.

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Chapter 8. Industrial Stormwater -- Sector G: Metal Mining (ore mining & dressing)

12. Definitions

12.4 "No Exposure" means all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snow melt, and/or runoff. Industrial activities or materials include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

12.5 "Non-Stormwater Discharge" means any discharge not comprised entirely of stormwater discharges authorized by a NPDES permit.

12.6 "Reclamation" means activities undertaken, in compliance with applicable mined land reclamation requirements, following cessation of the activities associated with extraction through production of a salable product, intended to return the land to an appropriate post-mining land use in order to meet applicable Federal and State reclamation requirements.

12.7 "Runoff" means any liquid that drains over land from any part of a facility.

12.8 "Temporary inactive metal mining facility" means a site or portion of a site where metal mining and/or milling occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the State or Federal agency.

Chapter 9. Ground Water Stations

1. Monitoring Wells

1.1 The Permittee shall install, maintain and abandon groundwater monitoring wells according to the Minnesota Water Well Construction Code, Minnesota Rules, ch. 4725. Damaged or improperly constructed monitoring wells shall be repaired or properly abandoned and replaced. Information on licensed water well contractors is available from the Minnesota Department of Health.

1.2 The Permittee shall submit a detailed monitoring well log for each monitoring well at the facility and a detailed US Geological Survey topographical map identifying the location of each well.

1.3 Each monitoring well shall be clearly numbered on the outside of the well with either indelible paint or an inscribed number.

1.4 The monitoring wells shall be sampled in accordance with "Minnesota Pollution Control Agency, Water Quality Division: Sampling Procedures for Ground Water Monitoring Wells, July 1997, Reviewed and re-approved September 2006." A copy of this publication is available on the MPCA website at: http://www.pca.state.mn.us.

1.5 Grab samples must be collected at all ground water monitoring points (lysimeters or wells) after stabilization tests are conducted.

1.6 Prior to well purging and sampling, depths to groundwater shall be measured to the nearest 0.01 foot below the top of the well casing, and groundwater elevations shall be reported to the nearest 0.01 foot above mean sea level.

1.7 Temperature, specific conductance and pH shall be reported as the final field measurements from well stabilization.

2. Requirements for Specific Stations

2.1 GW 003, GW 004, GW 006, GW 007, GW 008, GW 009, GW 010, GW 012, GW 013, GW 014: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

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Chapter 9. Ground Water Stations

2. Requirements for Specific Stations

2.2 GW 011: The Permittee shall install one downgradient monitoring well cluster (GW011-S, I, and D) near the property boundary by the Admiral Lake outlet, within the bedrock trench underlying the Sand River within 180 days of permit issuance. The cluster shall consist of shallow, intermediate and deep wells. The shallow well shall be screened just beneath the observed water table. The intermediate well shall be screened in a permeable unit near the middle depth of the trench, based on the observed depth to bedrock in the deep boring. The deep well shall be screened just above the bedrock surface. Well screens should be 10 feet in length.Install groundwater monitoring well by 180 days after permit issuance.

2.3 GW 011: Submit a monthly DMR monthly by 21 days after the end of each calendar month following submittal of sampling results.

2.4 GW 011: The Permittee shall submit a Ground Water Monitoring Well Installation Report within 30 days of installation of GW011 well cluster. The Instalation Report shall include at a minimum:
a. detailed monitoring well log
b. unique well number identifying the well
c. surveyed top of casing elevations for the well
d. USGS topographic map of location of well in relation to the Buckeye and Canisteo tailings basins and property boundaries

2.5 GW 011: The Permittee shall take a minimum of three samples from each monitoring well GW011 prior to initating quarterly DMR sampling. Samples shall be taken at a frequency of no less than 2 weeks apart, and shall be analyzed for the parameters required for GW011 in the Limits and Monitoring section of this permit. The results of the monitoring shall be submitted in a Baseline Groundwater Monitoring Report within 120 days of installation of the well cluster at GW011. The report will specify which well depth has the greatest concentration of sulfate, and this well will be used to fulfill quarterly DMR sampling requirementsSubmit sampling results by 120 days after installation of groundwater monitoring well.

Chapter 10. Surface Discharge Stations

1. Requirements for Specific Stations

1.1 SD 001: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

2. Sampling Location

2.1 Samples for Station SD001 shall be taken at the weir outfall for the impounded seep.

2.2 Samples and measurements required by this permit shall be representative of the monitored activity.

3. Surface Discharges

3.1 Floating solids or visible foam shall not be discharged in other than trace amounts.

3.2 Oil or other substances shall not be discharged in amounts that create a visible color film.

3.3 The Permittee shall install and maintain outlet protection measures at the discharge stations to prevent erosion.

4. Winter Sampling Conditions

4.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

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Chapter 10. Surface Discharge Stations

5. Mercury Limits and Monitoring Requirements

5.1 Permittees are required to sample for TSS (grab sample) at the same time that Total/Dissolved Mercury samples are taken. Total Mercury, Dissolved Mercury, and TSS (grab sample) samples must be collected via grab samples. All results must be recorded on DMRs.

5.2 Total and Dissolved Mercury samples must be analyzed using the most current versions of EPA Method 1631 with clean techniques method 1669. Should another mercury analytical method that has a reportable quantitation level of <0.5 ng/L that allows for low-level sample characterization be approved by the EPA and certified by an MPCA recognized accreditation body, the method may be used in place of 1631/1669.

6. Discharge Monitoring Reports

6.1 The Permittee shall submit monitoring results for discharges in accordance with the limits and monitoring requirements for this station. If no discharge occurred during the reporting period, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR).

Chapter 11. Surface Water Stations

1. Requirements for Specific Stations

1.1 SW 001, SW 003, SW 004, SW 005, SW 006, SW 007, SW 008: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

2. Special Requirements

Interim Limit Calculations

2.1 At Surface Water Sampling Stations Interim Limits have been or will be established in this permit based on ambient monitoring data collected prior to and under this permit.

Using recent monitoring data, the trigger for a limit will be set at the 99th percentile of the lognormal distribution defined by the collected date. If this value exceeds the applicable state water quality standard, the interim limit will become enforceable under this permit.

The formula to determine the 99th percentile of a lognormal distribution is as follows:Exp ($\mu + 2.326\ \Sigma$), where μ is the mean of the log of the original data and Σ is the standard deviation of the log values.

2.2 Using recent monitoring data, the limit will be set at the 95th percentile of the lognormal distribution that is defined by the monitoring data collected at each sampling station. The formula to determine the 95th percentile of a lognormal distribution is as follows:

Exp ($\mu + 1.65\ \Sigma$), where μ is the mean of the log of the original data and Σ is the standard deviation of the log values.

The value calculated from this formula shall be the monthly average limit for that sampling station.

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Chapter 11. Surface Water Stations

2. Special Requirements

2.3 A minimum of 10 data points will be needed for 99th and 95th percentile calculations and the data must meet the following requirements to be used in the calculations:

1. Each data point must have been collected in a discreet calendar month and the data set must have been collected over an interval of at least one year.

2. Data must have been collected within three years of the date at which the interim limit calculation is performed.

3. For stations where there is greater than one year of record, all the data available within the preceding three years will be used in the calculation.

4. The data set used must have at least 5 percent of the data collected in each of the calendar quarters (i.e. if there are 20 samples, at least one sample must have been collected in each of the four quarters);

2.4 For stations newly established under this permit, and for existing stations that do not have a valid data set as defined above, the need for an interim limit at a surface water station will be determined after data have been collected monthly for a minimum of one year, and at least 10 monthly measurements have been reported. In the calendar month following fulfillment of these requirements, the 99th percentile of the lognormal distribution will be calculated, and if this value exceeds the applicable state water quality standard, the interim limit will become enforceable under this permit. If it does not exceed the state water quality standard, monitoring for that parameter will continue under this permit, without limits.

Final Limits for Class 3 and 4A Parameters

2.5 To protect the class 3 (industrial consumption) and class 4a (agriculture) designated uses of surface water bodies, monthly monitoring results must be below the state water quality ambient standard for an applicable pollutant greater than 90 percent of the time. Therefore the Permittee will be in violation of permit conditions during a given monitoring period when the following occurs:

1. The monitoring result for that month exceeds the permit limit; and

2. The compliance limit has been exceeded for that monitoring location greater than 10 percent of the time over the preceding 12 months in which monitoring was completed, ending during the most recent reporting month.

3. Discharge Monitoring Reports

3.1 The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If flow conditions are such that no sample could be acquired, the Permittee shall check the "No Flow" box and note the conditions on the Discharge Monitoring Report (DMR).

4. Sampling Location

4.1 Samples for Station SW001 shall be taken at the culvert inlet where the Sand River crosses Highway 53, which is located in the NW 1/4 of the NW 1/4 of Section 6, Township 59 N, Range 17 W.

4.2 Samples for Station SW003 shall be taken at the culvert inlet where the Dark River crosses County Highway 668, which is located in the SE 1/4 of the SE 1/4 of the NE 1/4 of Section 3, Township 59 N, Range 19 W.

4.3 Samples for Station SW004 shall be taken at the culvert inlet where the Dark River crosses County Highway 65, which is located in the NE 1/4 of Section 30, Township 60 N, Range 19 W.

4.4 Samples for Station SW005 shall be taken at the Sand River inflow to Little Sandy Lake, which is located in the NW 1/4 of the NE 1/4 of the NW 1/4 of Section 11, Township 59 N, Range 18 W.

4.5 Samples for Station SW006 shall be taken in Timber Creek in the vicinity of the abandoned road, which is located in the SW 1/4 of the SE 1/4 of the NE 1/4 of Section 13, Township 59 N, Range 19 W.

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Chapter 11. Surface Water Stations

4. Sampling Location

4.6 Samples for Station SW007 shall be taken in a location as yet to be determined in Admiral Lake, which is located in the SE 1/4 of the SE 1/4 of Section 10, Township 59 N, Range 18 W.

4.7 Samples for Station SW008 shall be taken in the Dark River in the vicinity of the abandoned road, which is located in the NE 1/4 of the NE 1/4 of the NE 1/4 of Section 13, Township 59 N, Range 19 W.

4.8 Samples shall be taken at mid-stream, mid-depth. Record location, date, time and results for each sample on the supplemental Discharge Monitoring Report form.

5. Sampling Protocol

5.1 All instruments used for field measurements shall be maintained and calibrated to insure accuracy of measurements.

5.2 Sample water shall be preserved according to lab instructions and delivered to a certified lab within the maximum holding times.

6. Winter Sampling Conditions

6.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Flow" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

Chapter 12. Waste Stream Stations

1. Requirements for Specific Stations

1.1 WS 002, WS 003, WS 004, WS 005, WS 006, WS 007, WS 008: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

2. Special Requirements

Determination of no net increase in sulfate mass loading to the tailings basin

2.1 Sampling and analysis shall be done in accordance with the Limits and Monitoring requirements section of this permit. The following steps shall be completed during each sample event:

Step 1: Measure the dissolved sulfate concentration and flow rate of water in the scrubber makeup stream (WS002). Calculate the mass of sulfate in the makeup stream. This is the mass loading of sulfate entering the scrubber system.

Step 2: Measure the dissolved sulfate concentration and flow rate of the overflow from the calcium sulfate thickener (WS003). Calculate the mass of sulfate in the thickener overflow. This is the mass loading of sulfate leaving the scrubber system.

The calculations described above shall be compiled for each calendar year. On an annual basis, the mass of sulfate leaving the scrubber system shall be less than or equal to the mass of sulfate entering the scrubber system.

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Chapter 12. Waste Stream Stations

2. Special Requirements

2.2 Sampling and analysis shall be done in accordance with the Limits and Monitoring requirements section of this permit. The following steps shall be completed during each sample event:

Step 1: Measure the hardness (calcium + magnesium) concentration and flow rate of water in the scrubber makeup stream (WS002). Calculate the mass of hardness in the makeup stream. This is the mass loading of hardness entering the scrubber system.

Step 2: Measure the hardness concentration and flow rate of the overflow from the calcium sulfate thickener (WS003). Calculate the mass of hardness in the thickener overflow.

Step 3: Subtract the mass of hardness in the makeup stream (Step 1) from the mass of hardness in the thickener overflow (Step 2). This is the mass of hardness that must be removed to satisfy the no net increase requirement. Convert the calculated mass of hardness to the appropriate moles of calcium and magnesium.

Step 4: Measure the pH of the thickener overflow (WS003) and the pH of the concentrate slurry stream (WS004) and/or the influent to the Step I Reclaim Thickener (WS005). Using the difference between the pH of the thickener overflow and the appropriate slurry stream(s) and the flow rate of the thickener overflow, calculate the mass of excess hydroxide ions that are present in the thickener overflow (which will convert bicarbonate in the concentrate stream to carbonate). Convert the mass to moles of hydroxide ions.

The calculations described above shall be compiled for each calendar year. On an annual basis, the number of moles of excess hydroxide ion (Step 4) must be equal to or greater than the number of moles of excess calcium and magnesium (Step 3) in the thickener overflow stream.

2.3 If the oveflow from the calcium sulfate thickener is sent to both the Concentrate Thickener (or Slurry Mix Tank) and the Step I Reclaim Thickener in the same reporting period, the mass of excess hydroxide ions present in the thickener overflow (Step 4 above) shall be total of the individual calculations based on the pH of the each slurry stream and the average flow rate of the thickener overflow to each location during the reporting period.

2.4 As part of the Annual Pollution Control Report, as required in Chapter 6, Requirement 1.3, to be submitted by February 14 of each year, submit a summary of the Line 3 scrubber wastewater treatment system monitoring activities and calculations for the preceding calendar year. The submittal shall include the determination of compliance with the no net increase in mass loading from the Line 3 scrubber wastewater treatment system. If compliance with the no net increase in the mass loading of sulfate and hardness to the tailings basin has not been achieved, the submittal shall include a discussion of why compliance was not achieved, as well as a work plan and schedule, for MPCA review and approval, to achieve compliance.

3. Sampling Location

3.1 Conduct monitoring of waste stream from WS006 or WS007 (formerly WS001) depending upon which route of the fine tailings slurry discharge is being used.

3.2 Grab and composite samples shall be collected at a point representative of total flow in the waste stream.

3.3 Samples for Stations WS002, WS003, WS004, WS005, WS006, WS007 and WS008 shall be representative of the monitored activity.

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Chapter 12. Waste Stream Stations

4. Sampling Frequency

4.1 For WS002, WS003, WS004, and WS005, the Permittee may request a reduction in monitoring frequency from the Agency. Reduced monitoring may be allowed if it is determined that the variation of the monitored parameters within the waste stream is small. The Permittee shall be notified in writing if a reduction in monitoring has been authorized; a reduction in monitoring frequency shall not occur until written authorization has been given.

Chapter 13. Total Facility Requirements

1. General Requirements

General Requirements

1.1 Definitions. Refer to the 'Permit Users Manual' found on the MPCA website (www.pca.state.mn.us) for standard definitions.

1.2 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.

1.3 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications and/or operations and maintenance manuals approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)

1.4 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)

1.5 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)

1.6 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

1.7 Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)

1.8 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)

1.9 Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)

1.10 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.11 Severability. The provisions of this permit are severable and, if any provisions of this permit or the application of any provision of this permit to any circumstance are held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

1.12 Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.

1.13 Inspection and Entry. When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to inspect and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and inspections, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

1.14 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

Sampling

1.15 Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))

1.16 Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)

1.17 Certified Laboratory. A laboratory certified by the Minnesota Department of Health and/or registered by the MPCA shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature, specific conductance, and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall be completed by equipment that is verified for accuracy before use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

1.18 Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

1.19 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with the permit shall be verified and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.20 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including DMRs, inspections, calibration and accuracy verifications, maintenance records, any calculations, original recordings from field or automatic monitoring instruments, laboratory sheets, chain of custody forms, copies of all reports required by the permit, and all data used to complete the permit application. The Permittee shall extend these record retention periods upon request of the MPCA.

The Permittee shall maintain records for each sample and measurement. The records of all monitoring and testing which is related to compliance with the terms and conditions of the permit shall include the following information (Minn. R. 7001.0150, subp. 2, item C):

a. The exact place, date, and time of the sample or measurement;

b. The date of analysis;

c. The name of the person(s) who performed the sample collection and/or measurement;

d. The name of the person(s) who performed the analysis and/or calculation;

e. The analytical techniques, procedures and methods used; and

f. The results of the analysis.

1.21 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

DMR Sample Values and/or Operational Spreadsheets or DMR Supplemental Form:
If required, individual values for each sample and measurement must be recorded on the DMR Sample Values and/or Operational Spreadsheets provided by the MPCA. DMR Sample Values and/or Operational Spreadsheets or DMR Supplemental Forms shall be submitted with the appropriate eDMRs. Note: Required summary information MUST be recorded on the electronic Discharge Monitoring Report. Summary information that is submitted ONLY on the DMR Sample Values and/or Operational Spreadsheets or DMR Supplemental Form does not comply with the reporting requirements.

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Chapter 13. Total Facility Requirements

1. General Requirements

1.22 Submitting Reports. Electronic Discharge Monitoring Reports (eDMRs), DMR Sample Values and/or Operational Spreadsheets or DMR Supplemental Forms, and related attachments shall be submitted electronically via the MPCA Online Services Portal after authorization is approved. Authorization must be applied for and approved prior to submittal via the Online Services Portal.

eDMRs and DMR Sample Values and/or Operational Spreadsheets or DMR Supplemental Forms shall be electronically submitted by the 21st day of the month following the monitoring period end or as otherwise specified in this permit. Electronic DMR submittal must be complete on or before 11:59 PM of the 21st day of the month following the end of the monitoring period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the monitoring period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

If electronic submittal is not possible, the Permittee must apply for an exception to electronic submittal. Exceptions requests for extreme conditions (no computer on-site is not an extreme condition) must at a minimum contain the extreme reason for the exception, actions to be taken, and date the facility will submit eDMR. All exception requests, and paper DMRs, DMR supplemental forms, and related attachments must be submitted by the 21st day of the month following the monitoring period end to:

MPCA
Attn: Discharge Monitoring Reports
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Other reports required by this permit shall be submitted on or before the due date specified in the permit to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

1.23 Incomplete or Incorrect Reports. The Permittee shall immediately submit an electronically amended report or eDMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or eDMR. The amended report or eDMR shall contain the missing or corrected data along with an explination of the circumstances of the incomplete or incorrect report. The explination must be added to the eDMR comments field or must be an attachment to the eDMR. If it is impossible to electronically amend the report or eDMR, the Permittee shall immediately notify the MPCA and the MPCA will provide direction for the amendment submittals. (Minn. R. 7001.0150 subp. 3, item G)

1.24 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.25 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)

Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:

a. If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.

b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection.

c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)

1.26 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

1.27 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

Noncompliance and Enforcement

1.28 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.29 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.30 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

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Chapter 13. Total Facility Requirements

1. General Requirements

1.31 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately investigate the cause of the violation, which may include but is not limited to, collecting additional samples and/or other investigative actions. The Permittee shall also take appropriate action to prevent future violations. If the permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall within 24 hours of the discovery of the noncompliance, orally notify the commissioner and submit a written description of the noncompliance within 5 days of the discovery. The written description shall include items a. through e., as listed below. If the Permittee discovers other non-compliance that does not explicitly endanger human health, public drinking water supplies, or the environment, the non-compliance shall be reported during the next reporting period to the MPCA with its Discharge Monitoring Report (DMR). If no DMR is required within 30 days, the Permittee shall submit a written report within 30 days of the discovery of the noncompliance. This description shall include the following information:

a. a description of the event including volume, duration, monitoring results and receiving waters;

b. the cause of the event;

c. the steps taken to reduce, eliminate and prevent reoccurrence of the event;

d. the exact dates and times of the event; and

e. steps taken to reduce any adverse impact resulting from the event.
(Minn. R. 7001.0150, subp. 3k)

1.32 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

a. The specific cause of the upset;

b. That the upset was unintentional;

c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;

d. That at the time of the upset the facility was being properly operated;

e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and

f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

Release

1.33 Unauthorized Releases of Wastewater Prohibited. Except for discharges from outfalls specifically authorized by this permit, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.34 Discovery of a release. Upon discovery of a release, the Permittee shall:

a. Take all reasonable steps to immediately end the release.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon discovery of the release. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area).

c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

1.35 Sampling of a release. Upon discovery of a release, the Permittee shall:

a. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.

b. Submit the sampling results on the Release Sampling Form (http://www.pca.state.mn.us/index.php/view-document.html?gid=18867). The Release Sampling Form shall be submitted to the MPCA with the next DMR or within 30 days whichever is sooner.

Bypass

1.36 Anticipated bypass. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if the bypass is for essential maintenance to assure efficient operation of the facility. The permittee shall submit prior notice, if possible at least ten days before the date of the bypass to the MPCA (40 CFR 122.41(m)(2) and 122.41(m)(3) and Minn. R. Ch. 7001.1090, subp. 1, J).

The notice of the need for an anticipated bypass shall include the following information:

a. The proposed date and estimated duration of the bypass;

b. The alternatives to bypassing; and

c. A proposal for effluent sampling during the bypass. Any bypass wastewater must enter waters of the state from outfalls specifically authorized by this permit. Therefore, samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent.

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Chapter 13. Total Facility Requirements

1. General Requirements

1.37 All other bypasses are prohibited. The MPCA may take enforcement action against the Permittee for a bypass, unless the specific conditions described in Minn. R. Ch. 7001.1090 subp. 1, K and 122.41(m)(4)(i) are met.

In the event of an unanticipated bypass, the permittee shall:

a. Take all reasonable steps to immediately end the bypass.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon commencement of the bypass. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area). (Minn. Stat. Sec 115.061)

c. Immediately take action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies for implementation of abatement, clean-up, or remediation activities.

d. Only allow bypass wastewater as specified in this section to enter waters of the state from outfalls specifically authorized by this permit. Samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent. The permittee shall also follow the reporting requirements for effluent violations as specified in this permit.

Operation and Maintenance

1.38 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F.

1.39 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)

1.40 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, lime waste, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)

1.41 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

1.42 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

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Chapter 13. Total Facility Requirements

1. General Requirements

Changes to the Facility or Permit

1.43 Except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, no person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to a facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

1.44 Submittal of plans and specifications for MPCA approval is not required for routine maintenance work. Routine maintenance work means installation of new equipment to replace worn out or broken items, provided the new equipment is the same design size and has the same design intent. For instance, a broken sewer pipe, a worn out lift station pump, or a malfunctioning aerator or blower can be replaced with the same design-sized equipment (or pipe) without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

1.45 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)

1.46 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

a. The process for which the additive will be used;
b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. The aquatic toxicity information shall include at minimum the results of: a) a 48-hour LC50 or EC50 acute study for a North American freshwater planktonic crustacean (either Ceriodaphnia or Daphnia sp.) and b) a 96-hour LC50 acute study for rainbow trout, bluegill or fathead minnow or another North American freshwater aquatic species other than a planktonic crustacean;
c. A complete product use and instruction label;
d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use. (Minn. R. 7001.0170)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.47 Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements.

Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard.

1.48 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.

1.49 TMDL Impacts. Facilities that discharge to an impaired surface water, watershed or drainage basin may be required to comply with additional permits or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) and 40 CFR 122.44.l.2.i., necessary to ensure consistency with the assumptions and requirements of any applicable US EPA approved wasteload allocations resulting from Total Maximum Daily Load (TMDL) studies.

1.50 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

1.51 Facility Closure. The Permittee is responsible for closure and post-closure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, post-closure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

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Chapter 13. Total Facility Requirements

1. General Requirements

1.52 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;

b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;

c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

WaterLegacy

Protecting Minnesota's water and the communities who rely on them

March 10, 2011

Commissioner Paul Aasen
Minnesota Pollution Control Agency
520 Lafayette Road N
St. Paul, MN 55155-4194

RE: Dunka Pit NPDES/SDS Permit Inconsistencies with Federal and State Law

Dear Commissioner Aasen:

Paula Maccabee is an attorney representing WaterLegacy and Bruce Johnson is a member of the Advisory Committee of WaterLegacy and a former employee of the Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (MPCA). In his prior capacity as agency staff, Mr. Johnson had direct responsibility for various aspects of study and control of discharge from the Dunka Mine. Mr. Johnson has since done extensive research regarding the discharge from the Dunka Mine and the federal and state rules that are applicable to this discharge.

Ms. Maccabee and Mr. Johnson jointly submit this letter expressing WaterLegacy's concerns pertaining to the inconsistency of the Dunka Mine National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit *MN0042579* with applicable federal and state regulations enacted pursuant to the Clean Water Act.

Although the MPCA entered into a Consent Decree on March 25, 2010 regarding the violation by Cliffs Erie L.L.C. of this Dunka Mine NPDES/SDS permit, the Consent Decree fails to address the underlying and serious concern that the year 2000 NPDES/SDS permit for the Dunka Mine is itself deficient and inconsistent with applicable federal and state regulations. We are requesting that the MPCA, with oversight of the U.S. Environmental Protection Agency (USEPA), review and reissue appropriate permits for the Dunka Mine to address the issues and concerns discussed herein.

As discussed in more detail below, the Dunka Mine NPDES/SDS permit *MN0042579* is deficient and inconsistent with federal and state regulations in the following respects:

1. The initial NPDES/SDS permit for the Dunka Mine predates the USEPA's implementation recommendations to categorize permits as "major" permits based on the level and toxicity of discharge. Since 1990, it does not appear that the Dunka Mine NPDES/SDS permit has been classified as a major discharge permit or that the USEPA has reviewed the permit for compliance with Clean Water Act requirements. The nature of metals and other toxic releases from the Dunka Mine support major permit status and greater scrutiny at both a state and federal level.

2. The year 2000 NPDES/SDS permit for the Dunka Mine does not cover all relevant pollutants and seeps. Two of the five outfalls from the mine have variances and lack discharge standards for copper, nickel, cobalt and zinc. The additive toxicity limit in the permit does not include cobalt. The NPDES/SDS permit does not set a limit for mercury, hardness or specific conductance, although discharges are likely to exceed Minnesota surface water quality standards.

3. The NPDES/SDS permit for the Dunka Mine sets toxicity standards based on high levels of hardness contributed by mine pollution, rather than according to the

uncontaminated background hardness of receiving waters.

4. The NPDES/SDS permit for the Dunka Mine sets toxicity limits based on the Final Acute Value (FAV), although the seven-day 10-year low flows (7Q10) for receiving waters (Unnamed Creek and Flamingo Creek) are zero, so that toxicity should be set using a more protective Chronic Standard (CS).

5. The NPDES/SDS permit for the Dunka Mine contains no limit for sulfates, which are routinely discharged at levels exceeding 1000 milligrams per liter (mg/L), although receiving waters drain into Birch Lake and the Kawishiwi River, both of which are known to contain stands of wild rice.

6. The NPDES/SDS permit for the Dunka Mine expired on June 30, 2005 and has not been reissued, while variances have gone more than a decade without public review. The MPCA has neither required operation of the Dunka water treatment plant nor comprehensive reductions of waste stockpile infiltration.

WaterLegacy would request that the following actions be taken by the MPCA, under the review and scrutiny of the USEPA:

A. Categorize the Dunka Mine as a major NPDES facility, permits for which are subject to USEPA oversight.

B. Reissue NPDES/SDS permits for the Dunka Mine, voiding variances from the year 2000 permit and imposing discharge limits as follows:
   - Limits on metals (copper, nickel, cobalt and zinc) for all seeps and outfalls in compliance with federal and state chronic (not acute) water quality standards;
   - Limits on mercury, hardness and specific conductance in compliance with federal and state surface water quality standards;
   - Additive aquatic toxicity standards including cobalt as well as copper, nickel and zinc, based on background hardness of receiving waters;
   - Sulfate limits based on the presence of wild rice in receiving waters.

C. Require Cliffs Erie L.L.C. to take immediate steps to mitigate toxic discharge and make changes that will reasonably result in compliance with state and federal water quality standards, including but not limited to the following:
   - Operation of the on-site active water treatment plant to treat seepage water;
   - Reshaping of stockpiles so that they can be completely covered by a synthetic membrane to reduce leaching from precipitation;
   - Escrow of funds to allow for active water quality treatment, maintenance and periodic replacement of the synthetic membrane over waste rock stockpiles for at least 200 years.

BACKGROUND

From its inception, enforcement of water quality standards at the Dunka Mine near Babbitt, Minnesota has posed unique challenges due to the presence of Duluth Complex sulfide-mineralized rock at the mine. Although the Erie Mining Company and later LTV Steel Mining Company operated an open-pit taconite mine rather than a metallic sulfide mine, at Dunka their mine encountered and excavated millions of tons of sulfide rock to mine the underlying taconite.

In the mid-1970's, the Minnesota Environmental Quality Board (MEQB) and the MPCA

determined to refrain from water quality enforcement at the Dunka Mine until Minnesota had completed its *Regional Copper Nickel Study 1976-1979* and studied the chemistry of leaching, including toxicity and mitigation.[1] Excavation of sulfide-mineralized rock was recognized to pose distinctive problems.

Dunka Mine waste rock stockpiles drain into the waters of Unnamed Creek and Flamingo Creek, which flow into Bob Bay of Birch Lake. Although LTV requested that Unnamed Creek be classified as an industrial ditch (class 7), the MPCA, MDNR, and USEPA have determined Unnamed Creek should be classified under Minnesota Rules as Minnesota water. Unnamed Creek, Flamingo Creek and Birch Creek are class 2B, 3C, 4A, 4B, 5 and 6 waters under Minn. R. 7050.0430.

Birch Lake drains into the Kawishiwi River, which is classified as a 1B, 2Bd, 3C water. Minn. R. 7050.0470, Subp. 2(A)(29). The waters from the Kawishiwi River ultimately discharge to surface waters in the Boundary Waters Canoe Area, and from there to Canada's Quetico National Park. The watershed is part of the Rainy Lake Basin, is considered international waters and is under International Joint Commissions purview.

DISCUSSION

1. The NPDES/SDS Permit for the Dunka Mine Should be Considered a Major Permit.

In May of 1975 the first NPDES/SDS permit for the Dunka Mine was issued. At that time it was considered to be a "minor" permit.[2] This may have been because the mine was assumed to be similar to other taconite mines in the district, where discharges were fairly well understood. Major permits receive higher levels of USEPA permit and enforcement review, while minor permits are almost wholly left to states for permitting and enforcement.

In 1990, the USEPA included toxic releases in their evaluation of major permits; since then, the rating worksheet for NPDES permits includes toxic discharge considerations.[3] A facility discharging to surface water with an EPA rating score of more than 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact is a "major permit."

Minnesota Rules provide that a facility with an actual or potential discharge of toxic pollutants under section 307(a)(1) of the Clean Water Act, United States Code, title 33, section 1317 must be considered a "major NPDES facility." Minn. R. 7002.0220, subp. 4(D). The list of toxic pollutants under section 307(a)(1) is provided in USEPA regulations at 40 CF.R. §401.15. Copper, mercury, nickel and zinc and compounds containing these metals are explicitly listed by the USEPA as "toxic pollutants." 40 CF.R. §401.15(22), (45), (47), (65).

The MPCA has been aware of discharge of toxic metal pollutants at the Dunka Mine since at least 1976.[4] Although it is basic to the NPDES program that permits and effluent

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[1] MEQB Letter, Paul Eger to Abner Fisch, MPCA (Dec.14, 1976) ("Eger 1976 Memo"), Attachment A.
[2] USEPA, email response to Bruce Johnson re FOIA Request, #05-FOI-01595-10 (Oct. 25, 2010) Attachment B.
[3] USEPA, James Elder, *New NPDES Non-Municipal Permit Rating System* (June 27, 1990) and rating http://www.epa.gov/npdes/pubs/owm0116.pdf (last visited Mar. 8, 2011)("USEPA NPDES Memo").
[4] Eger 1976 Memo, *supra*.

limitations be reviewed and reissued every five years,[5] the USEPA has no records that the status of the Dunka permit has ever been reevaluated to determine whether it is a major permit under current rating systems.[6]

Based on its discharge of toxic pollutants, the MPCA should rate the Dunka Mine NPDES/SDS permit as a major NPDES facility, and the USEPA should exercise oversight in developing new NPDES/SDS requirements in compliance with the Clean Water Act. The Discussion below demonstrates that this oversight would demonstrate that, in addition to questions of non-compliance addressed in the Consent Decree, the underlying Dunka Mine NPDES/SDS permit fails to comply with federal and state rules implementing the Clean Water Act.

2. The NPDES/SDS Permit for the Dunka Mine Should Be Rewritten to Cover all Pollutants and all Seeps.

Under the Clean Water Act, it is "national policy that the discharge of toxic pollutants in toxic amounts be prohibited." 33 U.S.C. § 1251. Copper, nickel, zinc and mercury are "priority toxic pollutants" under Section 304(a) of the Clean Water Act. Federal regulations enacted pursuant to the Clean Water Act require NPDES permits to include effluent limitations for every individual pollutant that causes, has the reasonable potential to cause, or contribute to and excursion above numeric water quality criterion. 40 C.F.R. § 122.44 (d)(l)(iii). The Dunka Pit NPDES/SDS permit fails to comply with the Clean Water Act and these implementing regulations.

In 1976, Dunka Mine waste rock seepages were determined to contain 10 to 10,000 times background levels of copper (Cu), nickel (Ni), cobalt (Co) and zinc (Zn). Total hardness, specific conductivity, and sulfate were found to exceed water quality standards, while some seepages were pH neutral and some had acid pH. Even where Dunka seepages were in a near neutral range for pH, seepages discharged nickel, cobalt, copper and zinc above biologically toxic levels. Nickel was the major trace metal discharged from the seeps.[7]

Since 1978, Dunka Mine stockpile metal releases have been tested by MPCA and others using bioassays and have been determined to be toxic.[8] Both Unnamed Creek and Bob Bay of Birch Lake have documented impacts on their natural biological characteristics, including elevated concentrations of metals in the fish, clams, and plants.[9] These impacts are measurable more than three miles from the farthest Dunka seepages.

Even now, 32 years after the completion of Minnesota's *Regional Copper Nickel Study 1976-1979*, the current Dunka NPDES/SDS permit limits copper, nickel, cobalt and zinc at only three of the five outfalls from the waste rock piles and fails to include cobalt in additive aquatic toxicity calculations. The permit sets no limit for mercury, hardness or specific conductance and, as discussed separately in section 5 of this Discussion, sets no sulfate limit despite discharge into wild rice waters. *See* Dunka Mine NPDES/SDS permit *MN0042579*.

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[5] *See* U.S. EPA NPDES Permit Program Basics Frequently Asked Questions, available at http://cfpub.epa.gov/npdes/faqs.cfm?program_id=45 (last visited Mar. 8, 2011).
[6] USEPA, FOIA Request, #05-FOI-01595-10, Oct. 25, 2010 phone response to B. Johnson.
[7] MDNR, *Environmental Leaching of Duluth Gabbro In Laboratory and Field Conditions; Oxidative Dissolution of Metal Sulfide and Silicate Minerals,* DNR, 1980, pp. 191 & 202 ("MDNR 1980"), available from authors on request.
[8] MPCA Memo, Jerry Flom to Curt Sparks, "Mine Dump Seeps," Sept. 1, 1988, Attachment C.
[9] MPCA Memo, Mark Schmitt to Carri Lohse, "Birch Lake Fish Tissue Data," July 26, 1985, Attachment D; MPCA Memo, Virginia Reiner to Ken Haberman, "Bob Bay Monitoring," Jan. 5, 1984; Attachment E.

After the MPCA and MEQB agreement not to enforce discharge limits on the Dunka Mine until completion of the *Regional Copper Nickel Study,* no subsequent permits contained discharge limits for copper (Cu), nickel (Ni), cobalt (Co), zinc (Zn), hardness, sulfates or specific conductance for an additional 15 years. Only after the Dunka Mine closed in September 1994 did the September 30, 1994 permit establish a few discharge standards and compliance locations. Three out of the five outfalls: 040 (Seep EM-8), 060 (seep W2-3d), and 050 (seep W-1d) were given limits for Cu, Ni, Co, Zn. No limits were set for mercury, hardness, sulfates or specific conductance.

The most recent year 2000 NPDES/SDS permit for the Dunka Mine changed the 1994 permit's approach of using single standards for metals to an additive model, as allowed in Minn. R. § 7050.0222 Subp.7. The 2000 permit used additive calculation values for copper, nickel and zinc, applying a maximum hardness value of 400 mg/L. The permit set a cobalt limit of 50 ug/L,[10] but did not include cobalt in its additive toxicity calculation.

Cobalt's aquatic toxicity does not diminish with increased hardness, but is solely toxicity-based. Minn. R. § 7050.0222. Although cobalt discharge from various seepages at the Dunka Mine have been documented above chronic surface water quality levels (5 ug/L) and even above the level of 50 ug/L set by the MPCA in the 2000 NPDES/SDS permit,[11] the MPCA's Dunka Mine permit did not include cobalt in additive calculations to protect aquatic species from toxic metals. This omission makes any toxicity assessment under the permit incomplete and inaccurate.

The most recent NPDES/SDS permit for the Dunka Mine also failed to place permit limits for mercury. Both Birch Lake and the Kawishiwi River, receiving waters for the Mine, are impaired waters for mercury. Minnesota Rules establish a limit of 0.2 parts per million of mercury in edible fish tissue, Minn. R. § 7050.0220, and Minnesota's Statewide TMDL sets a water column water quality standard for mercury in the Northeast Region of 1.3 ng/L.[12] Minnesota's approved statewide TMDL includes the Dunka Mine in the Northeast Region to which this 1.3 ng/L limit applies.[13] DMR summary data suggests that even discharges from the Dunka Mine's "treatment" wetland have exceeded this level.[14]

Minnesota water quality standards limit hardness in Class 3B waters to 250 mg/L. Minn. R. § 7050.0223, Subp. 3. Under Minnesota Rules, exceedance of this hardness standard is among the conditions "indicative of a polluted condition which is actually or potentially deleterious, harmful, detrimental, or injurious with respect to the designated uses." Minn. R. § 7050.0223, Subp. 1. According to the *Regional Copper Nickel Study*, background hardness conditions in ambient waters in northeastern Minnesota range from 2 to 45

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[10] The MPCA Dunka Mine permit, MN00042579 pp. 8, 9, sets a cobalt standard of 50 ug/L, rather than the 5 ug/L chronic standard that should be applied based on flow levels, as explained in section 4 of this discussion.

[11] MPCA discharge monitoring reports (DMR) for MN00042579, for example, indicate SD009 (Seep X) cobalt discharge exceeding 100 ug/L to the "treatment" wetland in 2009; SD008 (Seep I) regularly exceeding 5 ug/L, with one sample as high as 101 ug/L.

[12] MPCA, *Strategy Framework for Implementation of Minnesota's Statewide Mercury TMDL*, July 7, 2008, p. 23, Appendix 1 to MPCA, *Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load* (Oct. 2009) http://www.pca.state.mn.us/index.php/view-document.html?gid=11481 (last visited Mar. 8, 2011).

[13] MPCA, *Minnesota Statewide TMDL Final*, March 27, 2007, p. vii, http://www.pca.state.mn.us/index.php/view-document.html?gid=8507 (last visited Mar. 8, 2011).

[14] *See e.g.* 2009 DMR for Dunka Mine, MN00042579, Surface Discharge Station SD007 (Seep EM-8 (041) Wetland Trmt Dschrg), average mercury of 2.2 ng/L.

mg/L.[15]

The hardness measured in Dunka Mine seepages ranges between 1000 to 2000 mg/L.[16] Yet, the MPCA has failed to set limits for Dunka Mine hardness, even in the most recent 2000 permit. Given that Dunka Mine seepages are permitted to discharge over one million gallons per day (NPDES/SDS Permit MN00042579, p. 3), failure to limit hardness from Dunka seeps could have a significant impact on receiving waters. The Dunka Mine NPDES/SDS permit also sets no limit for specific conductance.

Minnesota's *Regional Copper Nickel Study* defined specific conductance as follows:

> Specific conductance is a measure of water's ability to conduct electrical current, which in turn is the result of the presence of charged ionic species. In undisturbed igneous basins, characterized by insoluble rock, weathering is expected occur slowly. This should be reflected in low concentrations of dissolved ionic species and, consequently, low conductivity levels. This pattern was observed in the Study Area. Sites downstream from disturbed areas had median specific conductance levels almost six times higher than background sites.[17]

Peer-reviewed literature concludes that major ion imbalances can produce toxic effects in bioassays.[18] Plant osmotic balances can be sensitive to dissolved ionic species. Elevated charged ionic species such as sulfate, calcium, magnesium, potassium, sodium, chlorides, heavy metals and other combinations of ions, individually or in aggregate, can disrupt plants' osmotic balances, stunting plant growth or killing plants.

Minnesota Rules recognize that significant ecological damage can result from elevated specific conductance levels. A specific conductance limit of 1,000 micromhos per centimeter (μmhos/cm) at 25 degrees Centigrade is applicable to classes 2B, 2C, or 2D; 3A, 3B, or 3C; 4A and 4B; and 5 surface waters. Minn. R. §7050.0224, subp. 5a (A)(17). The use of conductivity for dissolved ionic species and osmotic balances is analogous to the MPCA's use of the additivity model for toxic metals; both are established to protect the health of aquatic systems.

Overall specific conductance can be demonstrated with a simple and inexpensive test. Historically, Dunka Mine seepages have routinely exceeded the conductivity standard of 1000 umhos/cm, ranging as high as 4250 umhos/cm.[19] Yet, even the most recent NPDES/SDS permit for the Dunka Mine fails to set a limit for specific conductance.

In compliance with 40 C.F.R. 122.44(d)(1)(iii), which requires NPDES permits to include effluent limitations for every pollutant that causes or contributes to an excursion above a numeric water quality criterion as well as the Minnesota Rules specifically identified above, the Dunka Mine NPDES/SDS permit should be rewritten to include all seeps, to include cobalt in its additive toxicity model, and to set limits for mercury, hardness and specific conductance.

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[15] Thingvold D., *Water Quality Characterization of the Copper Nickel Research Area* (Dec. 1979) Table II; Legislative Library # TN443.M6M55#153, ("Thingvold 1979").
[16] *See e.g.* 2009 DMR for Dunka Mine, MN00042579.
[17] Thingvold 1979, *supra*, p. 18.
[18] See e.g. "Major Ion Toxicity in Effluents: A Review With Permitting Recommendations," *Environmental Toxicology and Chemistry*, Vol. 19, No.1 pp. 175-182, 2000; "Toxicity of Total Dissolved Solids Associated With Two Mine Effluents To Chironomid Larvae And Early Life Stages of Rainbow Trout," *Environmental Toxicology and Chemistry*, Vol. 19, No. 1 pp. 210-214, 2000.
[19] See Dunka Mine DMR, MN00042579; for example, the 7/31/90 DMR for seep 40500 (W1-d).

3. The NPDES/SDS Permit for the Dunka Mine Should Reduce Limits for Copper and other Metals Based on Background Hardness of Receiving Waters.

Water quality standards in relation to hardness in Minnesota have been based on USEPA's last revised National Ambient Water Quality Criteria (AWQC) set in 1985 and adopted by MPCA in 1990. These criteria are published by EPA under requirements of Section 304(a) of the Clean Water Act and analytical methods for the determination of whole effluent toxicity (WET) are provided in 40 C.F.R. §136. In 2004, the USEPA published guidance on the establishment of whole effluent toxicity limits in permits. The USEPA recommended that dilution water for WET limits be "uncontaminated" receiving water or lab synthetic of similar pH and hardness.[20]

Data taken from the *Regional Copper Nickel Study* suggests that uncontaminated receiving water near the Dunka Mine would have an average hardness of approximately 27 mg/L.[21] Yet, the hardness value used by MPCA in calculating the limits for Dunka Mine discharge for copper and zinc appears to be 400 mg/L and the hardness for nickel appears to be around 200 mg/L.[22] These hardness values fall far outside the uncontaminated natural conditions of the area's receiving waters.

Dunka Mine waste rock seepages above 1000 mg/L, as described previously, suggest that contamination from the leaching process at the mine is the source of any hardness in receiving waters exceeding historical levels. It is well known that rock surface exposure to precipitation leaches cations, increasing hardness levels. Natural water hardness in the area is predominantly from calcium, with approximately 20 percent from magnesium and other minor sources.[23] Leachate from the Dunka Mine has a different chemical composition as well as a higher hardness level than uncontaminated waters. For example, Seep 3 from the Dunka Mine has had hardness calculated to be 1596 mg/L, based almost 50 percent on magnesium leachate.[24]

Setting Dunka Mine copper, zinc and nickel levels or whole effluent toxicity limits based on a hardness value of 200 or 400 mg/L conflicts with the practice of basing standards on uncontaminated receiving water and inappropriately elevates the allowable concentration of metals in the discharges. A particular risk to the aquatic environment is posed by nickel discharge, since nickel does not form permanent or tight bonds with elements in hard water that might precipitate the nickel or detoxify its effects.[25] If large volumes of lower hardness surface water are mixed with mine leachate, the stability of nickel in the aquatic ecosystem cannot be assumed.

The NPDES/SDS permit should use background hardness levels, rather than hardness resulting from Dunka Mine leachate contamination to set whole effluent toxicity permit

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[20] USEPA, *National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program,* p. 28, (Dec. 28, 2004) http://water.epa.gov/scitech/swguidance/methods/wet/upload/2004_12_28_pubs_wet_draft_guidance.pdf (last visited Mar. 8, 20110.

[21] Thingvold 1979, *supra*, Table p. 240, pp. 18-19, Tables 13 & 14. Hardness can also be calculated from Minnesota *Regional Copper Nickel Study 1976-1979 Volume 1*, Executive Summary, August 31, 1979, Table 4, http://www.leg.state.mn.us/docs/pre2003/other/792632.pdf (last visited Mar. 8, 2011).

[22] Compare the numerical limits on p. 15, Dunka Mine NPDES/SDS permit MN00042579 with Minn. R. §7050.0222, subp. 2 and Minn. R. 7050.0205 subp. 2 and 13.

[23] USFS, Superior National Forest, BWCA Lake Data Analysis Report, Bonnie Dovenmuehle, Forest Hydrologist, June 1980, p. 6.

[24] MDNR 1980, *supra*, p. 209.

[25] *Id.*, p. 202; Thingvold 1979, *supra*, pp. 56-57.

levels for copper, zinc and nickel.

4. Dunka Mine NPDES/SDS Permit Limits for Copper and other Metals Should Be Reduced to Comply with Chronic Standards at the Point of Release.

In addition to using an incomplete additive model for aquatic toxicity and artificially elevating the whole effluent toxicity level by considering hardness pollution from the Dunka Mine, the 2000 Dunka Mine NPDES/SDS permit improperly relaxed toxicity standards by using acute rather than chronic toxicity limits.

The Dunka Mine NPDES/SDS permit calculates toxicity limits using the Final Acute Value (FAV) although MPCA internal documents suggest that water quality staff recognized that "standards derived from chronic criteria would be controlling."[26]

The Final Acute Value is only applicable where receiving waters have sufficient flows to dilute the impact of toxic effluent. Minnesota Rules require that water standards be met when a discharge *enters* waters of the state, in this case where seepages are released to Unnamed Creek and Flamingo Creek. The "7Q10" value reflects the stream flow that occurs over 7 consecutive days and has a 10-year recurrence interval period, or a 1 in 10 chance of occurring in any one year. State Rules do not allow mixing zones when the receiving water has a 7Q10 of zero. Minn. R. 7050.0210, subp. 7. Where 7Q10 stream flows are insufficient to dilute effluent, a Chronic Standard (CS) must apply. Minn. R. 7050.0222, subp. 7(C).

Currently, four of the Dunka Mine seepages discharge into Unnamed Creek[27] and approximately one-third of the 4.25 square mile Unnamed Creek sub-watershed is covered with waste rock stockpiles.[28] Unnamed Creek has a 7Q10 water flow of zero.[29]

One of the Dunka Mine seepages drains into Flamingo Creek, an intermittent stream that also discharges into Birch Lake. Flamingo Creek also has a 7Q10 water flow of zero. Since the 7Q10 of both Unnamed Creek and Flamingo Creek are zero, the Dunka Mine NPDES/SDS permit must establish toxicity based on a Chronic Standard.

The Dunka Mine Case Study prepared by the MDNR in August 2010 reflects the impacts on water quality standards resulting from setting an artificially high hardness level and substituting an acute limit for the appropriate chronic water quality standard. For example, in the case of copper, the chronic water quality standard at even the hardness level of 50 mg/L would be 6.4 ug/L, while the acute water quality standard at 400 mg/L would be 126 ug/L, *nearly 20 times as high*.[30] Chronic water quality standards at actual background hardness levels for these waters (approximately 30 mg/L) would be yet more stringent.

The 2000 Dunka Mine NPDES/SDS did not use valid procedures to determine compliance with the Clean Water Act as required by 40 C.F.R. 122.44 (d)(l)(ii) and must be revised to set appropriate chronic standards for discharge of toxic metals.

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[26] MPCA Memo, Carri Lohse to Mark Tomasek, "Standards Information Request from Erie Mining Company," Feb. 28, 1985, Attachment F.
[27] See MDNR, Dunka Mine Case Study (August 2010), ("MDNR Dunka Case Study"), Figure 1-1, available at http://www.itrcweb.org/miningwaste-guidance/cs_dunka_mine.htm (last visited Mar. 8, 2011)
[28] See Thingvold 1979, *supra*, Table 1 regarding watershed size and see Attachment G, Schematic of Dunka Mine waste locations, taken from MDNR Case Study, *supra*.
[29] MPCA Memo, Carol Sinden to Richard Clark, "7Q10 Determinations for Unnamed Creek to Bob Bay," Feb. 1, 1991, Attachment H.
[30] MDNR Dunka Case Study, *supra*, Table 5-1, Attachment I.

5. The NPDES/SDS Permit for the Dunka Mine Should Limit Sulfate Discharge in Compliance with the Wild Rice Sulfate Water Quality Standard.

The Dunka Mine NPDES/SDS permit contains no limits for sulfate discharge, although both the Kawishiwi River and Birch Lake contain stands of wild rice. An MDNR conservation officer in Ely recently confirmed that Birch Lake bays upstream of Bob Bay (Kangas and Kramer), where Dunka Mine receiving waters enter Birch Lake, have productive stands of wild rice and that the Kawishiwi River also contains wild rice.[31]

It is highly likely that sulfate discharge from the Dunka Mine to Birch Lake and the Kawishiwi River would exceed Minnesota's water quality standard limiting sulfate to 10 mg/L in wild rice waters during periods when the rice may be susceptible to damage from high sulfate levels. Minn. R. 7050.0224. The rate of sulfate release from the Dunka Mine waste rock stockpiles has been relatively consistent over the past 30 years, averaging approximately 1750 mg/L of sulfates.[32] Most of the sulfate data from Dunka Mine seepage ranges from 1000 to 2500 mg/L of sulfate.[33] Releases of sulfate do not demonstrate seasonal variations except in a couple of months in the winter when everything freezes.

Failure to set a sulfate water quality limit in the Dunka Mine NPDES/SDS permit is inconsistent with Minnesota Rule 7050.0224 and with federal regulations requiring permits to include effluent limitations for every individual pollutant that causes, or contributes to an excursion above a numeric water quality criterion. 40 C.F.R. § 122.44(d)(l)(iii).

6. The NPDES/SDS Permit for the Dunka Mine Has Expired - Variances Should be Disallowed and a New Permit Issued.

USEPA limits the effective term of state NPDES/SDS permits to five years. 40 C.F.R. §122.46 (a). The last permit issued by the MPCA for the Dunka Mine was on August 3, 2000. By its own terms, the permit expired June 30, 2005.

Minnesota law also limits variances from water quality standards to a term of three years and requires both agency and public review at least every three years. Minn. R. 7050.0190, subp. 3. The Dunka Mine NPDES/SDS permit explicitly allowed variances from state water quality standards for discharges from two of the wetland "treatment" systems (outfalls SD009 (Seep X) and SD008 (Seep 1). The agency's rationale for these variances was provided in a June 2000 Public Notice with a comment period ending on July 17, 2000.[34] No public review of the variances contained in the Dunka Mine NPDES/SDS permit has taken place since 2000.

The MDNR Case Study suggests that the use of an acute, rather than a chronic water quality standard for Dunka Mine discharge should also be considered as a variance,

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[31] Personal conversation, Bruce Johnson and MDNR Conservation Officer Marty Stage from Ely on or about Dec. 30, 2010.

[32] Eger, P. and Lapakko, K, MDNR, *Environmental Leaching of Duluth Gabbro under Laboratory and FieldConditions: Oxidative Dissolution of Metal Sulfide and Silicate Minerals*, (1980), p. 196. Median average sulfate seepages from Dunka stockpiles were approximately 1250, 2500, 1500 mg/L, comparable to MPCA's more recent DMR data for Dunka Mine MN0042579.

[33] *See e.g.* MPCA DMR Summary Reports for Dunka Mine, MN0042579, SD 005, SD 007, SD 009 for 2007 and 2008.

[34] Public Notice of Intent to Reissue NPDES/SDS Permit 0042579, Public Comment Period June 16, 2000 – July 17, 2000, Attachment J.

subject to public review after three years. The Case Study explains:

> Originally, permit standards for the mine were based on chronic toxicity values, which were up to an order of magnitude lower than acute values. When the company went bankrupt several years after the mine had closed, it sought a variance for several of the discharges. The new permit based on FAV included biological monitoring.[35]

The Dunka Mine NPDES/SDS permit is long overdue for review and reissuance. Both explicit variances for seeps contained in the permit and less obvious variances due to application of an acute water quality standard must be subjected to USEPA oversight and to public review as well as to MPCA scrutiny.

7. Measures to Reduce Non-Compliance, Including Operation of the Water Treatment Plant and Redesign of Waste Stockpiles Should be Immediately Implemented.

Review of documents pertaining to the Dunka Mine suggests that there are measures that would be available immediately to reduce discharge of toxic pollutants and exceedance of water quality standards.

The Dunka Mine currently provides passive treatment of seeps through constructed wetlands. The Dunka Mine also has a lime precipitation plant on site for active water treatment, but the NPDES/SDS permit only requires its use as "backup treatment" if monitoring at outfalls SD007, SD2008 or SD009 indicates that additive toxicity effluent limits are being exceeded or at the determination of the MPCA Commissioner. (NPDES Permit MN00042579, pp. 4, 16, 17). Despite continued violations of permit limits, this plant is not in operation and best information suggests that it has not operated for at least two decades.

The MDNR Dunka Case Study explains that rejection of active water quality treatment was a choice made by Cliffs Erie based purely on operating cost considerations:

> In 1986, LTV conducted a preliminary feasibility study to determine the best method to mitigate the drainage problem at the Dunka Mine, examining both active treatment systems (lime treatment, reverse osmosis) and passive alternatives (limiting infiltration into stockpiles, wetland treatment) (Barr Engineering 1986). An active treatment plant which would treat all the stockpile drainage was projected to have a capital cost of $8.5 million and an annual operating cost of $1.2 million. The passive alternative was projected to cost $4 million to construct but only $40,000 in annual maintenance. Since mine drainage problems can persist for over 100 years, LTV decided to pursue passive alternatives.[36]

The MPCA's failure to require operation of the Dunka Mine water treatment plant both results in excursions above water quality limits and provides misleading information to future permittees as to the costs of protecting water quality from ongoing acid mine drainage. Consistent and continuous use of an active water treatment system should be required for Dunka Mine discharge.

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[35] MDNR Dunka Case Study, *supra*, p. 8.
[36] MDNR Dunka Case Study, *supra*, p. 2, emphasis added.

Treatment in constructed wetlands reduces some toxic metals discharge, but wetlands removal is inconsistent and as much as 80 percent of nickel from Dunka Mine leachate may remain.[37] Capping of stockpiles to reduce infiltration is a more effective way to reduce leachate,[38] and is also required by Minnesota mineland reclamation rules.

The majority of the Dunka Mine waste rock was stockpiled using methods that were commonly used in taconite mining for non-sulfide waste rock. As explained in the MDNR Dunka Case Study, this design does not facilitate capping:

> [T]he piles were constructed to place the maximum amount of material in the minimum area. Stockpiles were generally built in 10-15 m lifts with 45° side slopes. Only the flat top portions of the stockpiles could be economically covered.[39]

Regulators have not required Cliffs Erie to reshape the stockpiles so that capping can minimize infiltration through side slopes. In addition, local availability of clay is limited, and clay was rejected in favor of soil for covering the waste rock stockpiles due to transportation costs.[40]

In order to achieve compliance with water quality standards and to accurately determine the costs of mine reclamation in sulfide-bearing rock, MPCA should require operation of active water treatment and work with MDNR to require stockpile redesign and capping of stockpiles with non-permeable material to reduce infiltration.

CONCLUSION

NPDES/SDS permits protect waters of the United States and waters of the State of Minnesota from unacceptable levels of pollutants. As detailed above, the MPCA's existing NPDES/SDS permit for the Dunka Mine fails to provide this protection. By limiting the scope of permit coverage and misapplying water quality standards, these permits may create a misleading impression of compliance or that non-compliance has a limited scope.

Minnesota's continuing lack of appropriate NPDES/SDS limits for copper, nickel, zinc, cobalt, mercury, hardness, specific conductance and sulfates from the Dunka Mine results in failure to protect the waters of Unnamed Creek, Flamingo Creek, Birch Lake and the Kawishiwi River. In addition, these practices could set precedent for much larger scale sulfide mines proposed in the Duluth Complex formation. Providing implicit variances by deviating from appropriate application of water quality standards is a practice that must be rejected as contrary to the Clean Water Act and misleading to the public.

In addition, failure to require Cliffs Erie to utilize active water quality treatment, reshape and cover stockpiles and take such other measures to achieve compliance creates a false understanding of the costs of meeting water quality standards. The MPCA, MDNR and proponents of sulfide mine projects need accurate and complete information as to the

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[37] MDNR, *Long Term Wetland Treatment of Mine Drainage at LTV Steel Mining Company's Dunka Mine*, December 2000, p. vi, Executive Summary attached to MDNR letter from Paul Eger to Pat Cary, MPCA (Jan. 10, 2001), Attachment K, "Nickel removal within the pretreatment system averaged only 15-20%, and occurred primarily in the vertical down-flow section of the system. The major reduction in nickel load appears to be related to capping of the stockpile, and not to removal within the pretreatment system."
[38] *Id.*
[39] MDNR Dunka Case Study, *supra*, p. 3.
[40] *Id.*

costs of meeting federal and state water quality standards over a period of hundreds if not thousands of years during which mine drainage problems can persist.

Before NPDES/SDS permits are proposed for new proposed mining incursions into sulfide-bearing rock, the MPCA and USEPA must review historic discharge and permitting at the Dunka Mine, establish rigorous and fair application of water quality standards, subject permitting and variance proposals to public scrutiny and require implementation of measures that would bring discharge into compliance with federal and state rules.

We would welcome the opportunity to discuss our issues and concerns with you. Mr. Johnson can be reached at 763-444-4579 or bmjohnson@sprintmail.com and Ms. Maccabee can be reached at 651-646-8890 or pmaccabee@justchangelaw.com.

Thank you for your consideration of our comments and suggestions.

Sincerely yours,

Bruce L Johnson

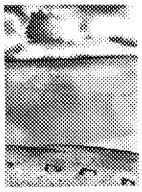
Bruce Johnson
Advisory Committee for WaterLegacy

Paula J Maccabee

Paula Maccabee
Attorney for WaterLegacy

cc: Kevin Peirard, NPDES Branch Chief USEPA Region 5 (pierard.kevin@epa.gov)
Simon Manoyan, Water Quality Scientist, USEPA Region 5 (manoyan.simon@epa.gov)
Ken Westlake, NEP Coordinator, USEPA Region 5 (westlake.kenneth@epa.gov)

Enclosures



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July 27, 2009

Mr. Richard Clark Water Quality Permits
Minnesota Pollution Control Agency
520 Lafayette Road N
St. Paul, MN 55155-4194
richard.clark@pca.state.mn.us

RE: Dunka Mining Area (Dunka Pit), Cliffs Erie NPDES Permit MN0042579

Dear Mr. Clark:

This letter is written on behalf of WaterLegacy, a non-profit organization founded to protect Minnesota water resources and the communities who depend on them. We look forward to meeting with you on August 3. In addition to the water quality and permitting issues that may pertain to the proposed PolyMet project, WaterLegacy has been working in collaboration with other environmental organizations, including Audubon Minnesota, to look into water quality issues pertaining to the Dunka Mining Area ("Dunka Pit").

We have received inquiries from our members regarding the status of the Dunka Pit NPDES permit and the seeps and emissions from the Dunka Pit that may have impacts on water quality. We are writing to obtain some basic information about the status of the permitting process with respect to the Dunka Pit and the nature of seeps, environmental problems and ongoing mitigation efforts related to this mining project.

First, we understand that Cliffs Erie NPDES Permit MN0042579 for the Dunka Pit ("Dunka Pit NPDES Permit") was last modified by the Minnesota Pollution Control Agency ("MPCA") on October 30, 2001, and that the expiration date for this Permit was June 30, 2005. Please advise us if any additional permit extension or modification has been approved by the MPCA since June 30, 2005. If so, please provide us with copies of any such permit, permit extension or permit modification. We would prefer that all copies requested in this letter be provided in an electronic format, in addition to any paper copies you may wish to send.

We understand that applicable rules, Minn. R. 7001.0040, and the Dunka Pit NPDES Permit itself (p. 32), require Cliffs Erie to submit an application for permit reissuance at least 180 days before the date of permit expiration. When was this application for permit reissuance submitted? We would request a copy of any application by Cliffs Erie for NPDES Permit reissuance and any attachments to that application.

Has the MPCA taken any action or conducted any internal technical assessment pertaining to reissuance of the Dunka Pit NPDES Permit? If so, please provide us with copies of any such action documents and/or internal technical assessments.

In reviewing the 2001 Dunka Pit NPDES permit issued to Cliffs Erie, we noted that the MPCA had granted Cliffs Erie a variance from Minnesota water quality standards with respect to acute toxicity. (Dunka Pit NPDES Permit, pp. 11, 12, 15). The NPDES permit also stated that this variance "is not permanent." (*Id.*, p. 19).

As we understand Minnesota Rules, applicable law requires that variances from water quality standards granted by the MPCA be subject to agency and public review at least every three years. Minn. R. 7050, subp. 3. Please inform us whether the MPCA has conducted this review, and if so, please identify the dates of the review and provide us with all documents providing public notice as well as documentation of the results of Agency review. If the MPCA has not conducted a review of the variance from water quality standards in the Dunka Pit NPDES Permit since 2001, please advise us as to the reasons why the MPCA has not followed the procedures identified in the above Minnesota Rule.

WaterLegacy understands from communications between the MPCA and Len Anderson this February that Cliffs Erie has requested a variance from water quality standards for additive toxicity calculation, hardness and specific conductance. Please provide us with copies of any documents reflecting this request for a variance, including any MPCA internal memoranda documenting an oral request for variance as well as any written request by Cliffs Erie. In this connection, we would also request any data and analysis done by Cliffs Erie or the MPCA demonstrating that Dunka Pit discharges have violated water quality standards for additive toxicity, hardness and specific conductance since the NPDES Permit was issued in 2001 and/or that such discharges are likely to do so on an ongoing basis.

We also understand from correspondence between the MPCA and Mr. Anderson that Cliffs Erie has not requested a variance from water quality standards for either mercury or sulfate for discharges from the Dunka Pit. Please let us know whether this is an accurate understanding.

The few data sets from seeps that we've reviewed suggest that some 2007 Dunka Pit discharges after "wetlands treatment" may exceed applicable standards for implementation of the Minnesota Statewide Mercury TMDL in the Northeast TMDL Regional Area. We understand that Birch Lake is within the Northeast TMDL Regional Area (Minnesota Statewide TMDL Final, March 27, 2007, p. vii) and that the MPCA's Strategy Framework for Implementation of Minnesota's Statewide Mercury TMDL sets a discharge limit of 1.3 ng/L in the Northeast Region. (Strategy Framework for Implementation of Minnesota's Statewide Mercury TMD, July 7, 2008, p. 23). Please clarify whether the MPCA intends to require compliance with the mercury discharge standard in the MPCA's 2008 Framework for Implementation of the Mercury TMDL in connection with any reissuance or extension of the Dunka Pit NPDES permit.

WaterLegacy would also be interested in knowing if the MPCA has conducted an analysis of whether discharges from the Dunka Pit violate TMDL implementation standards? If so, we would request documentation of this analysis.

The question of sulfate discharges from the Dunka Pit is also an issue of concern to WaterLegacy. We understand that the receiving waters for the Dunka Pit -- Birch Lake – have been classified (5C) as waters impaired for mercury which require a TMDL due to concentrations of mercury in fish tissue. Sound science, including research conducted by MPCA staff, confirms that sulfate discharges may increase methylation of mercury and bioconcentration of mercury in the food chain. Please advise how the MPCA plans to address the regulation of sulfate discharge into waters that violate state or federal standards for levels of mercury in fish tissue in connection with the NPDES Permit for the Dunka Pit?

In addition to gaining a better understanding of the permitting process and the standards that the MPCA is applying in determining whether or not to grant variances from water quality rules and regulations, WaterLegacy would also appreciate additional information as to the nature of mitigation being implemented on an ongoing basis at the Dunka Pit.

The NPDES Permit for the Dunka Pit states that stockpile capping, diversion ditches to reduce the volume and concentrations of the seepage and "constructed wetland treatment systems" at each of the stockpile seeps have been implemented as mitigation of discharges to receiving waters. (Dunka Pit NPDES Permit, p. 3). To the best of your knowledge, are these mitigation systems still in place?

The Dunka Pit NPDES permit also requires the collection, pumping, conveyance to and use of a lime precipitation plant as "backup treatment" if data from monitoring at outfalls SD007, SD2008 or SD009 indicate that additive toxicity effluent limits are being exceeded or at the determination of the MPCA Commissioner. (Dunka Pit NPDES Permit, pp. 4, 16, 17). For the past eight years since the Permit was issued, for approximately what percentage of the time and for what percentage of the flows from these outfalls has the treatment plant been used to treat discharges from the Dunka Pit? Please provide any documentation of the extent and timing of use of the treatment plant.

Since the Permit's issuance in 2001, has the Commissioner ever determined that treatment at the lime precipitation plant of Dunka Pit discharges is required? If so, please provide documentation of any such determination and steps taken by Cliffs Erie in compliance with the Commissioner's direction.

The Dunka Pit NPDES Permit also expresses a concern, "Eventually the mine pit may fill to the point where an artificial discharge point may need to be established to prevent inundation of diversion ditches or stockpiles." (Dunka Pit NPDES Permit, p. 4). Since 2001, has the MPCA evaluated the rate at which the mine pit is filling and the risk of inundation? If so, please provide copies of any documents reflecting this analysis.

Water Legacy believes that the Dunka Pit permitting process and mitigation measures are significant both because of the direct impact to receiving waters in Unnamed Creek, Bob Bay and Birch Lake and due to the precedent that is being set within the Agency pertaining to enforcement of water quality standards and protection of Minnesota water resources.

We appreciate your assistance in providing us with information and documents that will enable our members to understand the permitting process, application of standards and implementation of mitigation at the Dunka Pit.

Please do not hesitate to call me (651-646-8890) if you have any questions.

Sincerely,

Paula Goodman Maccabee
Counsel for WaterLegacy

Exhibit 11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

JUL 0 2 2014

John Linc Stine, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Re: EPA Disapproval of Variance for Mesabi Nugget Delaware, LLC

Dear Mr. Stine:

Pursuant to the recent Order issued by the Minnesota District Court for the Minnesota District in *Water Legacy, et al. v. EPA*, No. 13-1323, EPA is disapproving the water quality standards variance for discharges by Mesabi Nugget Delaware, LLC into Second Creek that would have been effective until August 1, 2021. On October 30, 2012, the Minnesota Pollution Control Agency (MPCA) submitted this variance for review and approval by the U.S. Environmental Protection Agency, and on December 27, 2012, EPA approved the variance. EPA's decision was challenged in the matter of *Water Legacy, et al. v. EPA*. On June 2, 2014, the Court granted the United States' unopposed motion for remand, and did so without vacating EPA's original decision. The United States represented to the Court that it intended to disapprove the variance within 30 days following a remand.

Upon reconsideration, EPA is now disapproving the variance in accordance with Section 303(c)(3) of the Clean Water Act (CWA) as not being consistent with applicable requirements of the CWA. A complete explanation of the basis for today's decision is set forth in the enclosed "Basis for EPA's Disapproval of Minnesota Variance for Mesabi Nugget."

Section 303(c)(3) of the CWA provides that, when EPA disapproves a state's new or revised water quality standard as not being consistent with applicable requirements of the CWA, EPA must "specify the changes to meet such requirements." One change Minnesota could make to meet CWA requirements would be to develop and provide to EPA methods used, analyses conducted, scientific rationale, and other information demonstrating the appropriateness under all applicable aspects of 40 C.F.R. Part 131 of any variance granted for Mesabi. This could include, but not be limited to, developing, consistent with state administrative processes, information demonstrating that it is not feasible to attain the Industrial Supply and Agricultural Irrigation designated uses for the entire duration of the variance for any of the reasons specified in 40 C.F.R. § 131.10(g). If Minnesota chooses to take action following today's disapproval to again grant Mesabi a variance, Minnesota should provide the public with notice of and an opportunity

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to comment on any such variance before submitting it to EPA for approval in accordance with Section 303(c) of the Clean Water Act.

If you have any questions regarding this matter, please contact Linda Holst, Chief, Water Quality Branch at (312) 886-6758.

Sincerely,

Susan Hedman
Regional Administrator

Enclosure

cc: Rebecca Flood, MPCA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 10 2007

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits

FROM: James A. Hanlon, Director
Office of Wastewater Management

TO: Alexis Strauss, Director
Water Division
EPA Region 9

Recently, in discussions with Region 9, questions have been raised concerning the use of compliance schedules in National Pollutant Discharge Elimination System (NPDES) permits consistent with the Clean Water Act (CWA) and its implementing regulations at 40 C.F.R. § 122.47. The use of compliance schedules in NPDES permits is also the subject of ongoing litigation in California. The purpose of this memo is to provide a framework for the review of permits consistent with the CWA and its implementing regulations.

When maya permitting authority include a compliance schedule in a permit for the purpose of achieving a water quality-based effluent limitation?

In *In The Matter of Star-Kist Caribe, Inc.,* 3 E.A.D. 172, 175, 177 (1990), the EPA Administrator interpreted section 301(b)(l)(C) of the CWA to mean that 1) after July 1, 1977, permits must require immediate compliance with *(i.e.,* may not contain compliance schedules for) effluent limitations based on water quality standards adopted before July 1, 1977, and 2) compliance schedules are allowed for effluent limitations based on standards adopted after that date only if the State has clearly indicated in its water quality standards or implementing regulations that it intends to allow them.

What principles are applicable to assessing whether a compliance schedule for achieving a water quality-based effluent limitation is consistent with the CWA and its implementing regulations?

1. "When appropriate," NPDES permits may include "a schedule of compliance leading to compliance with CWA and regulations ... as soon as possible, but not later than the applicable statutory deadline under the CWA." 40 C.F.R. § 122.47(a)(1). Compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. 40 c.F.R. § 122.47(a)(3).

2. Any compliance schedule contained in an NPDES permit must be an "enforceable sequence of actions or operations leading to compliance with a [water quality-based] effluent limitation ["WQBEL"]" as required by the definition of "schedule of compliance" in section 502(17) of the CWA. *See also* 40 C.F.R. § 122.2 (definition of schedule of compliance).

3. Any compliance schedule contained in an NPDES permit must include an enforceable final effluent limitation and a date for its achievement that is within the timeframe allowed by the applicable state or federal law provision authorizing compliance schedules as required by CWA sections 301(b)(1)(C); 502(17); the Administrator's decision in *Star-Kist Caribe, Inc.* 3 E.A.D. 172, 175, 177-178 (1990); and EPA regulations at 40 C.F.R. §§ 122.2, 122.44(d) and 122.44(d)(I)(vii)(A).

4. Any compliance schedule that extends past the expiration date of a permit must include the final effluent limitations in the permit in order to ensure enforceability of the compliance schedule as required by CWA section 502(17) and 40 C.F.R. § 122.2 (definition of schedule of compliance).

5. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record, that the compliance schedule "willlead[] to compliance with an effluent limitation ... " "to meet water quality standards" by the end of the compliance schedule as required by sections 301(b)(I)(C) and 502(17) of the CWA. *See also 40* C.F.R. §§ 122.2, 122.44(d)(1)(vii)(A).

6. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet (40 C.F.R. § 124.8), that a compliance schedule is "appropriate" and that compliance with the final WQBEL is required "as soon as possible." *See* 40 C.F.R. §§ 122.47(a), 122.47(a)(I).

7. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record, that the discharger cannot immediately comply with the WQBEL upon the effective date of the permit. 40 C.F.R. §§ 122.47, 122.47(a)(1).

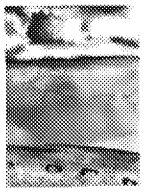
8. Factors relevant to whether a compliance schedule in a specific permit is "appropriate" under 40 C.F.R. § 122.47(a) include: how much time the discharger has already had to meet the WQBEL(s) under prior permits; the extent to which the discharger has made good faith efforts to comply with the WQBELs and other requirements in its prior permit(s); whether there is any need for modifications to treatment facilities, operations or measures to meet the WQBELs and if so, how long would it take to implement the modifications to treatment, operations or other measures; or whether the discharger would be expected to use the same treatment facilities, operations or other measures to meet the WQBEL as it would have used to meet the WQBEL in its prior permit.

9. Factors relevant to a conclusion that a particular compliance schedule requires compliance with the WQBEL "as soon as possible," as required by 40 C.F.R. § 122.47(a)(I) include: consideration of the steps needed to modify or install treatment facilities, operations or other measures and the time those steps would take. The permitting authority should not simply presume that a compliance schedule be based on the maximum time period allowed by a State's authorizing provision.

10. A compliance schedule based solely on time needed to develop a Total Maximum Daily Load is not appropriate, consistent with EPA's letter of October 23, 2006, to Celeste Cantu, Executive Director of the California State Water Resources Control Board, in which EPA disapproved a provision of the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries for California.

11. A compliance schedule based solely on time needed to develop a Use Attainability Analysis is also not appropriate, consistent with EPA's letter of February 20, 2007, to Doyle Childers, Director Missouri Department of Natural Resources, nor is a compliance schedule based solely on time needed to develop a site specific criterion, for the same reasons as set forth in the October 23, 2006, (referenced in Paragraph 10) and February 20, 2007 letters.

If you have any questions, please contact me at (202) 564-0748 or have your staff contact Linda Boornazian at (202) 564-0221.



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January 2, 2014

Rebecca Flood, Assistant Commissioner (Rebecca.Flood@state.mn.us)
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Jim Brist, Resource Management and Assistance Division (Jim.Brist@state.mn.us)
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: 2012-00415-JCB US Steel, Minntac Mine, Mountain Iron, MN
DRAFT Clean Water Act Section 401 Certification for Section 404 Permit
483-acre Mine Pit Extension, Access Road Relocation

Dear Ms. Flood, Mr. Brist:

These comments are submitted on behalf of WaterLegacy, a non-profit organization dedicated to protection of Minnesota's water resources and the communities that rely on them. We received electronic notice on Friday, December 27, 2013 that the Minnesota Pollution Control Agency (MPCA) had posted a proposed Section 401 Water Quality Certification for the 483-Acre Minntac, Mountain Iron, Minnesota Mine Pit Extension and Access Road Relocation ("Minntac Mine Expansion"). The notice required that the MPCA would accept input or feedback until January 7, 2014.

Although we are pleased to have the opportunity to provide comments on the MPCA's draft Section 401 Certification, we believe that the time provided for public input is insufficient. We would request that that the MPCA extend the time for public comment for at least 30 days and schedule the proposed certification before members of the MPCA Citizens' Board.

This is a highly controversial matter, involving a mining facility that has violated Minnesota water quality standards for decades and is currently under investigation by the United States Environmental Protection Agency (EPA) for discharge of pollutants in violation of the Clean Water Act. (See Exhibit 1, MPCA Letter to David Johnson, USX, Feb. 16, 2000, and Exhibit 2, EPA Letter to U.S. Steel, Aug. 10, 2011, attached).

WaterLegacy appreciates that the MPCA has proposed to include compensatory mitigation conditions for wetland and stream impacts related to the proposed Minntac Mine Expansion. However, we believe that the proposed Section 401 certification fails to comply with federal regulations and state rules for the following reasons:

- There is no reasonable assurance that the Minntac Mine Expansion will be

conducted in a manner that will not violate applicable water quality standards.

- There are unresolved noncompliance issues pertaining to applicable state and federal pollution control statutes that preclude Section 401 certification.

1. Legal Standard: MPCA Must Deny Section 401 Certification Where Compliance with Applicable Water Quality Standards Cannot Be Assured and Noncompliance is Unresolved.

The Clean Water Act requires that Section 401 certifications must ensure compliance with effluent limitations, water quality limitations and other appropriate requirements of state law. 33 U.S.C. §1341(d). Federal regulations promulgated to implement the Clean Water Act require that a Section 401 certification contain "A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards." 40 C.F.R. §120.2(a)(3).

In addition, Minnesota rules preclude Section 401 certification if the facility for which certification is sought does not comply with federal or state pollution control rules or has unresolved compliance issues. Minnesota Rule 7001.1450, Subpart 1(B) requires that the MPCA "shall" make a final determination with respect to section 401 certification to deny or revoke a section 401 certification upon making the findings set forth in part 7001.0140, subpart 2. The referenced subpart states:

> Subp. 2. **Agency findings**. The following findings by the agency constitute justification for the agency to refuse to issue a new or modified permit, to refuse permit reissuance, or to revoke a permit without reissuance:
>
> A. that with respect to the facility or activity to be permitted, the proposed permittee or permittees will not comply with all applicable state and federal pollution control statutes and rules administered by the agency, or conditions of the permit;
>
> B. that there exists at the facility to be permitted unresolved noncompliance with applicable state and federal pollution control statutes and rules administered by the agency, or conditions of the permit and that the permittee will not undertake a schedule of compliance to resolve the noncompliance.

2. Record: Compliance with Applicable Water Quality Standards Cannot be Reasonably Assured

The proposed Minntac Mine Expansion would increase discharge at the Minntac mine site and Minntac tailings basin that already fails to comply with applicable state pollution control rules.

United States Environmental Protection Agency ("EPA") comments to the United States Army Corps of Engineers ("USACE") on the Minntac Mine Expansion in October 2012 cautioned that

the proposed expansion would impact receiving waters at both the mine and tailings basin. The EPA stated, "The expansion would result in an additional dewatering discharge . . . The expansion would also result in additional tailings being deposited in the tailings basin. Therefore, it appears that both the tailings basin and mining area receiving waters would be affected by the expansion of the mine." (Exhibit 3, EPA Letter to Tamera Cameron, Oct. 22, 2012).

The Minnesota Department of Natural Resources ("MDNR") in its Environmental Assessment Worksheet ("EAW") also noted that the Minntac Mine Extension could increase the level of constituents in downstream receiving waters:

> Increased in-pit disposal may result in runoff, and therefore mine sump dewatering discharges, with elevated concentrations of certain dissolved constituents (e.g., sulfate, hardness, alkalinity, chloride). This could result in an increase of these constituents in downstream receiving waters. (Exhibit 4, MDNR, Minntac Mine Extension EAW, p. 29)

With respect to stockpiles and the new mine pit area, MDNR explained, "The extension will expose additional materials in stockpile areas as well as in the new pit area. Future increases in sulfate levels could potentially be associated with the accumulation over time of additional materials and areas exposed to the elements." (*Id.*, p. 45). The EAW estimated that Minntac mine area dewatering discharge would increase by 5 percent. (*Id.*, p. 13)

The impacts on water quality from the Minntac Mine Expansion are particularly salient due to the uses and impairments of receiving and downstream waters.

The USACE, in its Public Notice pertaining to the Minntac Extension, highlighted the potential impact of the expansion on wild rice waters, stating, "The Sandy River is located adjacent to Minntac's tailings basin. The Sandy River, and its downstream receiving water, the Pike River, are both designated wild rice waters. The traditional ricing of these waters is well known." (Exhibit 5, USACE Public Notice for Minntac Mine Extension, p. 9).

The MPCA, in its August 2013 and November 2013 working notes, proposed designating Sandy Lake and Little Sandy Lake (the "Twin Lakes") and Sandy River as wild rice impaired waters. (Exhibit 6, MPCA Working Notes for 2014 Wild Rice Impaired Waters List). Both the use of Minntac receiving waters for the production of wild rice and the levels of sulfate currently impairing those waters are matters of record within the MPCA.

The MDNR, in its Minntac Mine Extension EAW, also identified receiving waters from the Minntac Mine Expansion as significant for fish and aquatic habitat:

> The West Pit extension area includes an unnamed tributary to Kinney Lake (referenced as Kinney Creek) and an unnamed headwater tributary of the West Two River, which flows into the West Two River Reservoir. These streams flow into either Kinney Lake or the West Two River Reservoir, and may support seasonal fish populations, particularly during spring spawning periods. The East Pit extension would reduce the length of Parkville Creek, and a short section on an unnamed stream. Parkville Creek flows into the West Two River Reservoir, and is a major tributary. (Ex. 4, MDNR EAW, *supra*, p. 12)

The MDNR described several potential impacts to fisheries uses from loss of habitat and changes in hydrology resulting from the Minntac Mine Expansion. (*Id.*, p. 12)

The MPCA 2012 Clean Water Act Section 303(d) impaired waters designation identified Sand Creek from unnamed creek to the St. Louis River as impaired for aquatic life due to fishes bioassessments and designated West Two River from the West Two River reservoir to McQuade Lake outlet as impaired for aquatic life due to aquatic macroinvertebrate bioassessments. (MPCA, Minnesota's Impaired Waters and TMDLs, http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/impaired-waters-list.html). Analysis is currently underway to determine the extent to which recent these recently-designated aquatic life impairments downstream of mining facilities are related to toxicity stressors.

The MPCA's 2012 impaired waters designation also listed the Minntac tailings basin as impaired for aquatic consumption due to mercury in fish tissue.

The record of exceedances of water quality standards at both the Minntac mine and the Minntac tailings basin, coupled with predictions of additional loading of constituents, demonstrates that there is no reasonable assurance that the Minntac Mine Expansion will be conducted in a manner that will not violate applicable water quality standards.

Even as U.S. Steel (USS) advocated to the USACE in favor of its Section 404 permit, the company admitted that its discharges from the Minntac mining area have exceeded a number of Minnesota water quality standards. On July 9, 2013, USS stated that its mine area discharge was "either continuously or occasionally exceeding the following downstream water quality standards, depending upon the outfall": Mercury (Class 2B Lake Superior Wildlife Chronic Standard); Hardness (Class 3C); Specific Conductance (Class 4A). (Exhibit 7, U.S. Steel Letter to USACE, July 9, 2013, p. 18) With respect to mercury, USS acknowledged:

> Quarterly sampling of Mining Area discharges since 2004 has indicated that the Lake Superior Class 2B mercury discharge standard has been exceeded in approximately 20 - 25% of the samples collected from these outfalls. The majority of these exceedances are within 50 - 70% of the standard at SD003 and 25 - 50% of the standard at SD004. (*Id.*, p. 18)

WaterLegacy reviewed Discharge Monitoring Reports (DMRs) that were included in the Attachments submitted by U.S. Steel as part of its application to the USACE for the Minntac Mine Expansion Section 404 wetlands destruction permit. These DMRs confirm that Minntac mine pit dewatering, even before the addition of dewatering discharge from the proposed Minntac Mine Expansion, is out of compliance with Minnesota water quality standards.

Surface discharge site SD004, in the area of the proposed Expansion, demonstrates violations of mercury, hardness, specific conductance, and sulfate water quality standards. Mercury exceeding the Great Lakes water quality standard of 1.3 ng/L was reported in Sept. 2008, Dec. 2008, June 2011 and Dec. 2011. (Exhibit 8, Minntac Mining Area SD004 DMRs)

From March 2008 to March 2013, every DMR sample for SD004 showed hardness above Minnesota's water quality standard of 500 mg/L, with an average concentration of 795 mg/L.

With respect to specific conductance, from March 2008 through March 2013, every DMR sample exceeded Minnesota's specific conductance standard of 1000 mhos/cm; the average specific conductance level was 1334 mhos/cm (equivalent to 1334 μhos/cm). (*Id.*)

Although Minnesota's specific conductance water quality standard is located in a section of the rules pertaining to agricultural irrigation, it is well known that high levels of specific conductivity are toxicity stressors to aquatic life. The EPA web site that explains what is conductivity and why is it important, states the following, "Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a range between 150 and 500 μhos/cm. Conductivity outside this range could indicate that the water is not suitable for certain species of fish or macroinvertebrates." (http://water.epa.gov/type/rsl/monitoring/vms59.cfm)

Sulfate discharge from Minntac mine pit dewatering far exceeded the Class 1B drinking water standard of 250 mg/L, let alone the concentration that would ensure compliance with the10 mg/L water quality standard applicable in receiving waters used for the production of wild rice. From March 2008 through March 2013 all measured sulfate discharges at SD004 were above the 250 mg/L Class 1B standard, and the average sulfate concentration was 432 mg/L. (Ex. 8, *supra*, SD004 DMRs)

The USACE asked USS to quantify the total sulfate loading to the St. Louis River and other wild rice waters that would result from mine pit dewatering under the proposed Minntac Mine Expansion. WaterLegacy has not received this data, although the response by USS below suggests that the proposed Expansion would increase sulfate loading at the mine site.

> **USACE Question**:
> • *Quantify the total amount of sulfate that would be discharged into St. Louis River Watershed (West Two River and Sand Creek watersheds) as a result of mine pit dewatering within the pit extension area.*
>
> **USS Response**:
> USS will require additional time to arrive at an accurate response to the question posed, primarily due to the difficulties associated with predicting the amount of groundwater that will be collected in the mine pit dewatering sumps as the mine pits get deeper in the Extension areas. USS has engaged consultants to assist in compiling the response to this question but due to the complexities of the area an accurate response could not be completed in the allotted time. It should be noted that the Biwabik Iron Formation dips at an angle of approximately 7 degrees to the south in the vicinity of Minntac, and therefore the depths to recoverable ore will continue to increase as mining progresses through the Extension. USS will provide a response to this additional information request within 30 days of this submittal. (Ex. 7, *supra*, USS Letter, July 9, 2013, p. 19)

U.S. Steel's response to USACE questions about the Minntac Mine Expansion also admitted that Minntac tailings basin discharges exceed Minnesota water quality standards for hardness, sulfates, specific conductance and total dissolved solids. (*Id.*, p. 8)

USS further acknowledged that its proposed mine expansion would result in an incremental increase of sulfate load to receiving waters of the Sand River Watershed. The company estimated that Minntac's seepage collection system on the east side of the tailings basin was capturing 50

percent of the seepage. USS predicted a significant increase in sulfate loading upstream of wild rice waters if its expansion were approved, "the incremental increase in sulfate load to the Sand River Watershed due to the Minntac Extension would be closer to 350 tons per year." (*Id.*, p. 12)

In addition to causing or contributing to further impairment of downstream wild rice, the MPCA has long cautioned that increased sulfate loading from the Minntac tailings basin may increase mercury methylation and downstream mercury contamination of fish. As excerpted in WaterLegacy's attached comment requesting further environmental analysis of the Minntac Mine Expansion, MPCA's comments on a Water Inventory Reduction Project proposed by Minntac several years ago highlight concerns about sulfates and mercury:

> [R]ecent research has shown that sulfate addition may promote the methylation of mercury. Under anaerobic conditions, sulfate provides one of several components needed for the growth of a certain type of bacteria responsible for methylation of mercury in the environment. Therefore, increased sulfate concentrations associated with the proposed project could result in an increase in methylmercury and fish tissue mercury concentrations in the impacted downstream waters. (Exhibit 9, WaterLegacy Comment, p. 14, quoting MPCA Water Inventory DEIS, p. S-10)
>
> The available information and evidence on the relationship of sulfur and fish mercury levels lead to the reasonable conclusion that increased sulfate mass discharges downstream of the Minntac tailings basin would cause increased fish mercury levels, as discussed in the Mercury and Methylmercury Impact Assessment Technical Memorandum. (*Id.*, quoting MPCA Water Inventory FEIS, p. 25)
>
> If increased concentrations of sulfate lead to methylation of mercury and increasing accumulations of mercury in fish tissue, there could be continued impacts to the economic activities related to recreational angling and the commercial fishery. . . potential increases in the methylation of mercury due to increased sulfate levels may impact other recreational and fisheries activities within the Sandy/Pike River and the Dark River, as well as Pike Bay and Lake Vermilion more generally. (*Id.*, p. 15, quoting MPCA Water Inventory DEIS, p. S-21).

Where information furnished by the applicant confirms that discharge from a facility exceeds water quality standards and that these exceedances are likely to increase as a result of activities under a proposed Section 404 permit, the Clean Water Act as well as Minnesota rules requires denial of Section 401 certification. Denial of Section 401 certification is further required on this record pertaining to the Minntac mine area and tailings basin since the existing and proposed increases in noncompliance have the potential to cause or contribute to use impairments in receiving and downstream waters.

3. <u>Record: Outstanding Noncompliance Issues Are Unresolved</u>

The MPCA has documented (Ex. 1, *supra,* MPCA Feb. 16, 2000 letter to USX) that since at least 1987, the Minntac tailings basin has had unresolved water quality noncompliance issues related to sulfates.

MPCA's Compliance Status report from 2010, attached as Exhibit 10, documents at least five enforcement actions at the Minntac tailings basin for noncompliance with Minnesota's hardness and sulfate standards since 2006, despite various schedules of compliance and several monetary penalties for water quality violations.

The loading of pollutants to receiving waters as a result of these unresolved noncompliance issues has been significant. The MPCA report summarized:

Year of Operation	Excess Pounds of Sulfate	Excess Pounds of Hardness
2006	80,847	0
2007	69,839	241,167
2008	54,904	352,125
2009	18,207	31,133
2010	57,558	741,468

Unfortunately, for a quarter of a century MPCA has been unwilling to compel compliance with state water quality standards at the Minntac tailings basin. For two decades, Minntac has continued to discharge pollutants from its tailings basin without even holding a valid NPDES/SDS permit.

Minnesota rules pertaining to Section 401 certification were intended to prevent continued expansion of facilities that have not come into compliance with water quality standards. By stating that the MPCA "shall" deny or revoke a 401 certification on the finding that there is "unresolved noncompliance" with state pollution control statutes and rules, a limit was placed on the MPCA's ability to excuse noncompliance. At the very least, when a discharger sought a Section 404 permit for expansion that would destroy additional wetlands and streams, Clean Water Act Section 401 rules would compel the Agency to deny certification and provide some consequence for non-compliance.

4. Proposed Conditions Do Not Resolve Either Issue Requiring Denial of Certification

In its draft Section 401 certification letter, the MPCA has provided some conditions to address wetland and stream mitigation. WaterLegacy does not object to these conditions. However, conditions pertaining to wetland and stream mitigation neither address existing exceedances of water quality standards at the Minntac mine and tailings basin nor the decades of unresolved noncompliance.

The MPCA, in its draft certification letter, has disregarded and failed to analyze water quality information supplied by the applicant that demonstrates exceedance of water quality standards at both the Minntac mine and tailings basin. The MPCA has disregarded and failed to analyze information supplied by the applicant regarding increased loading of sulfates and other chemical constituents that would result if the Minntac Mine Expansion were certified. The MPCA has, additionally, failed to assess the impacts on waters that have been designated as impaired for aquatic life or for mercury contamination of fish and impacts on waters used for the production of wild rice that MPCA's data indicates should also be designated as "impaired waters" pursuant to Section 303(d) of the Clean Water Act.

The permit applicant has admitted that Minntac mine dewatering and tailings basin violate water quality standards and that the Minntac Mine Expansion would increase sulfate loading at the tailings basin by 350 tons per year. WaterLegacy has not received information and the MPCA has not disclosed how mine dewatering from the proposed Mine Expansion might further increase sulfate loading, potentially causing or contributing to additional impairment of downstream wild rice waters or increasing mercury bioaccumulation in the lower reaches of the St. Louis River.

The MPCA is well aware of the risk of mercury bioaccumulation in the St. Louis River. The MPCA has analyzed mercury concentrations in fish tissue and determined that lower reaches of the St. Louis River have higher mercury concentrations in fish tissue than do fish in other regional waters. (Exhibit 11, MPCA St. Louis River Fish Mercury Analysis, p. 4). Addressing effects of sulfate loading on mercury bioaccumulation downstream is necessary to protect human health as well as the Great Lakes water quality standards set through international treaties.

Having done no pertinent analysis of violations of mercury, sulfate, specific conductance and hardness standards, the MPCA's draft Section 401 conditions does not address the water quality compliance issues raised by the proposed Minntac Mine Expansion. None of the conditions in the MPCA's draft Section 401 certification provide any assurance, let alone reasonable assurance, that the Minntac mine and tailings basin noncompliance with water quality standards won't continue and increase should the Minntac Mine Expansion proceed.

Finally, the MPCA's certification completely fails to address the question of unresolved compliance. Minnesota rules were written, at the very least, to ensure that dischargers operating in disregard of the law could not continue to expand without being brought into compliance.

Conclusion

Neither federal nor state law allows the MPCA to certify the proposed Minntac Mine Expansion. This project is a textbook case of what Section 401 was intended to prevent – the increase of discharge that already violates water quality standards by a polluter operating outside the law for a matter of decades.

WaterLegacy is concerned that, where mining is concerned, Minnesota state regulators are unwilling or unable to say "no," regardless of the facts or the law. In the case of the Minntac mine and tailings basin, the lack of regulatory constraints may have already impaired waters used for the production of wild rice and for aquatic life and increased mercury contamination of fish, impairing their use for consumption. This wholesale regulatory failure is more troubling since the resources impaired are vital to subsistence anglers and gatherers, including Minnesota tribes, whose treaty rights are also compromised by the failure of regulatory action.

WaterLegacy would request that the MPCA's draft Section 401 certification be withdrawn pending the following:

1) MPCA analysis, in consultation with tribes, of the impacts of sulfate loading and mercury discharge from Minntac mine dewatering (based on complete data secured from USS) and from the Minntac tailings basin under existing conditions and the proposed Minntac

Mine Expansion, on waters used for the production of wild rice, mercury bioaccumulation in fish, including waters where these uses have been impaired.

2) MPCA analysis, in consultation with tribes, of the impacts of Minntac's specific conductivity exceedances at the Minntac mine and tailings basin under current conditions and the proposed Minntac Mine Expansion, and whether stressors related to the toxicity of mining discharge are causing or contributing to aquatic life impairments;

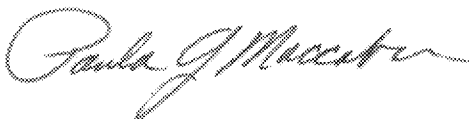
3) MPCA development, in consultation with tribes, of such conditions as would be needed to prevent further impairment of wild rice, bioaccumulation of methylmercury or aquatic life impairments caused or contributed to by existing and proposed Minntac mine and/or Minntac tailings basin discharge;

4) MPCA's issuance of a valid permit for the Minntac tailings basin and MPCA's modification of the Minntac mine permit, both of which must include effluent limitations for mercury, sulfates, specific conductance, hardness and any other parameters that have a reasonable potential to exceed water quality standards.

Until such time as the above steps are taken in conformity with law, WaterLegacy proposes that Section 401 certification be denied pursuant to the Clean Water Act and Minnesota statutes and rules.

Please contact me at 651-646-8890 if you have questions regarding this matter. I look forward to hearing the next procedural steps you would propose to take.

Sincerely yours,



Paula Goodman Maccabee
Counsel/Advocacy Director for WaterLegacy

cc: Tinka Hyde, Water Division Director, EPA Region 5 (Hyde.Tinka@epa.gov)
Tamera Cameron, Chief, Regulatory Branch, USACE
(tamara.e.cameron@usace.army.mil)

ATTACHED EXHIBITS

Exhibit 1	MPCA Letter to David Johnson, USX, Feb. 16, 2000
Exhibit 2	EPA Letter to U.S. Steel, Aug. 10, 2011
Exhibit 3	EPA Letter to Tamera Cameron, USACE, Oct. 22, 2012
Exhibit 4	MDNR, EAW for Minntac Mine Extension, Aug. 1, 2012
Exhibit 5	USACE, Public Notice for Minntac Mine Extension, July 3, 2012
Exhibit 6	MPCA Working Notes for 2014 Wild Rice Impaired Waters List, 2013
Exhibit 7	U.S. Steel Letter to USACE, July 9, 2013
Exhibit 8	Minntac Mining Area SD004 DMRs, 2008-2013
Exhibit 9	WaterLegacy Comment to MDNR, Sept. 5, 2012
Exhibit 10	MPCA, Minntac Tailings Basin Compliance Report, 2010
Exhibit 11	MPCA, St. Louis River Fish Mercury Analysis, Feb. 12, 2012

Minnesota Pollution Control Agency

February 16, 2000

Mr. David P. Johnson
Senior Environmental Engineer
USX-Minnesota Ore Operations
P.O. Box 417
Mountain Iron, MN 55768

RE: NPDES/SDS Permit MN0057207 Variance Issues

Dear Mr. Johnson:

Thank you and other USX staff for meeting with Minnesota Pollution Control Agency (MPCA) staff on January 11, 2000, to update us on the company's progress on your tailings basin discharge studies. This and previous meetings have been helpful in our discussions with USX and the Minnesota Department of Natural Resources (DNR) to review the environmental issues related to a potential expanded discharge.

While USX, DNR, and the MPCA have continued to work together on the company's proposal for a new or expanded wastewater discharge from the Minntac tailings basin, the MPCA also has been giving priority to the reissuance of the existing National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit for the tailings basin. As you know, NPDES/SDS permit MN0057207 expired in 1992, although its provisions remain applicable. In our June 22, 1998, letter, the MPCA stated that it does not plan to delay the reissuance of this permit pending the resolution of the new discharge issues. The MPCA however, recognizes that some of the work being done by USX in relation to the new discharge may be important in dealing with the existing tailings basin facility. In particular, some potential variance issues can relate both to the existing facility, which is presently violating water quality standards for sulfate, as well as to the proposed new discharge.

The MPCA would like to make USX aware that the draft reissued permit for the existing facility is likely to include discharge limits at least for the following pollutants: bicarbonates (305 mg/L), hardness (250 mg/L as calcium carbonate), specific conductance (1000 µmho/cm) and sulfate (10 mg/L April through September ~~1999~~, for the Sand River drainage, 1000 mg/L for all other situations). The permit also likely will require some monitoring of chloride, fluoride, salinity, sodium and total dissolved solids levels. Sulfate has been identified as a pollutant of concern at the tailings basin since at least 1987. During those 13 years, USX has done considerable and commendable work in characterizing the sources and pathways of the sulfate contamination.

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USX also has chosen not to burn petroleum coke at the facility, resulting in a reduced loading of sulfur to the Agglomerator wastewaters. At the same time however, sulfate concentrations at the facility have increased substantially, while no major wastewater sulfate mitigation efforts have been undertaken at Minntac other than that related to coke use.

Consequently, the MPCA is drafting schedule of compliance language for the reissued permit related to sulfate mitigation. This compliance language presently does not acknowledge a potential variance for sulfate at the facility, since USX is still in the process of collecting the information needed to complete a sulfate variance application. This draft schedule of compliance in the reissued permit would require mitigation efforts to be undertaken concerning sulfate levels at the Agglomerator, whose wastewaters seem to be the principal source of sulfate loading to the tailings basin. The reissued NPDES/SDS requirements would put USX on an aggressive schedule to reduce sulfate concentrations to less than 10 mg/L in the wastewaters leaving the Agglomerator. While this represents a very substantial effort, it is also important to recognize that concentrator wastewaters are contributing to the high sulfate levels, and that improvements at the Agglomerator alone at best will lead to a gradual long-term reduction in the sulfate loading to the Sand River and its associated wetlands.

Since our January 11, 2000, meeting, the MPCA has discussed the proposals that USX suggested at that time concerning alternative approaches to a permit 10 mg/L sulfate limit other than a variance. USX mentioned the following options to deal with the sulfate:

1) The language in the class 4A standards (Minn. R. 7050.0224, subp. 2), states the following standards shall be used as a guide in determining the suitability of waters for irrigation uses. USX asked to have some leeway in the standards under this class. The MPCA has always used these standards just as any other standards (i.e., Class 3, 5, and 6) to protect the beneficial uses and the MPCA is responsible for establishing permit limits based on the standards. The MPCA has no plans to modify these standards because to do so would jeopardize the beneficial uses that they are designed to protect.
2) USX and the MPCA have discussed a potential site-specific criterion for sulfate to protect wild rice. Although MPCA staff discussed last year the possibility of a class 4 site-specific criterion, we with apologies to USX, must clarify that site-specific criteria can only be developed for class 2 standards. Under Minn. R. 7050.0217 and 7050.0218, the MPCA has the authority to develop a class 2 site-specific criterion for sulfate. If a class 2 site-specific sulfate criterion was developed, however, and that criterion was higher numerically than the 10 mg/L class 4A standard, that criterion would not negate the current class 4 standard.
3) USX suggested that the MPCA develop a policy that modifies the class 3, 4, and 5 standards. We cannot do this because it would constitute rulemaking without going through the rulemaking process.

4) USX also asked if the sulfate standard could be changed through rulemaking. The MPCA has just completed the rulemaking process for Minn. R. ch. 7050, and is not scheduled to go back into rulemaking for another three years. The MPCA will have the information developed by USX in relation to a sulfate variance available along with other information available for potential future rulemaking. If USX is interested in pursuing a proposed change to the class 4 sulfate standard, please continue to discuss this with Dann White of the MPCA staff as the principal contact at (651) 296-7237.

We believe that if USX seeks immediate relief from strict compliance with the class 4 sulfate standard, a request for a variance would be the best route for USX to pursue.

We would like to encourage USX, if it is interested in applying for a sulfate variance for the current flows to the Sand River, to place a high priority on the work needed to complete this variance application. In particular, we would urge the company to provide these materials to the MPCA before an NPDES/SDS permit application for a new or expanded discharge is completed. Our interest in expediting decisions on this potential variance is two-fold: a) we would like to proceed soon with the reissuance for the current permit, and provide USX the opportunity to apply for a sulfate variance before the reissued permit goes on public notice; and b) decisions on a proposed sulfate variance for the existing facility may be very important in subsequently determining the flow route, timing and volume in the permit application for a proposed new discharge, and in any additional variance requests which USX may want to include with that permit application.

We would appreciate if you would inform us of the company's thoughts on the timing of a complete variance application for sulfate for the existing facility, so that the MPCA can determine how to best proceed on the NPDES/SDS permit reissuance process for the existing facility.

If you have any questions, please contact Jim Strudell at (651) 296-7238.

Sincerely,

Douglas A. Hall
Major Facilities 1
North District

DAH:ais

cc: Loren Larson, Woodward-Clyde
Bob Leibfried, DNR, Grand Rapids

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

OCT 22 2012

REPLY TO THE ATTENTION OF
WN-16J

Tamara Cameron, Chief
Regulatory Branch
U.S. Army Corps of Engineers
St. Paul District
180 Fifth Street East, Ste. 700
St. Paul, Minnesota 55101-1678

Re: U.S. Steel – Minntac Mine; Clean Water Act Section 402 concerns related to pending Clean Water Act Section 404 actions.

Dear Ms. Cameron:

Thank you for contacting the U.S. Environmental Protection Agency regarding your concerns related to potential water quality impacts resulting from U. S. Steel's Minntac mine, processing facility and tailings basin (Minntac) as well as the impacts that expanding the mine may have on receiving waters. This letter is in response to concerns raised by you and your staff pertaining to the Corps' consideration of U.S. Steel's request for a Section 404 permit to allow for expansion of the mine.

The Minntac mine is identified in three National Pollutant Discharge Elimination System (NPDES) permits that had been issued by the Minnesota Pollution Control Agency (MPCA): MN0057207 for the tailings basin, which expired in 1992; MNC050504 for the sanitary discharge (discharges to the tailings basin and not to surface waters), which expired in 1989; and MN0052493 for the mining and processing area, which expired in 2009. U.S. Steel applied for renewal of these permits in December 2011.

We understand that U.S. Steel is seeking authorization from the Corps to expand the Minntac mine. The expansion would result in an additional dewatering discharge, which we believe was contemplated in permit MN0052493. The expansion would also result in additional tailings being deposited into the tailings basin. Therefore, it appears that both the tailings basin and mining area receiving waters would be affected by any expansion of the mine.

MPCA's letter granting the Clean Water Act (CWA) Section 401 certification for this project expresses concerns regarding the potential impacts to the West Two River, a receiving water of the mining area, and applies conditions that require monitoring of that river. The letter does not discuss or apply conditions related to the tailings basin discharges or receiving waters. When a permitting authority undergoes the process to issue or reissue an NPDES permit, an analysis is normally conducted to determine whether or not the facility may discharge pollutants at levels which could cause or contribute to water quality standards (WQS) exceedances. If the facility may discharge pollutants at such levels, the relevant parameters are limited with water quality based effluent limitations (WQBELs) in the permit that are derived from and comply with WQS.

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The NPDES permit for the tailings basin has not been reissued for approximately 25 years. Based on water quality monitoring data collected by U.S. Steel and others, it appears that WQS are being exceeded in receiving waters impacted by the tailings basin. The Final Aquatic Resources Technical Memo written for MPCA in support of the Draft Environmental Impact Statement in 2004 noted several parameters of concern for both the Sandy and Dark Rivers, namely chloride, fluoride, hardness, total iron, manganese, mercury, methyl mercury, sulfate, temperature and total dissolved solids.

In January 2011 a "seep collection and return system" (SC&R) became operational at the Sandy River discharge location. This system is installed to capture the direct surface discharge occurring at this location and return it to the tailings basin. MPCA has recently authorized U.S. Steel to construct a similar system at the Dark River discharge, SD001.

Water quality data is being collected in the Sandy River by the 1854 Treaty Authority. Data from 2010 and 2011 are currently available. The 2010 data presented serve as a baseline to depict conditions prior to the startup of the SC&R system. The 2011 data represent the conditions four to nine months after SC&R operations began. The data indicate that water quality standards are not being met in the Sandy River even though nine months have passed since the SC&R system was installed, with results for sulfates at the inlet to the "Twin" or "Sandy" lakes, the nearest wild rice water, ranging from 208 (May 2011) to 561 milligrams per liter (October 2011). Based on this data, it seems that if the NPDES permit was to be reissued, it is likely that WQBELs would be established in that permit.

Generally, questions regarding the water quality impacts of discharges from point sources, such as the Minntac mining operation, might best be answered through the Section 402 permitting process. This necessitates an evaluation of current and historic water quality information by the state NPDES permitting authority, as well as an opportunity for the public and Tribes to comment on that evaluation. Since this process has not been undertaken for discharges from the Minntac tailings basin operation for approximately 25 years, the Corps may wish to wait until MPCA takes action on U.S. Steel's 2011 application for permit reissuance; as such action would be based upon a full consideration of the current water quality information and public and Tribal comments. This would better ensure that the Corps has adequate, up-to-date information regarding the water quality impacts of Minntac's mine-related discharges before it makes its decision in response to a Section 404 permit application.

Thank you for bringing your concerns about the Minntac mine to our attention. If you have any questions, please feel free to contact Mark Ackerman of my staff, at (312) 353-4145.

Sincerely,

Kevin M. Pierard, Chief
NPDES Programs Branch

Version 8/08rev

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. The complete question as well as the answer must be included if the EAW is prepared electronically.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title** Minntac Mine Extension

2. **Proposer** **United States Steel Corporation, Minnesota Ore Operations – Minntac**
   Contact person Chrissy Bartovich
   Title Director - Environmental
   Address United States Steel Corporation – Minntac
   Box 417
   City, state, ZIP Mountain Iron, MN 55768
   Phone (218) 749-7364
   E-mail clbartovich@uss.com

3. **RGU** **Minnesota Department of Natural Resources**
   Contact person Lisa Fay
   Title Planner Principal State
   Address 500 Lafayette Road, Box 32
   City, state, ZIP St. Paul, MN 55155-4032
   Phone (651) 259-5110
   Fax (651) 297-1500
   E-mail environmentalrev.dnr@state.mn.us

4. **Reason for EAW preparation** (check one)
   ☐ EIS scoping ☒ Mandatory EAW ☐ Citizen petition ☐ RGU discretion ☐ Proposer volunteered

   If EAW or EIS is mandatory give EQB rule category subpart number and subpart name: Minnesota Rules Part 4410.4300, subpart 11B (Expansion of stockpile, tailings basin, or mine by 320 or more acres).

   The proposed project requires a mandatory EAW under Minnesota Rules, part 4410.4300, subpart 11 (metallic mineral mining and processing), because it is an extension of a mine by 320 or more acres (Minnesota Rules, part 4410.4300, subpart 11, item B). No expansion of the existing tailings basin boundary is anticipated and no increase in production rate is proposed.

5. **Project location** County: St. Louis City/Township: City of Mountain Iron
   Township of Great Scott

   GPS Coordinates Western limit: 5,263,045.11 N 520,830.16 E
   Eastern Limit: 5,264,004.11 N 532,097.01 E

Tax Parcel Number(s): See **Table 5-1**

The project area includes all or parts of the following:

Table 5-1. Project Location and Tax Parcel Identification

Mine Extension Area			
Section	**Township**	**Range**	**Tax Parcel ID**
NE ¼ SW ¼ Section 11	58N	19W	150-30-99
N ½ SE ¼ Section 11	58N	19W	150-30-104, 150-30-100
N ½ of SW ¼ Section 12	58N	19W	385-10-120, 385-10-130
N ½ of SE ¼ Section 12	58N	19W	385-10-1230, 385-10-1240
S ½ of NW ¼ Section 12	58N	19W	385-10-109, 385-10-110
S ½ of NE ¼ Section 12	58N	19W	385-10-1215, 385-10-1220
S ½ of NW ¼ Section 7	58N	18W	175-71-570, 175-71-580
NW ¼ Section 8	58N	18W	175-71-680, 175-71-690, 175-71-700, 175-71-710
N ½ of SW ¼ Section 8	58N	18W	175-71-720, 175-71-730
SE ¼ Section 8	58N	18W	175-70-710, 175-70-770, 175-70-830
NE ¼ of SE ¼ Section 3	58N	18W	175-70-235, 175-70-365
S ½ Section 2	58N	18W	175-71-230, 175-71-240, 175-71-250, 175-71-260, 175-70-230, 175-70-234, 175-70-236, 175-70-240
NW ¼ of SW ¼ Section 1	58N	18W	175-71-160, 175-71-170, 175-71-149
Mine Access Road (South to North)			
SW ¼ of NE ¼ Section 10	58N	18W	175-70-1210
NW ¼ of NE ¼ Section 10	58N	18W	175-70-1200
SW ¼ of SE ¼ Section 3	58N	18W	175-70-380
NW ¼ of SE ¼ Section 3	58N	18W	175-70-365

County State Aid Highway 102 Relocation (West to East)			
NE ¼ of SW ¼ Section 10	58N	18W	175-70-1260
NW ¼ of SE ¼ Section 10	58N	18W	175-70-1300
NE ¼ of SE ¼ Section 10	58N	18W	175-70-1290
NW ¼ of SW ¼ Section 11	58N	18W	175-70-1420
NE ¼ of SW ¼ Section 11	58N	18W	175-71-860
NW ¼ of SE ¼ Section 11	58N	18W	175-71-890
NE ¼ of SE ¼ Section 11	58N	18W	175-71-880

Attach each of the following to the EAW:

- County map showing the general location of the project (see **Figure 1** – Project Location Map);
- U.S. Geological Survey 7.5-minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable) (see **Figure 2** – USGS Topographic Map); and,
- Site plan showing all significant project and natural features (see **Figure 3** – 2010 Aerial Photograph).

Additional Figures

- **Figure 4** – Surrounding Land Use
- **Figure 4a** – Surrounding Land Use – West Pit
- **Figure 4b** – Surrounding Land Use – East Pit
- **Figure 5** – Affected Land Cover
- **Figure 6** – Surface Water Resources
- **Figure 6a** – Watershed Map

- **Figure 6b** – Shoreland Zone Impacts
- **Figure 6c** – Existing Water Appropriation Installations and NPDES/SDS Outfalls
- **Figure 7** – Wetland Impacts
- **Figure 8** – County Well Index
- **Figure 9** – St. Louis County Soil Survey
- **Figure 10** – Reasonably Foreseeable Projects by Others

Additional Attachments

- **Attachment A** – Minntac Subwatershed and Stream Information (Liesch Associates, Inc., July 3, 2012)

6. ***Description***

a. *Provide a project summary of 50 words or less to be published in the EQB Monitor.*

U. S. Steel – Minntac proposes a 483-acre extension of its existing open pit mining facilities in Mountain Iron. The extension will extend mine life and taconite production to 2031. Taconite produced from the extension will continue to be processed at the existing Minntac facility at the current levels of production.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Introduction

United States Steel Corporation, Minnesota Ore Operations – Minntac Mine (Minntac) is a taconite mining and processing operation located near Mountain Iron, St. Louis County, Minnesota (see **Figure 1**). Taconite mining began at this location with the construction of the Pilotac mine and plant in 1952. The Minntac Plant became operative in 1967 and was expanded in two additional phases to increase production. The Minntac facility currently includes an open pit taconite mine, crushing plant, concentrating plant, agglomerating plant, tailings disposal basin, and associated equipment, repair, personnel, and administrative facilities (see **Figures 2** and **3**). Currently, there are up to five operational pellet producing lines with annual production capacity of approximately 15.8 million long tons per year (MLTY).

Mine Extension

The Minntac Mine Extension would continue development of an open pit taconite mine by extending the limits of current mining operations by approximately 483 acres. The proposed project would not affect operation of the ore processing facility or the annual rate of production, but would extend the operational life of the facility. Mining of the proposed extension would progress as economic needs dictate. Under current projections and at the current production rate, the mine extension would be expected to provide sufficient materials to continue operations through 2031. The current tailings basin would accommodate all tailings produced from processing the crude ore within the proposed extended pit limits. No expansion of tailings basin acreage or increase in annual volume of tailings would be expected as a result of the proposed project.

The area of the mine extension is generally defined as the increment change beyond what is allowed under the existing permit to mine established in 1983. The proposed extension would include a southerly extension of the East Pit by 235.8 acres and a southerly extension of the West Pit by 247.2 acres in four locations as shown on **Figure 3**. Detailed information about the schedule and implementation of the extension has not yet been developed. A detailed mine model and stockpiling plan will be included in the forthcoming application to the DNR for the Permit to Mine Amendment (expected in August 2012).

The contiguous extension of U. S. Steel's Minntac taconite ore body would be mined by open-pit methods. All waste rock and crude ore would require drilling and blasting. Normal mine activities could also include construction of production truck haul roads, service vehicle roads, and possibly railroad tracks and track grades, and power lines.

After overburden is removed, waste rock and taconite ore would be drilled, blasted, and loaded into mine trucks by electric or diesel-hydraulic shovels or front-end loaders. The crude ore would be hauled from the mine to the existing plants for crushing, processing, and pelletizing. Overburden and waste rock would either be used to construct dikes and haul roads or would be stockpiled. In an effort to minimize wetland impacts, existing stockpiles or other disturbed areas would continue to be utilized for stockpiling. Currently Minntac does not anticipate requiring any new out-of-pit stockpiles. Some of the existing stockpiles within the current permitted stockpile limits will be elevated by up to 170 feet to accommodate waste materials; in-pit stockpiling will continue to be utilized as much as possible. In-pit disposal of mine waste materials will continue to be maximized in order to limit the overall mining area footprint. In-pit disposal is used where the pits have reached the bottom of the ore body and where the mineral values at lower elevations are not considered economic. The location of any new stockpiles would be identified in the forthcoming application to the DNR for the Permit to Mine Amendment. During and following each phase of mining, reclamation of the overburden slopes and stockpiles will be completed according to DNR mineland reclamation requirements.

Existing haul roads would be used to transport stripping materials to stockpiles and taconite ore from the mine to the crusher wherever possible. As mining advances, modifications to existing roads would be required to develop and maintain access to stockpiles and mine areas. Existing out-of-pit stockpile roads will be extended to maintain elevated access to existing stockpiles. Currently, Minntac does not anticipate requiring additional out-of-pit haul roads; road extensions would be constructed within the mine pits and on existing stockpiles. Existing haul road corridors will continue to be utilized. If determined to be needed, the location of new haul roads would be identified in the forthcoming application to the DNR for the Permit to Mine Amendment.

Dewatering would continue to be used to control runoff and groundwater discharge into the mine and allow operations to continue below pre-mining ground water elevations.

The Minntac tailings basin covers approximately 8,000 acres. When operating at full production capacity, Minntac produces tailings at an annual rate that requires approximately 3 feet of vertical storage volume over 3,000 acres. Mining within the extended reserve will require future storage capacity for approximately 550,000,000 cubic yards of tailings. In 2010, Minntac contracted an engineering firm to provide an estimate of storage capacity within the existing tailings basin footprint, using the upstream dike construction method. The resulting Minntac Tailings Basin Report (AECOM/GEI Consultants, February 7, 2012) evaluated two design options to accommodate the future tailings volume:

- Option 1: Construction using a straight 1 foot vertical to 2 foot horizontal slope will require elevating the inner basin approximately 70 feet higher than current elevation.
- Option 2: Construction using a 40 foot benched, 1 foot vertical to 2 foot horizontal slope design will require elevating the inner basin approximately 90 feet higher than current elevation.

The tailings basin report indicates its conclusions are "preliminary" and recommends further evaluation be completed when more detailed information is known. The report recommendations include the need for additional borings, soundings, testing, and an updated stability analysis to "demonstrate that adequate factors of safety will result." DNR Dam Safety will need to review and approve the proposed raise in the interior dams.

The original permit to mine has a typical dike construction of outside slopes of 3:1 and inside slopes of 2:1, with an ultimate exterior dike elevation of 930 on the east, north and west sides, and interior dike elevations of 936, 972, 982, and 1032 (north to south). The current (2011) exterior dike elevation is ~910 on the east, north, and west sides. Interior dikes range from 895 to 1045.

Design plans for the tailings basin should be submitted to DNR during the permitting process for review by Lands and Minerals (LAM) and Dam Safety. At this time, increases in the heights of the exterior tailings basin dams are not proposed, nor are other changes proposed to exterior dams.

The Minntac tailings basin is currently classified by Dam Safety as a class iii, or "Low Hazard" Dam. This classification may no longer be appropriate and a hazard class review is needed. As part of that review, Minntac or its consultant will need to demonstrate, through completion of a dam breach analysis on the existing and proposed dams, that a failure of an interior dam will not cause a perimeter dam to be overtopped.

New Mine Access Road
A segment of County State Aid Highway 102 (CSAH 102) lies along the southern boundary of the East Pit and provides access to the Minntac Mine facilities (see **Figure 3**). Since the segment of CSAH 102 leading to the current mine entrance will be eliminated due to the mine extension project, a new mine access road is proposed to alleviate traffic flow through downtown Mountain Iron. The new mine access road would extend across the western arm of the Wacootah Pit and east of the Iroquois Pit (**Figure 3**). Final road alignment is pending wetland permitting.

The new mine access road would be constructed as a paved, four-lane roadway within an anticipated 100-foot right-of-way, similar to that roadway within the existing Minntac property. Roadway construction would include clearing of vegetation within the construction limits, road embankment and ditch grading, culvert installation, and paving and striping of the driving surface.

That segment of the mine access road that crosses the Wacootah Pit would be constructed on a land bridge made from available fill material from nearby stockpiles or Minntac waste rock. Depending on the materials used to construct the land bridge, water quality in the Wacootah Pit could be impacted through leaching of chemical constituents. The chemical composition of leachate that might be expected from the materials would vary depending on the type of rock used.

If 3:1 slopes are used for the land bridge, the approximate fill in the pit is 325,000 CY. If angle of repose of fill is used (assuming about 1:1), the approximate fill in the pit is 200,000 CY. Regarding fill material below the water surface, current external engineering recommendations are to fill with mine waste rock or a granular fill material with less than 20% passing the No. 200 sieve. The best material would most likely be mine waste rock. Above the water surface and up to within 3 feet of the top of final road grade, the overburden material from the stockpile just north of the land bridge crossing (in the current Hoover shop area) is planned to be used. The top 3 feet will include the road section of select granular borrow, Class V, and bituminous. As far as source of materials, it is currently under investigation if any rock stockpiles are available for filling below water surface of the Wacootah Pit. Use of taconite coarse tailings for fill is also being considered by the company as a potential option as it meets gradation. Plans for the land bridge construction (including materials to be used) will be provided to DNR Lands and Minerals for review.

County State Aid Highway 102 Relocation– Connected Action
As indicated above, a segment of CSAH 102 lies along the southern boundary of the East Pit. CSAH 102 serves as a connection between Trunk Highway 53 and Trunk Highway 169 through the city of Mountain Iron (see **Figure 3**). The proposed mine extension will eliminate approximately 1.5 miles of CSAH 102, resulting in the need to relocate the road. Relocation of the road is considered a "connected action" to the Minntac Extension project under Minn. R. 4410.1000, Subp.4.

Minn. Statute 160.10 provides a mechanism for the relocation of roads on mineral lands. Based on the statute, St. Louis County and U.S. Steel have negotiated a tentative (yet to be signed) agreement regarding responsibility for the relocation of CSAH 102. As it currently stands, the agreement stipulates that U.S. Steel will be responsible for construction of the road and associated permit submittals. Per Minn. Statute 160.10, the roadway must be constructed to at least the engineering standards of the old roadway. Due to roadway designation and funding, it must be designed to current CSAH standards. To that end, Minntac has coordinated with St. Louis County Public Works and the City of Mountain Iron to identify an alignment for CSAH 102 south of the current alignment as shown on **Figure 3**. This is the preferred alignment for the roadway relocation and will connect CSAH 109 and the existing CSAH 102 (Mineral Avenue) in Mountain Iron. It will reasonably replace the functionality of the existing CSAH 102 and provide local transportation connectivity independent of Trunk Highway 169. Final road alignment is pending wetland permitting.

Although the preferred alignment does not provide full replacement of the function of the existing CSAH 102, the proposed alignment minimizes wetland impact and will not likely be eliminated by future mining activities in the area. Other corridors/alternatives explored for the roadway relocation would likely be mined within the useful service life of the reconstructed roadway and would have resulted in a substantial impact to wetlands between existing CSAH 109 and Trunk Highway 53.

c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the proposed project is to extend the life of the Minntac mine and processing facility.

d. Are future stages of this development including development on any other property planned or likely to happen? ☒ Yes ☐ No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Although no extension beyond the proposed project is currently foreseeable, it is likely that there are additional ore reserves in the adjacent surrounding area that could be mined after mining of the proposed extension area is completed. The potential for additional extension of the mine pit would be subject to the economic feasibility of ore mining. The location and extent of future mining areas could be defined in the future based on the results of exploratory drilling. Any additional mining would be evaluated in accordance with applicable rules and regulations in place at that time, and may be subject to additional environmental review.

e. *Is this project a subsequent stage of an earlier project?* ☒ Yes ☐ No
If yes, briefly describe the past development, timeline and any past environmental review.

The Minnesota Department of Natural Resources published an EAW for the last extension of the West Pit in May 1996. A negative declaration on the need for an Environmental Impact Statement (EIS) was published in June 1996. The area described in the May 1996 EAW has been mined since 1997 and continues to be mined currently. The proposed project would be the second significant amendment of U.S. Steel's Permit to Mine for the Minntac mine.

7. ***Project magnitude data***
Total project acreage 483-acre mine extension
Number of residential units: unattached: N/A *attached:* N/A *maximum units per building* N/A
Commercial, industrial or institutional building area (gross floor space): total square feet N/A

Indicate areas of specific uses (in square feet):
Office: N/A
Retail: N/A
Warehouse: N/A
Light industrial: N/A
Other commercial (specify): N/A
Manufacturing: N/A
Other industrial: N/A
Institutional: N/A
Agricultural: N/A
Building height: N/A *If over 2 stories, compare to heights of nearby buildings*

The mine model and stockpiling plan will include quantification of areas specific to the mine pit, stockpiles and haul roads in the forthcoming application to the DNR for the Permit to Mine Amendment.

8. ***Permits and approvals required.*** *List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Table 8-1. Permits and Approvals Required		
Unit of Government	**Application/Approval**	**Status**
Federal Approvals		
U.S. Army Corps of Engineers		
	Section 404 Permit	Application submitted
State Approvals		
Minnesota Pollution Control Agency		
	Construction Storm Water Permit (Access Road)	To be applied for
	Section 401 Water Quality Certification	Application submitted
Minnesota Department of Natural Resources		
	Permit to Mine Amendment	To be applied for
	Water Appropriations Permit	To be applied for, if necessary
	Public Waters Works Permit	To be applied for
	Wetland Conservation Act	Application submitted
	Natural Heritage Database Search	Complete
	Dam Safety Permit (potentially)	To be applied for, if necessary
State Historic Preservation Office		
	Historic Property and Cultural Resources Review	Requested
Local Government Approvals		
City of Mountain Iron		
	Building Permit (for pass control building on mine access road)	To be applied for

Permits and approvals required for the County State Aid Highway 102 Relocation:

- U. S. Army Corps of Engineers – Section 404 Permit
- Minnesota Pollution Control Agency –Section 401 Water Quality Certification, if U.S. Army Corps of Engineers issues an Individual Permit for Section 404
- Minnesota Pollution Control Agency – Construction Storm Water NPDES Permit
- Minnesota Department of Natural Resources – Public Waters Work Permit
- Board of Water and Soil Resources – Wetland Conservation Act, Minn. Rules 8420 Compliance
- Minnesota Department of Transportation – State Aid Plan and Specification Review and Approval
- Minnesota Department of Transportation – Final Roadway Construction Review and Approval
- St. Louis County Public Works Department – Plan, Specification, Right of Way, and Specification Review and Approval
- St. Louis County Public Works Department – Final Roadway Construction Review and Approval

Minntac plans to submit a separate permit application package as a connected permit action for the relocation of CSAH 102 pending final roadway design.

A concurrence letter, archeological and historical resource reports and a draft Programmatic Agreement were submitted to the State Historic Preservation Office (SHPO) by the U.S. Army Corps of Engineers (USACE) on January 26, 2012 for Minntac's Western Progression, which is currently going through Section 404 permitting with the USACE. After Minntac submits the Section 404 permit application to the USACE for the Extension Project, the USACE will request that SHPO initiate its 30-day review of the Extension Project.

Minntac submitted a request to the DNR Division of Lands and Minerals for additional leases required for the new mine access road. The request is currently under review.

9. ***Land use.*** *Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.*

The project area is located within the Laurentian Mixed Forest Province as identified by the Minnesota Department of Natural Resources (DNR) Ecological Classification System. The site is located within both the Northern Superior Uplands Section, Nashwauk Uplands subsection, and the Northern Minnesota Drift and Lake Plains Section, St. Louis Moraine and Tamarack Lowlands subsections (*Field Guide to the Native Plant Communities of Minnesota: the Laurentian Mixed Forest Province*, DNR, 2003).

Land use in the project area is dominated by the existing Minntac mine operations (see **Figure 4a** and **Figure 4b**). Highway 169 extends east and west approximately 1-½ miles south along the length of the existing East and West mine pits. The municipalities of Kinney, Mountain Iron, and Virginia with the associated residential and commercial development are located south and at the west end, midpoint, and east end of the pits, respectively. Other, more rural, development exists along County Road 708 between Kinney and Mountain Iron. The remainder of the area remains undeveloped, with expanses of wooded habitat with open agricultural areas, wetlands and both natural water bodies and man-made water bodies (*i.e.*, abandoned natural ore mine pits).

Land uses specifically in the areas of the mine extension, new mine access road, and CSAH 102 relocation are discussed below. In addition, sites with potential environmental hazards as identified by the MPCA database "What's in My Neighborhood" are also discussed. If contamination is encountered during proposed project activities, the activities would cease, proper notifications would be made (State Duty Officer), and appropriate response measures would be implemented.

Mine Extension
Land use within the proposed mine extension area consists of similar undeveloped land with land cover dominated by wooded habitat with some areas of old field, wetlands, and other openings. (See EAW Question #11 for description of wildlife habitat and Question #12 for a description of wetlands and other water resources within the mine extension area.) No residential or other development exists within the extension area. The easternmost portion of the extension area includes a 74-acre area south of CSAH 102 and on either side of Nichols Avenue that was formerly a portion of a residential development known as the Parkville Addition of the City of Mountain Iron (**Figure 4b**). The northern portion of that development was vacated through purchase of residential properties by U. S. Steel to provide a buffer from encroaching mining activities. The remainder of the Parkville Addition still exists south of the mine. The extension of mining southward does not result in a requirement that additional properties be purchased. However, as mining activity advances southward, U.S. Steel may decide to purchase and vacate additional properties to provide flexibility for a desired buffer.

Land use within the proposed mine extension area also includes all or portions of three abandoned natural ore mine pits that are currently isolated shallow or deep water filled pits. These include the Atkins Mine in the West Pit extension, and the Hanna and Pilot Mines in the East Pit extension. Overburden stockpiles associated with these abandoned pits are also present, many of which have become vegetated. These stockpiles would be removed and relocated to Minntac's permitted out-of-pit or in-pit stockpiles as part of the extension for both the East and West Pits. Portions of the extension area have been crossed with haul roads, or contain public roadways.

MPCA's "What's in My Neighborhood" website mapping tool identifies an old Amoco service station tank and leak site within the East Pit extension area. However, the mapped location for the old Amoco station appears to be incorrect. The point coordinates are incorrectly derived from the Amoco station address. The address listed is 216-218 Main Street in Aurora, MN. The location near the East Pit extension is on 2nd Street and is residential with no history of previously existing service stations.

The Atkins Mine in the West Pit extension area is identified by the MPCA database as an inactive CERCLIS/Superfund site. According to information on the EPA Superfund website, discovery occurred in 1981 and a preliminary assessment was completed in 1984. In 1990, another preliminary inspection is indicated to

have been completed. The site did not meet the criteria for inclusion on the National Priorities List (NPL) and it was archived in 1990. No additional information was provided and the site is listed as inactive, indicating there are no active investigation and cleanup activities ongoing at the site.

Other areas of historic contamination, crude oil, or gas pipelines are not known to be present within the mine extension area.

New Mine Access Road
Land use along the proposed new mine access roadway alignment is primarily undeveloped, dominated by forest, wetland, abandoned natural ore mine pits and mine dumps. The new mine access road will bisect the existing Hoover construction site. Hoover Construction has a surface lease with the State of Minnesota and Minntac has the mineral lease with the State of Minnesota. Hoover Construction has received notice from the State that future road development is planned and will require Hoover to vacate the premises. The new access road construction will not disturb the old cemetery located west of the Wacootah pit.

The Inland Steel – Iroquois Mine Site is identified by the MPCA database as an inactive CERCLIS/Superfund site near the alignment for the new mine access road. According to information on the EPA Superfund website, discovery occurred in 1981 and a preliminary assessment was completed in 1985. In 1988, a site inspection was conducted at the site. The site did not meet the criteria for inclusion on the National Priorities List (NPL) and it was archived in 1988. No additional information was provided and the site is listed as inactive, indicating there are no active investigation and cleanup activities ongoing at the site.

County State Aid Highway 102 Relocation – Connected Action
Land use along the proposed roadway alignment is primarily undeveloped, dominated by forest, wetland, abandoned natural ore mine pits and mine dumps. MPCA's "What's in My Neighborhood" website tool identifies three dump sites within the area proposed for relocation of CSAH 102. The northeast quadrant of the proposed intersection of the CSAH 102 relocation at the existing road alignment is the site of the former Mountain Iron dump site, shown on **Figure 4**. This site was previously owned by United States Steel Corporation but was sold to the City of Mountain Iron in 2006. It has been the subject of at least two Phase I Environmental Site Assessments (STS Consultants, 2000 and Wenck, 2001). The Mountain Iron dumpsite was operated by the City of Mountain Iron from 1959 to 1981. The site is currently gravel-surfaced and used by the City of Mountain Iron Public Works Department for utility equipment and aggregate storage. The site is approximately four acres in size, approximately 20 feet above former grade, and is estimated to contain approximately 27,000 cubic yards of materials. No further information about the contents of the dump site is available; however, it is under consideration by the City of Mountain Iron for reuse as a portion of an industrial park development.

The other two dump sites identified in the database are the Parkville Dump and the Park Ridge Road Landfill, both mapped close together at the eastern end of the proposed alignment. This area is reported to have been re-developed between 2006 and 2009; Rock Ridge Drive and associated building developments now exist in the area. The database indicates the Parkville Dump is classified as an unpermitted dump. "Unpermitted dumps" are usually old farm or municipal disposal sites that accepted household waste. Many of these dumps predate the existence of the MPCA. Additional information is not provided for the Parkville Dump.

The City of Mountain Iron entered the Park Ridge Road Landfill into the Voluntary Investigation and Cleanup (VIC) program March 30, 2009. A work plan was approved by the MPCA February 1, 2011. A Phase II investigation was completed in June of 2011. Two Phase II approval letters have been issued by the MPCA, one in January of 2012 and one in May of 2012. Information from MPCA staff indicates the approximate extent of the dump has been determined and lead contamination has been documented in the soil. Contamination in ground water is unknown; depth to ground water is at least 70 feet below grade. Remediation of the site has not begun. City of Mountain Iron representatives have been notified by the MPCA that the anticipated CSAH 102 alignment (and potential right of way acquisitions) may disturb a portion of the dump property; St. Louis County has also been notified. MPCA recommended that a construction contingency plan be submitted for MPCA review and approval prior to the planned roadwork activities.

The CSAH 102 relocation corridor will avoid historical dump sites to the extent possible. Given the proximity of the latter two dump sites to the eastern end of the proposed CSAH 102 relocation corridor and the MPCA

recommendation, it is anticipated that a contingency plan will be in place to address the potential encounter with contaminated soil during construction.

10. ***Cover types.*** *Estimate the acreage of the site with each of the following cover types before and after development: If* ***Before*** *and* ***After*** *totals are not equal, explain why:*

The following tables provide estimates of cover types in the mine extension area, the proposed new access roadway corridor, and the proposed corridor for the County State Aid Highway 102 relocation (a connected action) as depicted on **Figure 3**.

Table 10-1. Cover Types in Mine Extension Area

	Before		After		Before		After
Types 1-8 wetlands	65.8		0	Lawn/landscaping	0		0
Wooded/forest[1]	227.0		0	Impervious surfaces[2]	94.4		0
Brush/grassland	76.3		0	Open Water	19.7		0
Cropland	0		0	Mining Areas[3]	0		483.2
				Mine Extension Area Subtotal	**483.2**		**483.2**

[1] Includes some inactive stockpiles that have been revegetated and are currently wooded.
[2] "Before" category includes roadways, haul roads, inactive mine pits, stockpiles, and Mesabi Bike Trail.
[3] Areas of inactive mine pits, stockpiles, and haul roads have been included as impervious surfaces.

Table 10-2. Cover Types in Mine Access Road Corridor[1]

	Before		After		Before		After
Types 1-8 wetlands	0.9		0	Lawn/landscaping[2]	0		15.3
Wooded/forest	9.9		0	Impervious surfaces[3]	7.4		11.3
Brush/grassland	6.5		0	Open Water	1.9		0
Cropland	0		0	Mined Areas[4]	0		0
				Mine Access Road Corridor Subtotal	**26.6**		**26.6**

[1] Calculations assume a 200-foot Mine Access Road Corridor. Actual impacts to native land covers will be reduced during the Mine Access Road planning and design process.
[2] This includes the area of revegetated sideslopes along the roadway after completion of the project.
[3] Assumes a 78-foot paved surface (4-lanes) along the entire 1.1 mile corridor length and that existing highly compacted areas within the 200-foot wide corridor remain impervious. In reality, a portion of the road will have a pavement width of 48 feet.
[4] Areas of inactive mine pits, stockpiles, and haul roads have been included as impervious surfaces.

Table 10-3. Cover Types in County State Aid Highway 102 Corridor[1]							
	Before		**After**		**Before**		**After**
Types 1-8 wetlands	2.0		0	Lawn/landscaping[2]	7.0		27.8
Wooded/forest	11.9		0	Impervious surfaces[3]	10.3		14.6
Brush/grassland	11.2		0	Open Water	0		0
Cropland	0		0	Mined Areas[4]	0		0
County State Aid Highway 102 Corridor Subtotal					**42.4**		**42.4**

[1] Calculations assume a 200-foot CSAH 102 Corridor. Actual impacts to native land covers will be reduced during the CSAH 102 planning and design process.
[2] This includes the area of revegetated sideslopes along the roadway after completion of the project.
[3] Assumes a 56-foot maximum paved surface along the entire 1.7 mile corridor length and that existing highly compacted areas within the 200-foot wide corridor remain impervious. In reality, some sections of the road will have pavement widths of 37 feet and 32 feet.
[4] Areas of inactive mine pits, stockpiles, and haul roads have been included as impervious surfaces.

11. ***Fish, wildlife and ecologically sensitive resources***
a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

Mine Extension Area
Wildlife habitat in the project area includes a mixture of wetlands and uplands. Wooded habitat predominates with 227.0 acres of the total 483-acre extension being upland wooded habitat. The wetlands are also dominated by wooded habitat, with 39.4 acres out of the 66.2 wetland acres classified as hardwood swamps, typically black ash swamps. In total, the wooded portion covers more than 55% of the extension area, most of which is second-growth forest composed of aspen and birch. Grassland areas are also common, but are mostly areas that were previously landscaped yards, but are no longer maintained, or areas that have recently been cleared of trees. The grassland habitat is typically old field and pioneer species, not native grassland or prairie. Much of the habitat is fragmented by existing haul roads, CSAH 102, and older mine features, such as the inactive Pilot, Hanna, and Atkins Pits. Wildlife typically associated with this habitat includes white-tailed deer, black bear, ruffed grouse, small mammals, and migratory songbirds.

The project area is adjacent to the active Minntac Mine. Typical mining activities conducted include operation of excavators, mining trucks, and weekly blasting of material. Wildlife species accustomed to human disturbances and activities such as that in the adjacent mine area may use the existing habitat within the extension area. However, though habitat within the extension area may be present for these faunal species, their abundance and frequency may be limited due to habitat fragmentation and the type of adjacent human activities within the active mine.

The Proposed Action would result in the conversion of 483.2 acres of land to open mine, of which includes 369.1 acres of vegetated land (**Table 10-1**). The remaining 94.4 acres of impervious surfaces and 19.7 acres of open water will also be converted to open mine. Wildlife species using the habitat in the 483-acre extension area would be displaced as mining advances.

Two recent studies assessed cumulative effects to wildlife habitat and wildlife travel corridors in the region. The first was a report prepared for the DNR, *"Cumulative effects analysis on wildlife habitat loss/fragmentation and wildlife travel corridor obstruction/landscape barriers in the Mesabi Iron Range and Arrowhead Regions of Minnesota"* (Emmons & Olivier Resources, Inc., 2006), which identified north-south wildlife travel corridors between the mining operations along the length of the Mesabi Iron Range. That study did not identify any wildlife travel corridors near the Minntac Mine. The second study was completed for the U. S. Steel - Keetac expansion project, *"Cumulative effect Analysis of Wildlife Habitat and Threatened and Endangered Wildlife Species"* (Barr Engineering, 2009). This study identified wildlife corridors throughout the Iron Range, including a

large corridor to the west of Minntac's West Pit. As the mine proposes to extend to the south, there should be no effect on the wildlife corridor present to the west of the Minntac Mine West Pit. This is consistent with the findings of the more recent report completed for the Keetac expansion project (Barr Engineer, 2009), which states "Minntac's plan to expand their open pit mining southward will not affect the quality of these mini-corridors."

Several perennial and intermittent stream segments exist within the mine extension area (**Figure 6**). The West Pit extension area includes an unnamed tributary to Kinney Lake (referenced as Kinney Creek) and an unnamed headwater tributary of the West Two River, which flows into the West Two River Reservoir. These streams flow into either Kinney Lake or the West Two River Reservoir, and may support seasonal fish populations, particularly during spring spawning periods. The East Pit extension would reduce the length of Parkville Creek, and a short section on an unnamed stream. Parkville Creek flows into the West Two River Reservoir, and is a major tributary.

The West Two Rivers Reservoir fishery is managed primarily for northern pike and black crappie (DNR Lake Management Plan, revised in 2005). Tributary streams and adjacent flooded wetlands are critical spawning habitat for northern pike in the spring. Groundwater level changes, loss of wetlands, loss of headwater stream portions, and alteration of sediment transport contribute to hydrological and habitat change in tributaries such as the West Two Rivers and Parkville Creek. Decreased flow in the spring in particular can negatively impact northern pike spawning success. Changes in sediment transport, from either increased or decreased flow, can alter the geomorphology and stream habitat. Increased sedimentation usually results in a decrease in quality fish habitat.

Biological monitoring data obtained from the MPCA's environmental database includes data for tributaries of Manganika and Mashkenode Lakes (which flow into the East Two River), the East Two River below Manganika Lake, the East Two River, and stations on the West Two River above and below the West Two River Reservoir. Fisheries data from these stations indicate that the small streams within the mine extension area could contain brook stickleback, central mudminnow, creek chub, mottled sculpin, fathead minnows, golden shiner, Iowa darter, northern redbelly dace, tadpole madtom, white sucker, and yellow perch. The larger systems of the East and West Two Rivers had similar assemblages, but also included sunfish, northern pike, black bullhead, black crappie, and shorthead redhorse. Based on the small and intermittent nature of the impacted streams, it is anticipated that the fish assemblage would contain few species, and be dominated by minnows (Cyprinids).

Loss of habitat in the tributaries can impact the resident fish but also can negatively impact downstream fisheries. Northern pike and white sucker populations may be impacted as they likely move between the West Two Rivers Reservoir and the tributaries, particularly for spawning. Fish movement, i.e. immigration into the reservoir, is prevented by the reservoir dam so the upstream habitat is especially important for maintaining the population of these two species and others.

Macroinvertebrate data for the tributary to Manganika Lake, a tributary to the West Two River, and the East Two River show a diverse assemblage of macroinvertebrates, including many mayflies, stoneflies, and caddisflies, and a high Index of Biotic Integrity (IBI) scores (87 for unnamed tributary of West Two River, and 62 for the East Two River, out of a maximum score of 100). The tributary to Manganika Lake is a smaller stream, and is more like the streams within the extension areas of the East and West Pits. The macroinvertebrate assemblage in this tributary is dominated by midge larvae (95.3 percent of sample), and has an IBI score of 6.7. The impacted streams have physical characteristics more similar to the tributary to Manganika Lake, and would be expected to have typical macroinvertebrate assemblages for small northern Minnesota streams.

Stream habitat impacts will occur due to excavation of the extension area for mining activities. Avoidance is not feasible because of the location of the ore. In addition to the direct loss of stream habitat, impacts to downstream water bodies (including downstream public waters) will also occur as the natural hydrology of the area is changed. See Item 12 for detailed discussion of stream loss and loss of contributing watershed area.

While mine pit dewatering discharge will replace some of the natural flow that is lost, downstream water bodies may also be impacted by the "cone of depression" that results from pumping, particularly groundwater-fed streams and water bodies. All of these changes could impact fisheries in the streams to be removed as well as in downstream waters. Monitoring could be incorporated into the project to track and then respond to downstream

changes due to mining activities. Flow monitoring and/or geomorphology surveys downstream of the mine site prior to the extension could allow changes to be detected. The MPCA is requiring monitoring for potential secondary impacts on the West Two River due to Minntac's West Pit Progression Project. Information will be collected regarding stream flow and water chemistry. A similar process could be implemented for Minntac's proposed Extension Project.

As part of the required mitigation for post 1996 impacts to the Kinney Creek, an aquatic enhancement "littoral zone" in-pit stockpiling plan was developed in accordance with conceptual plans developed by the DNR's former Division of Waters (see Minntac_Inpit_Stockpile_Scenarios_DNR_3-25-10.pdf). The project area is on mined-out State lands located on the west end of the West Pit. Approximately 13.2 million long tons of waste material will be stockpiled across a length of 4,500 feet to an elevation ranging from 840 to 1010 feet (referenced to a Lake Superior datum elevation of 602). The aquatic enhancement zone is designed to accommodate a range of final pit water runout elevations between 848 and 888 feet (referenced to a Lake Superior datum elevation of 602). The current Minntac design assumes CR 25 is left in place. Details of the proposed plan were presented by Minntac and the current concept was approved by the DNR Division of Lands and Minerals and former Division of Waters in a meeting held on February 10, 2011. Electronic files for the aquatic enhancement plan were also submitted. A discussion of the plan and any updates to it are to be included each year in the Annual Operating Plan submitted to the DNR for its review.

Extension of the mine pits could result in an overall incremental increase in dewatering rates as the surface area of the mine increases, thereby increasing surface water flow in receiving surface water systems (*e.g.*, Parkville Creek, Kinney Creek). However, the incremental flow increases would be lost within the normal fluctuation in discharge as pumping rates are varied to match local meteorological events and runoff. Current limits within Minntac's water appropriation and NPDES discharge permits allow substantially more mine dewatering discharge than what is pumped on an average basis to provide for unusually large precipitation events. Any increases are expected to be within the volumes allowed by the DNR water appropriations permits and the discharge rates described by the NPDES/SDS permit for Minntac's Mining Area. Increased dewatering rates are not expected to be sufficient to alter in-stream habitat or the composition of a small stream fishery that may be present.

The current average rate of discharge for all dewatering installations in the East and West Mine Pits is 20.5 MGD (14,236 gpm), based on pumping records over the period January 2010 – December 2011. A review of pumping records over the period January 2001 – December 2011 showed that dewatering discharge rates have varied from a minimum of 7.5 MGD (5,200 gpm) to a maximum of 30 MGD (20,830 gpm) for all dewatering installations combined. The area subject to surface water runoff and groundwater inflow is estimated to increase by approximately 5% at the limit of the proposed extension. Therefore, there is a potential for increasing dewatering discharges by up to 5%.

The mine extension area contains all or portions of three abandoned natural ore mine pits that are currently deep, open water areas (see EAW Item 12, **Table 12-1**). Like most abandoned natural ore mines, the landscape surrounding the pits is composed of steep sided walls, and little transitional area. There is also little or no riparian fringe, and generally a lack of aquatic or hydrophytic vegetation. Hydrology is supported by groundwater, but could also be influenced by dewatering activities within the active mine area. Most mine pits are composed of deep, cold water, and are usually nutrient poor and have low productivity. Because of these characteristics, isolation, and lack of public access, the open water natural ore mine pits within the extension are not managed for fisheries.

The Statewide Wildlife Action Plan identifies several key habitats in the Tamarack Lowlands Ecological Subsection, a portion of which overlaps the East Pit Mine Extension. Specifically, Forest-Upland Coniferous (red-white pine), Forest-Lowland Coniferous, Wetland-Nonforest, and River-Headwater to Large habitats are listed as Key Habitats under the Plan. Minnesota Land Cover Classification System (MLCCS) data were reviewed for the mine extension area and the majority of the upland land cover consisted of Artificial surfaces with non-native long grasses and northern boreal hardwood-conifer forest, neither of which are key habitats. There are 11.82 acres of non-forested wetland within the East Pit Extension Area. Of this, the majority are previously disturbed forested wetlands that are now non-forested as a result of clearing for logging or road and utility rights-of-way. Alder thickets also exist, but this habitat is not one that is specifically listed in the Plan's

native plant community key habitat types. A 4.46 acre cattail marsh adjacent to Parkville Creek, a non-forested wetland, could potentially be considered key habitat.

New Mine Access Road
Wildlife habitat and use along the proposed roadway corridor is similar to that in the mine extension area. The proposed new mine access road would not include any stream crossings, but would include construction of a land bridge across the Wacootah Pit. The Wacootah Pit has no public boating access and is not a managed fishery. Consequently, no effects to managed fisheries in the deep, open water areas of the abandoned natural ore pits within the project area would be anticipated. However, although not managed for fisheries, fish may be present in the ore pits and may be impacted by the proposed project.

County State Aid Highway 102 Relocation – Connected Action
The proposed relocation of CSAH 102 would cross Parkville Creek approximately midway along the alignment between CSAH 109 and existing CSAH 102. The roadway crossing would accommodate the stream with a culvert or other appropriate conveyance.

The existing culvert is a four foot diameter concrete culvert, 62 feet in length. Though Parkville Creek still receives some flow from its remaining watershed, flow through the culvert is primarily from mine dewatering discharge equivalent to the volume discharged from the Prindle Sump through permitted outfall SD004. Minntac reports that over the past 10 years, the flow has varied from 0-8.2 MGD (5,694 gpm), with an average flow equal to 3.6 MGD (2,530 gpm). It appears the existing culvert placement may be at an elevation that is higher than ideal – water must rise two to three feet before it will flow through the culvert. DNR would not recommend the culvert be replaced at the same elevation. Typically culverts of this size would be buried 1 to 1.5 feet. DNR recommends that the new culvert be designed and placed following St. Louis County Public Works General Permit 1996-2091 conditions for proper sizing and placement. As is currently planned, the culvert should accommodate wildlife passage beneath the road surface.

U.S. Steel will work with the DNR, USACE, and MPCA regarding the design and placement of the culvert in a manner that minimizes impacts to the stream and the fish and wildlife it supports.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources on or near the site? ☒ Yes ☐ No
If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-___) *and/or Division of Ecological Resources contact number* (ERDB 20090306) *from which the data were obtained and attach the response letter from the DNR Division of Ecological Resources. Indicate if any additional survey work has been conducted within the site and describe the results.*

The project area is within the distributional ranges of Canada lynx (*Lynx canadensis* – federal status, Threatened; state status, unlisted), the gray wolf (*Canis lupus* – federal status, Threatened; state status, Special Concern), and the breeding range of the bald eagle (*Haliaeetus leucocephalus* – federal status, delisted Threatened; state status, Special Concern).

Canada Lynx
The project area lies outside of the current boundaries designated as critical habitat for Canada lynx. The results of a recent study did not identify any lynx or lynx sign, although lynx have been seen in the area in the past (AECOM, July 2011). The March 2011 survey included observation of snowshoe hare, ruffed grouse, and white-tailed deer. These are prey of lynx, suggesting that when prey densities are adequate, lynx occurrence is possible, if not probable, in the vicinity.

The proposed mine extension would remove 483 acres of land area, of which approximately 227 acres is forested upland and could have potential as lynx habitat. The remainder of the area that would be affected by the mine extension consists of wetlands or previously-impacted lands generally unsuitable for lynx. This represents a small fraction of the territory size (28 and 58 mi^2 for a female and male, respectively) of a resident lynx pair (should resident individuals even be present).

Based on preliminary survey, the proposed mine extension could affect lynx found in the vicinity of the project site, but would not adversely affect lynx populations or their critical habitat. Lynx likely do not reside in the project area. However, lynx could travel through the area and it is reasonably foreseeable that project activities could impact movements through the area or cause accidental mortality. Proposed conservation measures, including reclamation, would eventually restore lynx and other wildlife habitat to the site.

Gray Wolf

The proposed mine extension is within the designated critical habitat for the gray wolf and it is likely that wolves exist in the region. The Minnesota DNR's study of wolf distribution and abundance shows that the total wolf range has increased since 1988, the latest wolf surveys indicate that the broad distribution of wolves in Minnesota has not changed since the mid to late 1990s and that wolf distribution in Minnesota is now static (Erb, 2008). It is not likely that wolves frequent the area immediately south of the Minntac mine due to the residential nature of the area and the nearby mining activities.

Wolves are not habitat specialists; rather, they can live anywhere prey is sufficiently abundant because they can kill the largest of ungulates, such as white-tailed deer (*Odocoileus virginianus*) and moose (*Alces alces*), and supplement their diet with a variety of smaller animals, such as snowshoe hare (*Lepus americanus*) and beaver (*Castor canadensis*). Good wolf habitat includes areas where ungulate prey is abundant, where human related sources of mortality are low, and in areas that are sufficiently large and connected to maintain existing populations and ensure the continued exchange of dispersing unrelated wolves. Vegetation cover is important only as it relates to these other factors because wolves are habitat generalists (DNR, 2001).

The proposed project would result in removal of suitable habitat for the gray wolf and its prey. However, loss of habitat and prey habitat will more likely result in reduction of pack range and not necessarily loss of individuals. Erb's 2008 survey calculated average territory size for radio-marked packs to be approximately 104 km^2 (25,699 acres). The proposed mine extension would remove 483 acres of land area, of which approximately 227 acres is forested upland and could have potential as wolf habitat. The proposed mine extension as a whole represents less than two percent of an average pack range and the forested portion of the extension represents less than one percent of an average wolf territory. Therefore, loss of habitat is not expected to adversely affect the gray wolf. Further, accidental mortality is not believed to significantly affect wolf population dynamics in Minnesota and the DNR's 2001 Wolf Management Plan deems efforts to reduce accidental mortality unnecessary (DNR, 2001).

Bald Eagle

The bald eagle population has experienced similar success as the gray wolf and recent surveys show that more recent growth has resulted in expansion of range as opposed to increases in nests leading to the conclusion that available habitat, particularly in the northern (forested) portions of Minnesota, has reached capacity, (Baker, Galli, and Nelson, 2000).The bald eagle was removed from the federal threatened species list, but remains federally protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

No known bald eagle nests are located within one mile of the proposed mine extension limits. Further, recent research has shown eagles to be tolerant of human presence, so the proposed project would not adversely affect nests should they exist in adjacent areas (DNR, 2005). Therefore the proposed project is not likely to adversely affect bald eagles.

State-listed Plant Species

Several state-listed botanical species (particularly *Botrychium* spp.) have been found in northern Minnesota in association with historic mine stockpiles. A review of the DNR Natural Heritage Information System (NHIS) database identified three species of *Botrychium* and one colonial waterbird nesting area within one mile of the proposed mine extension limits (see **Table 11-1**). None of these species are federally-listed.

Table 11-1. Minnesota Rare Species/Ecological Features within 1-Mile Radius of Proposed Mine Extension

Common Name	Scientific Name	Resource Type	Minnesota Protection Status
Michigan grapefern	*Botrychium michiganense*	Plant	Non-status
Pale moonwort	*Botrychium pallidum*	Plant	State-listed Endangered
Least moonwort	*Botrychium simplex*	Plant	State-listed Special Concern
Colonial Waterbird Nesting Area	N/A	Ecological feature	N/A

Notes:
A species is considered endangered in Minnesota if the species is threatened with extinction throughout all or a significant portion of its range within Minnesota for species listed under the Minnesota Endangered Species Statute.
A species is considered threatened in Minnesota if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota for species listed under the Minnesota Endangered Species Statute.
A species is considered a species of special concern in Minnesota if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations; for species listed under the Minnesota Endangered Species Statute.
N/A or Not Applicable is assigned to ecological features that do not have scientific names or have state or federal protection status.
Non-status implies that the species does not have any state protection status, but the species and/or its habitat are tracked by the DNR, and/or the species could be a candidate for state listing in the future.

Because suitable habitat for *Botrychium* spp. is present within the mine extension area, a botanical survey for these rare plant species was conducted in 2011, which covered the proposed extension, CSAH 102 relocation, and mine access road (Barr, 2011). The field survey did not identify any *Botrychium* spp. in the project area. Minntac is coordinating the reporting of these survey results to the Minnesota DNR Division of Ecological and Water Resources for their records and concurrence on the findings. The proposed project would avoid impact to the colonial waterbird nesting area.

New Mine Access Road
The new mine access road would affect similar habitat as the proposed mine extension, but would not adversely impact lynx, wolves, bald eagles, or *Botrychium* spp. for the same reasons stated above regarding the proposed mine extension.

County State Aid Highway 102 Relocation – Connected Action
The proposed relocation of CSAH 102 would affect similar habitat as the proposed mine extension, but would not adversely impact lynx, wolves, bald eagles, or *Botrychium* spp. for the same reasons stated regarding the proposed mine extension.

12. ***Physical impacts on water resources.*** *Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch?* ☒ Yes ☐ No
If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI: Describe alternatives considered and proposed mitigation measures to minimize impacts.

The Minntac Mine is located along the Laurentian Divide, and lies along two major watersheds. The East Pit, West Pit and the new mine access road are located within the St. Louis River watershed, which drains to Lake Superior. The tailings basin is located within the Little Fork River watershed (major watershed No. 76), which drains north to the Rainy River. The area immediately northeast of the mine and tailings basin is within the Vermilion River watershed, which is also part of the Rainy River drainage, but is a separate major watershed (No. 73).

The proposed project is located within the St. Louis River watershed, with the active mining operations located within the Mountain Iron Mine minor watershed (HUC 040102010501). The East Pit Extension, the mine access and the CSAH 102 relocation are also located within this minor watershed. The West Pit Extension is located within the Kinney Lake (HUC 040102010503) and West Two River (HUC 040102010502) minor watersheds. These watersheds flow away from the existing mine, and into the St. Louis River approximately 15 miles south of the Minntac Mine.

The 2010 Impaired Waters List was reviewed for impaired waters in and downstream of the project area. The only receiving water downstream of the proposed mine extension that has been listed as impaired, other than the St. Louis River, is the West Two River Reservoir. The West Two River Reservoir was listed as impaired for fish tissue mercury in 1998 and is shown in the 2006 Impaired Waters List, but is not listed in the 2008 or 2010 Impaired Waters lists. The only discharges from the proposed mine extension that enter the West Two River Reservoir are associated with SD004 (Prindle Sump discharges). Mercury discharges from SD004 have been monitored on a quarterly basis over the past several years, as per requirements of NPDES/SDS Permit MN0052493. Mercury concentrations in the SD004 discharges are typically just over the 0.5 ng/L detection limit for low-level mercury analysis by EPA Method 1631. As such, mercury inputs to the West Two River Reservoir are considered minimal.

Several water resources are located within the proposed project limits. These include portions of five streams, and natural and former mine pit lakes including the Atkins Pit and Kinney and Yates Lakes (see **Figure 6**). The streams have been mapped by the DNR through the Public Waters Inventory (PWI) or the state stream database (24k stream coverage, available as a GIS shapefile through the DNR Data Deli).

The mine extension area contains all or portions of three abandoned natural ore mine pits that are currently deep, open water areas. These open water areas were not delineated as wetlands, as they exceed the depth to be considered wetland, which is typically a depth of 6.5 feet or less. The three deep, open water natural ore mine pits within the mine extension are summarized in **Table 12-1**. The total area of open water in these three natural ore mine pits is estimated to be 19.7 acres within the extension area. In addition, the proposed mine entrance road relocation will require the crossing of a portion of the Wacootah Pit. The area within the Wacootah Pit that would be affected by the mine access road includes approximately 1.9 acres, including the 200-foot corridor that would encompass the road and right-of-way.

Table 12-1. Summary of Deep, Open Water Natural Ore Mine Pits in the Proposed Extension Area

Pit Name	Approximate Area (acres)
Pilot Mine	9.3
Hanna Mine	2.90
Atkins Mine	7.5
Total	**19.7**

No public waters or waterways exist within the extension area. Public waters and watercourses in the vicinity of the project include: Yates Lake (69-780), Kinney Lake (69-781), Kinney Creek, West Two River Reservoir (69-994), Parkville Creek, McQuade Creek and unnamed waters. Non-public waters such as drainage ditches and multiple mine pits are also present in the vicinity and/or the extension area. The relocation of CSAH 102 will require the crossing of Parkville Creek, which is a public watercourse in the area of the crossing. McQuade Creek is also a public watercourse located near the West Pit Extension. Although McQuade Creek is not planned to be directly impacted by the Extension, it is located within 300 feet of the project limits. **Figure 6** depicts the locations of these resources.

Wetland delineations of the project area were completed by Northeast Technical Services, Inc. (NTS) between June 26 and September 9, 2008 to identify jurisdictional wetland habitat within the existing permit to mine limits, the proposed extension limits, and into the adjacent areas not proposed for mining as part of the extension. One small area on the south side of the East Pit was re-delineated during the 2011 growing season (NTS, 2011). Within the proposed extension area, the wetland delineation identified 85 wetlands comprising 65.8 acres of habitat. The delineation has been approved by the USACE and DNR, along with the Minnesota Wetland Conservation Act (WCA) Technical Evaluation Panel (TEP) members from St. Louis County and the

Board of Water and Soil Resources. Many of the wetlands extend beyond the proposed mine extension limits, but only the areas within the extension have been quantified. The type, number, and size of the wetlands within the proposed mine extension are summarized in **Table 12-2**.

Table 12-2. Summary of Wetland Habitat in the Proposed Extension Area

Circular 39 Classification	Eggers and Reed Classification	Number of Basins	Area (acres)
Type 2	Fresh (Wet) Meadow	9	1.4
Type 3	Shallow Marsh	4	5.0
Type 6	Shrub-Carr	37	19.9
Type 7	Hardwood Swamp	35	39.4
	Total	**85**	**65.8**

Mine Extension Area

The proposed mine extension south of the East Pit would necessitate the relocation of the outfall for the Prindle Sump. However, water from the Prindle Sump would ultimately flow to Parkville Creek, as under current conditions, and no changes are proposed to the permitted flow rate through the outfall SD004. Project impacts to other water bodies due to dewatering and other flow changes are discussed in response to EAW Question 17 and Question 18.

Wetland Loss

All of the 65.8 acres of delineated wetland habitat would be directly impacted by the proposed mine extension. However, one of the wetlands in the extension area was previously permitted in association with ongoing mining activities. U. S. Steel received permit 2007-01868-TWP from the USACE for the impact of 20.78 acres of wetlands on April 20, 2009, 5.1 acres of Type 6 (shrub-carr) habitat that are included in the permitted wetlands are located within the Extension area. Therefore, the total area of direct wetland impact that would require permit approval for the extension is 60.7 acres.

In addition to direct impacts of pit development, there is the potential that mine pit dewatering could indirectly impact wetlands as the cone of depression from mine dewatering extends further to the south and lowers groundwater levels. However, wetlands delineated near the proposed pit extension areas may not be directly connected to groundwater and may be supported primarily by precipitation and surface water run-off. Several wetlands span both the proposed extension area and the area not proposed for mining. While some of these basins are large complexes, and have a large immediate watershed, there are portions of eight wetlands that would be small remnants when the majority of the wetland is removed by mining. These basins would be predicted to be indirectly lost, and are quantified as a potential impact. These eight basins have a total area of 5.4 acres, and are identified in **Figure 7**. Indirect impacts associated with the Extension will be addressed by the USACE Section 404 Wetlands Permit for the project. If it is determined that wetlands adjacent to the Extension area are being detrimentally impacted by the activity, U.S. Steel – Minntac shall provide corrective measures and/or compensatory mitigation as determined by the Minnesota DNR and/or USACE at that time. No studies of the indirect wetland impacts from the current mine have been completed.

Impacts to wetlands would require a permit from the USACE under Section 404 of the Clean Water Act and from the DNR under the requirements of the Wetland Conservation Act (WCA). The Section 404 Clean Water Act permit would also include Section 401 Clean Water Act Water Quality Certification, which is authorized by the MPCA. Both the state and federal wetland permits would require mitigation for direct and indirect loss of wetland habitat. According to the WCA, in order to qualify for a 1:1 compensatory mitigation ratio, the wetland replacement must meet one of the two following criteria: replacement must consist of the withdrawal of available credits from an approved wetland bank site within the same bank service area as the impacted wetland (8420.0522 Subp.4 A. (1)), or be within the same major watershed or county as the impacted wetland, a majority of which is in-kind (8420.0522 Subp.4 A. (2)). Using the Palisade replacement site in Aitkin County, these criteria are not met; thus the project is subject to a 1.5:1 replacement under WCA. Under this rule, a minimum of 98.7 acres of wetland mitigation credit (to achieve 1.5:1 replacement) would be required to compensate for direct wetland impacts. An additional area of 5.4 acres is anticipated to be needed as compensation for indirect wetland impacts per USACE requirements, but this value must be further defined during permitting. Under USACE requirements, the project is subject to 1:1 replacement.

As described above, mitigation for wetland loss would be provided through use of the new U.S. Steel project-specific wetland replacement site that is currently being established as of spring 2011 in Aitkin County, Minnesota. Creation of this Aitkin County project-specific replacement site (the Palisade site) will be in advance and/or concurrent with the mine extension project. The Aitkin County Palisade site contains approximately 4,400 acres of farmed and/or drained wetland that would, once it is approved, qualify for wetland restoration to achieve the required compensatory mitigation for the mine extension project, and future projects at U.S. Steel's Minnesota Ore Operations facilities. As of July 2012, USACE review of the Palisade site is in progress and no wetland credits have been released for use to date.

Watershed and Stream Loss

Stream impacts will occur due to excavation of the extension area for mining activities. Avoidance is not feasible because of the location of the ore. In order to better understand the effects of mining on streams in the project area, DNR requested U.S. Steel to quantify previous and proposed impacts to streams and their contributing watershed areas. According to a memorandum prepared for U.S. Steel by Liesch Associates, Inc., July 3, 2012 (see **Attachment A**), past mining activities have previously removed 17,983 linear feet (3.4 miles) of stream within the West Pit, and 25,811 linear feet (4.9 miles) within the East Pit, based on the publically-available DNR 24k stream coverage (1:24,000 scale). The proposed Extension Project would remove an additional 4,002 linear feet within the East Pit. East Pit stream impacts from the Extension Project will be to Parkville Creek and its tributaries. Parkville Creek will also be impacted by the relocation of CSAH 102, as discussed below in that section.

In addition to the direct loss of stream habitat, impacts to downstream water bodies (including downstream public waters) will also occur as the natural hydrology of the area is changed. Contributing watershed areas can be severed or completely removed due to mining activity, directly affecting runoff from precipitation and resultant streamflow. According to information presented in the Liesch memorandum, 90% (6,802 acres) of the total contributing subwatershed in the West Pit area has been impacted by past mining, with an additional 476 acres to be impacted under the current permit to mine. Consequently, past and currently permitted mining in the West Pit results in a reduction of natural mean annual streamflow to McQuade (Kinney) Creek, Kinross Creek and the West and East Branches of West Two River by 7.97 cubic feet per second (3,577 gallons per minute). In the East Pit area, 93% (2,774 acres) of the total contributing subwatershed has been impacted. Past mining in the East Pit has resulted in a reduction of natural mean annual streamflow to Parkville Creek by 3.03 cubic feet per second (1,360 gallons per minute) and East Two River by 0.36 cubic feet per second (161 gallons per minute). The proposed Extension Project would impact an additional 265 acres in the West Pit and 205 acres in the East Pit, resulting in an additional reduction of natural mean annual flow of 0.29 cubic feet per second (130 gallons per minute) and 0.22 cubic feet per second (99 gallons per minute), respectively, due to loss of contributing subwatershed area. Past, present and proposed stream and watershed impacts are presented in **Tables 12-3** and **12-4**.

While mine pit dewatering discharge will replace some of the natural flow that is lost, dewatering flows do not mimic the natural hydrologic processes, chemically or physically (including high flows and low flows), that occurred prior to mining. In addition, downstream water bodies may also be impacted by the "cone of depression" that results from pumping, particularly groundwater-fed streams and water bodies. Specifically with regard to Parkville Creek, the flow through this stream is primarily from the dewatering of Minntac's East Pit through the Prindle Sump, though it still receives some flow from its remaining watershed. Excavation in the mine extension area will remove a section of Parkville Creek and require that the location of the Prindle Sump discharge point be moved southward, further downstream on Parkville Creek. The sump will continue to discharge to the creek, as its discharge point is moved further south as mining activity proceeds. McQuade (Kinney) Creek will also continue to receive augmentation flows from West Pit mine dewatering. See Item 13 for additional discussion of dewatering discharges.

As indicated previously, the MPCA is requiring monitoring for potential secondary impacts on the West Two River due to Minntac's West Pit Progression Project. Information will be collected regarding stream flow and water chemistry. A similar process could be implemented for Minntac's proposed Extension Project. Monitoring could be incorporated into the project to track and then respond to downstream changes due to mining activities. Flow monitoring and/or geomorphology surveys downstream of the mine site prior to the extension could allow changes to be detected. U.S. Steel will work with the DNR, USACE, and MPCA to

address stream impacts and mitigation during the wetland permitting process. Impacts proposed to areas considered "streams" by an agency will require a stream mitigation plan and proposal be submitted by the company for review and approval by the agency. As discussed below, it appears that only Parkville Creek is considered a stream at this time.

A site visit was completed by USACE staff in May 2012 to investigate watercourses identified within the project area on the National Hydrographic Dataset (NHD) to determine the extent of jurisdictional streams under the Section 404 program. Observations in the field indicate that only Parkville Creek meets the criteria for consideration as a "stream" by the USACE. No preliminary or approved jurisdictional determination has been completed to date; the jurisdictional determination will be completed prior to the issuance of the Section 404 permit.

The USACE is requiring a comprehensive stream assessment of Parkville Creek as part of its environmental impact assessment (EIA) for the proposed project. The work plan proposed to meet the USACE's requirements includes the following:

- Aquatic Biota Evaluation: pre-survey planning to ensure MPCA standard operating procedures are followed; site visit for macroinvertebrates and habitat; fish survey; water chemistry assessment.
- Stream Morphology Assessment: stream field survey; evaluation of morphologic impacts.

Information gathered during these studies will be used to characterize the stream and evaluate mitigation alternatives that would best replace the stream functions and values lost due to the extension project. Compensatory mitigation for stream impacts will be addressed during permitting. Ideally, it is preferred that mitigation be completed in watersheds as close to the impacted watershed as practical and correct/restore aspects of the stream that contribute to overall stream health. Based on a detailed assessment of the St. Louis River watershed in 2009 & 2012, there may be a number of potential mitigation opportunities within the same watersheds as those being impacted by the project.

U.S. Steel has been notified by the USACE that appropriate stream mitigation will be a condition of their permit and should be proposed to mitigate for the potential loss of Parkville Creek. Based on existing conditions and quality of Parkville Creek (to be determined during the comprehensive stream assessment), the compensatory mitigation ratio would fall between 2:1 to 3:1, resulting in stream mitigation consisting of the restoration or enhancement of approximately 8,000 to 12,000 linear feet of a stream with a similar flow regime and watershed size as Parkville Creek.

Table 12-3 Minntac East Pit: Evaluation of Past, Present and Proposed Impacts to Watersheds

	Parkville Creek – Tributary 1	Parkville Creek – Tributary 2	Parkville Creek – Tributary 3	Parkville Creek – Main	Parkville Creek – Total*	East Two River – Tributary 1
Watershed Contributing Area						
Pre-mining (ac)	460	165	338	1,685	2,648	331
Already impacted by past mining (ac)	360	145	338	1,600	2,443	331
Current under Permit to Mine (ac)	0	0	0	0	0	0
Proposed Extension (ac)	100	20	0	85	205	0
Stream Segment Channel Length						
Pre-mining (ft)	4,706	3,447	4,452	17,208	29,813	1,329
Already impacted by past mining (ft)	4,706**	3,447**	4,452	13,206	25,811	1,329
Current under Permit to Mine (ft)	0	0	0	0	0	0
Proposed Extension (ft)	0	0	0	4,002	4,002	0

Streamflow						
Pre-mining (cfs)	0.50	0.18	0.37	1.84	2.90	0.36
Already impacted by past mining (cfs)	0.39	0.16	0.37	1.75	2.67	0.36
Current under Permit to Mine (cfs)	0	0	0	0	0	0
Proposed Extension (cfs)	0.11	0.02	0.00	0.09	0.22	0.00

*TOTAL Parkville Creek subwatershed represents information from Tributaries 1 (P1), 2 (P2), and 3 (P3), along with one other area (P4), which represent the main reach of Parkville Creek (see figure included in EAW **Attachment A**).
The USACE has indicated that the MN DNR 24k Stream Segments shown in the P1 and P2 subwatersheds may have been streams at one time, but would no longer be considered jurisdictional under existing USACE regulations (see figure included in EAW **Attachment A).

Table 12-4 Minntac West Pit: Evaluation of Past, Present and Proposed Impacts to Watersheds

	McQuade Creek (aka Kinney Creek) – Tributary 1	Kinross Creek – Tributary 1	Kinross Creek – Tributary 2	Kinross Creek – Tributary 3	West Branch - West Two River - Tributary 1	West Branch - West Two River - Tributary 2	West Branch - West Two River - Tributary 3	East Branch - West Two River - Tributary 1
Watershed Contributing Area								
Pre-mining (ac)	2,657	50	220	606	47	638	293	3,032
Already impacted by past mining (ac)	2,513	10	99	600	0	490	58	3,032
Current under Permit to Mine (ac)	62	11	29	0	0	139	235	0
Proposed Extension (ac)	82	29	92	6	47	9	0	0
Stream Segment Channel Length		*NA – MPCA/USACE determined no definable stream channel present within proposed Progression area, wetlands only. The same determination is anticipated for the proposed East Pit Extension area.*						
Pre-mining (ft)	17,983							
Already impacted by past mining (ft)	17,983							
Current under Permit to Mine (ft)	0							
Proposed Extension (ft)	0							
Streamflow								
Pre-mining (cfs)	2.91	0.05	0.24	0.67	0.05	0.70	0.32	3.32
Already impacted by past mining (cfs)	2.75	0.01	0.11	0.66	0.00	0.54	0.06	3.32
Current under Permit to Mine (cfs)	0.07	0.01	0.03	0.00	0.00	0.15	0.26	0.00
Proposed Extension (cfs)	0.09	0.03	0.10	0.01	0.05	0.01	0.00	0.00

Mine Pits
Deep, open water areas within the mine extension include 19.7 acres over three abandoned natural ore pits. The abandoned pits will be dewatered through existing NPDES/SDS outfalls before the pits are breached by stripping or other activities. U.S. Steel will obtain approval from the DNR and MPCA prior to any dewatering activities. Impacts to these deep, open water areas may require additional permitting depending on the jurisdictional extent of the USACE under the Clean Water Act and the MPCA under Minnesota Rules 7050. Following a jurisdictional determination, U.S. Steel will address appropriate requirements related to mitigation during permitting.

On-going pit reclamation, as described in the annual Operating Plan submitted on January 31, 2012 will continue to address future pit reclamation activities. The mine closure plan will be submitted to the DNR for approval two years prior to deactivation of the Minntac Mine and will provide specific details on the closure of the mine, including the tailings basin. When pit limits are reached, the associated surface banks will be reclaimed in accordance with Chapter 6130 DNR Mineland Reclamation standards. Runoff from the mine will be managed to comply with the conditions in Minnesota Rules 6130.2200. Once mining is completed and pit dewatering has ceased, inactive reclaimed mine pits will fill with water. During this time, stream flow augmentation will likely be required in order to maintain the health of the system. After the mine pits have filled and reached the point at which they naturally overflow, stream augmentation would no longer be required and the system would revert to a natural cycle dependent on precipitation, snowmelt, and other climatic events.

Expected East Pit outflow is at approximately 853 elevation (602 Lake Superior datum). The eventual discharge from the East Pit would be to Parkville Creek, which would be in accordance with MR 6130.2200 – returning post-mining flows to the original watershed. Expected West Pit outflow is at approximately 886 (referenced to a Lake Superior datum elevation of 602), based on the current proposed extension pit limits; the runout would be to the West Branch of West Two Rivers. As discussed in EAW Item 11, a future littoral zone in the West Pit is designed to accommodate a range of elevations (848 to 888) and is part of the required mitigation for the post 1996 impacts to Kinney Creek. Upon mine closure, it is likely that Kinney Creek will receive little flow, only that ensuing from the watershed area remaining after mining ceases.

New Mine Access Road
The proposed Mine Access Road corridor contains wetlands that were previously delineated but the delineation has been updated during the summer of 2011 to ensure that all areas of the proposed alignment have been reviewed (NTS, 2011). Based on a 200-foot corridor along the proposed centerline of the mine access road, a total of 0.9 acres of wetland would be impacted. **Table 12-5** provides a summary of wetlands within the road corridor.

Table 12-5. Summary of Wetland Habitat in the Proposed Mine Access Road Corridor[1]

Circular 39 Classification	Eggers and Reed Classification	Number of Basins	Area (acres)
Type 2	Fresh (Wet) Meadow	4	0.3
Type 7	Hardwood Swamp	2	0.6
	Total	**6**	**0.9**

[1] Calculations assume a 200-foot Mine Access Road corridor. Actual impacts to wetlands will be reduced during the Mine Access Road planning and design process.

These impacts would be permitted in association with the mine extension and mitigation, at an anticipated replacement ratio of 1.5:1. Mitigation is proposed through using U.S. Steel's private project-specific wetland bank (Palisade) that is currently under development in Aitkin County, Minnesota. It is anticipated that credits established within this private wetland bank, once approved, will be used for project-specific replacement at U.S. Steel's Minnesota Ore Operations facilities (Minntac and Keetac), and the bank would be in advance and/or concurrent with construction of the new mine access road.

The proposed alignment would require the filling of a portion of the Wacootah Pit. The Wacootah Pit is not a wetland or a DNR Public Water, but may be considered by the USACE to be a Water of the United States if it is determined that it is not isolated and can be connected to a navigable water. Impacts from the proposed pit crossing would be determined as the roadway design is finalized. Any potential compensatory mitigation that

may be required therein would be determined during the permitting phase of the project. No impacts to streams or other watercourses are anticipated.

County State Aid Highway 102 Relocation – Connected Action
Wetlands within the CSAH 102 relocation corridor were delineated by NTS, Inc. in the summer of 2011 and have been approved by the USACE and DNR, along with the WCA Technical Evaluation Panel members from St. Louis County and the Board of Water and Soil Resources. Based on a 200-foot corridor along the proposed centerline, approximately 2.0 acres of wetland will be impacted for the CSAH 102 relocation, as shown in **Table 12-6**.

Table 12-6. Summary of Wetland Habitat in the Proposed CSAH 102 Relocation Project Area[1]

Circular 39 Classification	Eggers and Reed Classification	Number of Basins	Area (acres)
Type 2	Fresh (Wet) Meadow	3	0.2
Type 5	Shallow Open Water	1	0.1
Type 6	Shrub-Carr	5	1.0
Type 7	Hardwood Swamp	4	0.6
	Total	**13**	**2.0**

[1] Calculations assume a 200-foot CSAH 102 corridor. Actual impacts to wetlands will be reduced during the CSAH 102 planning and design process.

The CSAH 102 relocation will also require the crossing of Parkville Creek, which is a DNR public watercourse. Approximately 122 linear feet of Parkville Creek lies within the proposed right-of-way of the road relocation. There is currently a culvert crossing (four foot diameter concrete culvert, 62 feet in length) for the creek within the proposed alignment, but a larger crossing (with 60 feet of new impact) will be required to accommodate a roadway design that meets St. Louis County's County State Aid Highway design standards. The new crossing will require a DNR Public Waters Work Permit for work in the bed of the public watercourse.

As mentioned in EAW Item 11, it appears the existing culvert placement may be at an elevation that is higher than ideal – water must rise two to three feet before it will flow through the culvert. DNR would not recommend the culvert be replaced at the same elevation. Typically culverts of this size would be buried 1 to 1.5 feet. DNR recommends that the new culvert be designed and placed following St. Louis County Public Works General Permit 1996-2091 conditions for proper sizing and placement. As is currently planned, the culvert should accommodate wildlife passage beneath the road surface.

Flow through the culvert is and would continue to be from mine dewatering discharge, equivalent to the volume discharged from the Prindle Sump through permitted outfall SD004. Minntac reports that over the past 10 years, the flow has varied from 0-8.2 MGD (5,694 gpm), with an average flow equal to 3.6 MGD (2,530 gpm).

U.S. Steel will work with the DNR, USACE, and MPCA regarding the design and placement of the culvert in a manner that minimizes impacts to Parkville Creek. It is anticipated that wetland impacts from the relocated CSAH 102 will be mitigated by purchasing credits from a wetlands bank. Construction in the vicinity of Parkville Creek will be subject to current construction stormwater regulations and will require NPDES permit coverage under the MN General Stormwater Permit for Construction Activity program (MN R100001).

13. ***Water use.*** *Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)?* ☒ Yes ☐ No
If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

Mine Extension Area

Three water appropriations permits for the Minntac facility do not contain installations associated with direct discharges to waters of the state. A summary of each is provided below:

- **Permit Number 63-0846** provides for the appropriation up to 27,000 acre-ft of water per year (8,798 million gallons per year, MGY; 16,730 gpm) from either the Mountain Iron Pit or the West Two River Reservoir for the purpose of process makeup water for the taconite processing facilities.
- **Permit Number 98-2002** provides for the appropriation of up to 3 MGY (50 gpm) of groundwater as a source of potable water and fire protection for the Administration Building.
- **Permit Number 99-2063** provides for the appropriation of up to 100 MGY of water from the Dark River Pond as a source of water for rotary drills, haul road fugitive dust control and other miscellaneous mining needs. The permit does not set a limit for a specified pumping rate.

Two additional water appropriations permits allow for mine pit dewatering from the Minntac West Pit (Permit Number 80-2084) and the Minntac East Pit (Permit Number 80-2085) to receiving waters of the state. Each of these two appropriations permits contains three dewatering installations, only two of which are active in each permit. Details of the permitted dewatering installations are as follows:

- **Permit Number 80-2084**
  - #3 Sump - Active: dewatering up to 15,000 gpm to either the East Branch of the West Two River through NPDES/SDS permitted outfall SD001 or to the Mountain Iron Pit (for additional process makeup water inventories).
  - #6 Sump – Active: dewatering up to 5,000 gpm through NPDES/SDS permitted outfall SD003 to Kinney Creek or to the Atkins Pit.
  - #11 Sump – Inactive: dewatering up to 2000 gpm to Kinross Creek.
- **Permit Number 80-2085**
  - Prindle Mine Pit (#10 Sump) – Active: dewatering up to 9,000 gpm through NPDES/SDS permitted outfall SD004 to a drainage ditch to Parkville Creek.
  - #2 Sump – Active: dewatering up to 7,500 gpm to the Mountain Iron Pit (for additional process makeup water inventories, no permitted outfall to waters of the state).
  - Wheeling Pit – Inactive: dewatering up to 5,070 gpm to Parkville Creek.

No expansion of the processing facility (crusher, concentrator, or pellet plant) is anticipated under the proposed project. Additional appropriations for water supply are not anticipated. The rate of production would not increase, so no change would occur to the ongoing use of process make-up water that is obtained directly from the Mountain Iron Pit (Water Appropriations Permit No. 63-0846) and indirectly from dewatering Sump No. 2 in the Minntac East Pit (Water Appropriations Permit No. 80-2085) and Sump No. 3 in the Minntac West Pit (Water Appropriations Permit No. 80-2084) into the Mountain Iron Pit.

The current average rate of discharge for all dewatering installations in the East and West Mine Pits is 20.5 MGD (14,236 gpm), based on pumping records over the period January 2010 – December 2011. A review of pumping records over the period January 2001 – December 2011 showed that dewatering discharge rates have varied from a minimum of 7.5 MGD (5,200 gpm) to a maximum of 30 MGD (20,830 gpm) for all dewatering installations combined. The area subject to surface water runoff and groundwater inflow is estimated to increase by approximately 5% at the limit of the proposed extension. Therefore, dewatering discharges could potentially increase by an equal amount. Dewatering discharge rates will not increase beyond currently permitted maximums.

Water Appropriations Permit 80-2084 describes dewatering from the #6 Sump to Kinney Creek or Atkins Pit as indicated above. However, discharge from the West Pit is also regulated by NPDES/SDS Permit MN0052493. The NPDES/SDS discharge permit allows discharge from the west end of the West Pit by four possible routes, two of which are equivalent to the dewatering routes described above. NPDES/SDS Permit MN0052493 allows discharge "from pipe outfall SD003 to Kinney Lake to Kinney Creek and unnamed wetlands." The NPDES/SDS permit also allows "pumped flow from a pipe to the Atkins Pit, which overflows…through ditch outfall SD002 [inactive] to an unnamed creek and wetlands tributary to Kinney Lake." Elimination of the Atkins Pit resulting from future mining in the West Pit extension area will have no impact on NPDES/SDS outfalls which discharge to Kinney Lake and Kinney Creek (only outfall SD003 is active at this time).

U.S. Steel is considering a change in the management of water from the #6 Sump, which dewaters the west half of the West Pit. Dewatering flow from the #6 Sump is currently discharged through pipe outfall SD003 at an average rate of about 3000 gpm to McQuade/Kinney Creek and into Kinney Lake. Kinney Lake subsequently overflows through McQuade/Kinney Creek south into McQuade Lake, and eventually flows into the West Two River south of the West Two River Reservoir. To reduce pollutant levels in the tailings basin and to meet requirements of the Schedule of Compliance (discussed below in Item 17), U.S. Steel is proposing to divert this dewatering flow from Sump 6 for additional/alternative process makeup water, as the #6 Sump represents a source of higher water quality. An analysis of pre-mining baseflow into Kinney Creek at the existing SD003 location is being conducted to define how much of the #6 Sump water could be diverted without substantially changing historical downstream hydrology. The proposed diversion would require an amendment to the existing water appropriations permit prior to implementation. The amendment would likely include a requirement for some amount of stream augmentation, using mine pit dewatering flow, based on pre-mining base flow for McQuade/Kinney Creek (2.91 cfs, as indicated in **Table 12-4**). Permit modification of the NPDES/SDS permit is not necessary for the Sump 6 water diversion project. The diversion project is included in the company's recent application for NPDES/SDS permit reissuance, currently under review by the MPCA.

Additional appropriation of water would not likely be required for dewatering the extension areas. Any changes in water appropriations, as a result of the proposed project, would be based on a preliminary mine plan, mine extension, and additional dewatering requirements. Based on a preliminary evaluation, the annual volumes of dewatering necessary to conduct mining operations would be identified for the life of the project.

A review of the County Well Index (CWI) indicated that thirty one (31) private or municipal water supply wells are located within a ½-mile of the West Pit and twenty six (26) private or municipal water supply wells are located within a ½-mile of the East Pit and proposed roadway relocations (**Figure 8**). Five of the wells are shown to be located in the middle of the West Pit and no longer exist. A number of the other wells identified by the CWI have been abandoned and/or sealed, particularly those wells shown in, or directly adjacent to, the Permit to Mine boundary; it is unclear why the CWI continues to list them as active wells. The status of the other identified by the CWI in the vicinity of the project has not been determined, nor have their locations been verified in the field.

With respect to the remainder of the domestic supply wells located within ½ mile of the proposed extension boundary, properties within 3,000 feet of active mining will continue to be evaluated for buyout to allow for a safety buffer during blasting. Those existing wells beyond the 3,000-foot buffer zone may experience some drop in water levels as the cone of depression from mine pit dewatering moves to the south. Though not anticipated, if maintaining adequate water levels in the wells becomes problematic, U.S. Steel will work with the well owners on an appropriate course of action to address the issue.

New Mine Access Road
The mine access road would not involve installation or abandonment of any water wells, or connection to or changes in any public water supply. The construction may require temporary appropriation of ground or surface water for dewatering during construction.

County State Aid Highway 102 Relocation – Connected Action
The relocation of CSAH 102 will not involve installation or abandonment of any water wells, or connection to or changes in any public water supply. The construction may require temporary appropriation of ground or surface water for dewatering during construction.

14. ***Water-related land use management district.*** *Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district?*
☒ Yes ☐ No *If yes, identify the district and discuss project compatibility with district land use restrictions.*

St. Louis County enforces shoreland zoning ordinances surrounding public waters. The county has designated shoreland zones within 1,000 feet and 300 feet of lakes and streams, respectively. The City of Mountain Iron identifies shoreland as:

> All lands located within the following distance from the high water mark of public water:
> (1) One-thousand feet from the ordinary high water mark of a lake, pond or flowage;

(2) Three-hundred feet from the normal high water mark of a river or stream or the landward extent of a flood plain designated by ordinance on such a river or stream, whichever is greater.
(3) The practical limits of shorelands may be less than the statutory limits where such limits are designated by natural drainage divides at lesser distances as shown on the Official Zoning Map of the city and when approved by the Commissioner.

In order to guide the wise development and utilization of shorelands of public waters for the preservation of water quality, natural characteristics, economic values and the general health, safety and welfare, certain public waters in the city have been given a shoreland management classification consistent with the criteria found in Minn. Rules, part 6120.3300, as it may be amended from time to time, and the DNR Public Waters Inventory for St. Louis County, Minnesota.

Public waters within or near the project area with shoreland protection areas have been classified as follows in **Table 14-1** (Rivers/Streams) and **Table 14-2** (Lakes/Wetlands).

Table 14-1. Rivers and Streams

Name	From Section	To Section	Township	Range	Comments	Shoreland Classification
East Two River	26	34	58	18W	Flows through PWI P-726	Tributary
Unnamed Tributary to East Two River (also called Silver Creek)	12	26	58	18W	--	Tributary
West Two River	31	31	58	18W	Flows through PWI P-994	Tributary
Parkville Creek	11	15	58	18W	Flows through PWI P-994	Tributary
Kinross Creek	19	30	58	18W	Flows through PWI P-994	Tributary
Sand River	2	1	59	18W	--	Tributary
Silver Lake Outlet	12	5	58	18/17 W	Flows through PWI P-662	Tributary
McQuade Creek (aka Kinney Creek)	11	16	58/57	19W	Flows through PWI P-781	Tributary
Unnamed Tributary to Sand River	24	1	59	18W	--	Tributary
Unnamed Tributary to Unnamed Tributary (to Sand River)	12	12	59	18W	--	Tributary
Unnamed Tributary to Little Sandy Lake	15	11	59	18W	--	Tributary
Unnamed Tributary to Sandy Lake	2	2	59	18W	--	Tributary

Table 14-2. Lakes and Wetlands					
PWI ID	**PWI Name**	**Alternate Name**	**PWI Class**	**Acreage**	**Wetland Type[1]**
69-0662	Silver		Palustrine	44	5
69-0663	Virginia		Palustrine	29	5
69-0721	Majestic	Haenke	Palustrine	57	5
69-0723	Mud		Wetland	17	4
69-0724	Unnamed		Wetland	17	4
69-0725	Mashkenode	Four-Mile	Palustrine	129	5
69-0726	Manganika	Three-Mile	Palustrine	181	5
69-0727	Kendall		Palustrine	53	5
69-0763	Doherty		Palustrine	71	5
69-0780	Yates	Formerly Yates Mine	Palustrine	13	5
69-0781	Kinney	Formerly Kinney Mine	Palustrine	43	5
69-0782	Dean		Palustrine	1	5
69-0783	Unnamed		Wetland	25	4
69-0785	Unnamed		Wetland	17	4
69-0786	Unnamed		Wetland	15	4
69-0994	West Two River Reservoir		Palustrine	1,260	5
69-1270	Unnamed		Wetland	1	4
69-1271	Unnamed		Wetland	8	4
69-1272	Unnamed		Wetland	9	4
69-0729	Sandy		Palustrine	121	5
69-0730	Little Sandy		Palustrine	89	5
[1] U.S. Fish & Wildlife Circular 39 Classification (Shaw and Fredine, 1956)					

The proposed project would impact approximately 0.25 acres of the 300-ft shoreland zone of McQuade Creek (aka Kinney Creek) and approximately 0.48 acres of the 1,000-ft shoreland zone surrounding Yates Lake (**Figure 6b**). Based on pre-design assumptions for CSAH 102 relocation, up to 3.5 acres of shoreland zone surrounding Parkville Creek would be impacted. However, these impact areas may be reduced based on final design, which would be described in more detail during the project permitting process.

FEMA 100-year floodplains are shown on **Figure 6**. The southern extension of the East Mine Pit would remove approximately 15.3 acres of 100-year floodplain from the uppermost reaches of Parkville Creek. This would result in a slight reduction in the width of the 100-year floodplain for some distance downstream from the mine extension due to decreased flow in the stream channel. The removal of 15.3 acres of floodplain is offset by removal of a portion of the headwaters area, which results in less contributing area for the downstream 100-year floodplain. The mine pit will act as an equalization basin during extreme precipitation or runoff events, dampening the flood peak. The approximate increase of 5% in mine pit dewatering discharge when the limits of the extension have been reached, is not expected to alter flood levels or floodplains.

There are no designated wild and scenic rivers within the project area.

15. ***Water surface use.*** *Will the project change the number or type of watercraft on any water body?* ☐ Yes ☒ No *If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.*

The proposed project would not directly affect the number or type of watercraft on any water body.

16. ***Erosion and sedimentation.*** *Give the acreage to be graded or excavated and the cubic yards of soil to be moved:* See details below acres ; cubic yards See details below . *Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.*

Mine Extension Area
The proposed mine extension includes 483 acres of material to be moved including ore, waste rock, and surface overburden over the life of the project. As of 1/1/2012, approximately 1,009,568,000 long tons of ore, 836,716,000 long tons of waste rock and 134,059,000 long tons of surface overburden remain within the mine extension. Mineland reclamation would occur in accordance with the DNR mineland reclamation standards. A description of the slopes of pit walls, maximum lift heights, benches, and vegetation restoration standards will be developed with the forthcoming Permit to Mine Amendment.

New Mine Access Road
The project area for the proposed mine access road potentially includes a 200-foot corridor along the proposed centerline. The project area has been estimated to be 26.6 acres for the mine access road. The future right-of-way for the mine access road is assumed to be 100 feet. It is unlikely that the entire right-of-way would be disturbed, however, therefore these impacts quantities are conservative estimates. Estimates of volume of material graded will be determined upon completion of the final roadway design. The project would result in some potential for erosion as existing ground cover will be disturbed.

A General Stormwater Permit for Construction Activity (MN R100001) and associated Storm Water Pollution Prevention Plan (SWPPP) would be required for this project. Erosion prevention and sediment control best management practices (BMPs) will be followed in accordance with the NPDES permit, which includes an erosion control plan, as well as BMPs such as those contained in Mn/DOT's standard specifications, details, and special provisions for roadway construction. Temporary and permanent erosion control features may include timely revegetation of disturbed areas, silt fences, fabric blankets, and sediment ponds. Erosion and sediment control measures would be implemented to protect all drainage areas leading to wetlands, lakes, ponds, and streams. Regular inspections are required as part of the permit to ensure that erosion and sediment control measures implemented are maintained and function as intended. Generally, inspections are required every seven days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24-hour period. A follow-up inspection is required within seven days of the event.

A SWPPP would be developed as part of the final design plans of the preferred alternative in accordance with NPDES requirements. The SWPPP would specifically identify which BMPs will be used and what purpose they will serve in minimizing potential short-term and long-term erosion and sedimentation that could adversely affect water quality.

County State Aid Highway 102 Relocation
The project area to be disturbed for the CSAH 102 relocation potentially includes 200-foot corridors along the proposed centerlines. The project area has been estimated to be 42.5 acres for the CSAH 102 relocation. The future right-of-way for CSAH 102 is assumed to be 100 feet. It is unlikely that the entire right-of-way will be disturbed however; therefore these impact quantities are conservative estimates. Estimates of volume of material graded will be determined upon completion of the final roadway design. The project will result in some potential for erosion as existing ground cover will be disturbed. Slopes associated with the roadway will be consistent with county and state guidelines. Construction of the road will be subject to current construction stormwater regulations and will require NPDES permit coverage under the MN General Stormwater Permit for Construction Activity program (MN R100001). Requirements of the permit discussed above for the mine access road would also apply to the CSAH 102 relocation.

17. ***Water quality: surface water runoff***
a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

Mine Extension Area
Currently, U. S. Steel is authorized to discharge to various surface water systems under NPDES/SDS Permit No. MN0052493 (Minntac Mining Area) via seven outfalls (SD001, SD002, SD003, SD004, SD007, SD009, and SD010); the active outfalls are shown on **Figure 6c**. Minntac is working under a Schedule of Compliance (SOC) as of June 9, 2011 to bring its operations into compliance with permit conditions and limits stipulated in Chapter 4, Sections 3.1 and 3.2 of NPDES/SDS Permit No. MN0057207, which require no-net-increase in sulfates and hardness in treated Line 3 scrubber blowdown water quality versus makeup water quality. Additionally, Minntac is planning construction of a seepage collection and return system to be completed in 2013 to collect seepage to the Dark River Watershed as part of the SOC. This would be similar to the Seep Collection and Return System installed in 2010 which collects surface and shallow subsurface seepage to the Sand River Watershed. Reductions in downstream sulfate concentrations in the Sand River Watershed have been observed since the seepage collection and return system initiated operation in 2010.

The proposed mine extension would not affect the Minntac facility site and the current storm water management practices or water quality related to storm water runoff. Minntac would continue to manage storm water runoff and compliance in accordance with the facility NPDES/SDS permits, SWPPP, and industrial storm water rules and regulations.

There will be an estimated 5% increase in pit area subject to surface runoff and groundwater inflow as a result of the proposed mine extension. The increase in pit volume is expected to result in a small incremental increase in surface runoff and groundwater capture. However, in terms of surface water flow in the affected watersheds, these incremental increases will be negligible in comparison to the natural inputs that the watersheds will receive from seasonal and long-term climatic variations in precipitation.

The proposed mine extension would not result in operational changes that will substantially affect the quantity of wastewater discharged from the facility. The volume of dewatering is expected to increase slightly as the pit expansions increase the catchment area and the mine pits deepen. However, dewatering discharge rates are expected to remain within currently permitted maximum volumes.

As discussed previously, in-pit stockpiling will continue to be utilized as much as possible. In-pit disposal of mine waste materials will continue to be maximized in order to limit the overall mining area footprint. Increased in-pit disposal may result in runoff, and therefore mine sump dewatering discharges, with elevated concentrations of certain dissolved constituents (e.g., sulfate, hardness, alkalinity, chloride). This could result in an increase of these constituents in downstream receiving waters, with concentrations decreasing with distance from the point of discharge. Levels of these constituents in mine pit dewatering discharges will be taken into account in future NPDES/SDS permitting.

The forthcoming Permit to Mine Amendment will describe surface water flow from the mining areas and waste rock stockpile drainage flow directions, storm water flow associated with the mine extension and new stockpile areas, and dewatering activities.

New Mine Access Road
A storm water management system would be designed to meet the requirements of the NPDES General Storm Water Permit for Construction Activity to be requested from the MPCA and any other local requirements. Since the project would result in an increase in impervious area, storm water runoff calculations would be estimated and the increased storm water impacts will be evaluated when the proposed roadways are designed. Management of surface water runoff for the roadway realignment would be described for construction and post-construction timeframes.

The new mine access road is proposed over the existing haul road between the Wacootah and Iroquois Pits. The mine access road is not expected to have adverse effects on surface water discharge rates or volumes within the existing subwatersheds. It is expected that surface water runoff from the mine access road will continue to shed off the roadway as it does currently from the haul road. As described above (Item 16) the General Storm Water Permit and accompanying SWPPP required for the project will define the appropriate surface runoff management for the NPDES permit. Water would be discharged through vegetated swales and/or ditches, but would be managed to ensure that water quality and water volume requirements are achieved. These requirements would offset the effects from the additional impervious surface created and the potential loss of

infiltration. The roadway design is currently in progress, and will account for the appropriate management and treatment of surface water runoff as required. This data will be available upon final design of the new mine access road and described in more detail in the appropriate state and federal permit applications for the project.

County State Aid Highway 102 Relocation – Connected Action
The CSAH 102 relocation is not expected to have adverse effects on surface water discharge rates or volumes within the existing subwatersheds. Surface water runoff from the CSAH 102 relocation corridor will be collected and discharged to the same locations that surface water would naturally flow to under existing conditions. Water may be discharged through ponds, vegetated swales, and/or ditches, but would be managed to ensure that water quality and water volume requirements are achieved. As described above (Item 16) the General Storm Water Permit and accompanying SWPPP required for the project will define the appropriate surface runoff management for the NPDES permit. These requirements would offset the effects from the additional impervious surface created, and the potential loss of infiltration. The roadway design is currently in progress, and will account for the appropriate management and treatment of surface water runoff as required.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Mine Extension Area
Currently, U. S. Steel is authorized to discharge to various surface water systems under NPDES/SDS Permit No. MN0052493 (Minntac Mining Area) via seven outfalls (SD001, SD002, SD003, SD004, SD007, SD009, and SD010); the active outfalls are shown on **Figure 6c**. U.S. Steel currently dewaters Minntac's West Pit using Sump No. 3 and Sump No. 6. Water from Sump No. 3 can be directed to the Mountain Iron Pit reservoir for process makeup water needs. However, depending on various factors, such as climate cycles, Mountain Iron Pit water inventories, etc., Sump No. 3 can be discharged away from the Mountain Iron Pit to SD001, which ultimately feeds the East Branch of the West Two River. Water from Sump No. 6 is discharged to SD003, which feeds Kinney Lake, Kinney Creek, and unnamed wetlands.

Minntac's East Pit is dewatered using Sump No. 2 and the Prindle Sump. Similar to Sump No. 3, Sump No. 2 discharges to the Mountain Iron Pit, but is not permitted for discharge to other waters. The Prindle Sump discharges to outfall SD004, which feeds Parkville Creek. Excavation in the mine extension area will remove a section of Parkville Creek. The sump will continue to discharge to the creek, although its discharge point will be moved further south as mining activity proceeds.

As discussed in EAW Items 11 and 12, impacts to streams and their contributing watershed areas will occur due to excavation of the extension area for mining activities. Avoidance is not feasible because of the location of the ore. In addition to the direct loss of stream habitat, impacts to downstream water bodies (including downstream public waters) will also occur as the natural hydrology of the area is changed. While mine pit dewatering discharge will replace some of the natural flow that is lost, downstream water bodies may also be impacted by the "cone of depression" that results from pumping, particularly groundwater-fed streams and water bodies.

Monitoring could be incorporated into the project to track and then respond to downstream changes due to mining activities. Flow monitoring and/or geomorphology surveys downstream of the mine site prior to the extension could allow changes to be detected. U.S. Steel will work with the DNR, USACE, and MPCA to address stream impacts and mitigation during the wetland permitting process. Impacts proposed to areas considered "streams" by an agency will require a stream mitigation plan and proposal be submitted by the company for review and approval by the agency.

Tabulated below in **Table 17-1** are maximum dewatering rates assigned to each permitted discharge and average daily dewatering rates for years 2006 through 2009.

Dewatering from the mine extension would be directed toward the West Two River via various routes as currently permitted by the DNR and NPDES/SDS permits. The source of the groundwater would remain unchanged, and therefore there would be no anticipated change in water quality.

Table 17-1. NPDES/SDS Permitted Discharges					
Location	Permitted Maximum	2006 Average	2007 Average	2008 Average	2009 Average
Sump No. 6	18	3.3	4.0	5.1	4.0
Sump Nos. 2 & 3	33.2	7.8	8.8	9.7	8.4
Prindle Sump	13	3.2	3.4	3.8	4.1
Note: All units in million gallons per day					

New Mine Access Road
The NPDES construction stormwater permit and associated SWPPP will identify BMPs for controlling and/or treatment of the runoff discharge. Dewatering during construction may be required depending on the design of the roadways. Opportunities to provide treatment of road runoff will be identified as the roadway design is finalized. Roadway design is anticipated to be rural, and therefore lack curb and gutter and storm water collection infrastructure. Treatment of runoff will likely be accomplished through the use of adjacent roadside ditches and vegetated swales to promote infiltration of runoff and removal of sediment and nutrients prior to discharge into a receiving water.

County State Aid Highway 102 Relocation – Connected Action
A NPDES construction stormwater permit and associated SWPPP will be required for this project.

18. ***Water quality: wastewaters***
a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

U.S. Steel holds three NPDES/SDS permits for its Minntac operation: MN0052493 authorizes mine pit dewatering discharges from the Mining Area; MN0057207 authorizes seepage discharge from the tailings basin; and MN0050504 authorizes operation and discharge from of treated effluent from Minntac's main wastewater treatment plant (WWTP). The NPDES/SDS permits for the main WWTP and tailings basin do not need to be modified for the extension project. Similarly, as long as the discharge remains to the same receiving water currently permitted, the NPDES/SDS permit for the mine will not need to be modified to address the relocation of the Prindle Sump and discharge point further to the south as mining progresses southward in the East Pit extension area.

Sanitary facilities at the processing facility buildings generate wastewater of typical municipal composition. Additional sanitary facilities are provided for those locker facilities located in buildings north of both the East and West Pits.

NPDES/SDS permit MN0052493 authorizes operation of three Domestic Sewage Treatment Systems and Mine Pit Dewatering discharge from both the East and West Pits. The Domestic Sewage Treatment Systems are as follows:

1. Mobile Equipment Shop (MES) is an extended aeration activated sludge package treatment plant with a subsurface disposal system for the treated effluent. The sludge produced is removed and transferred to the City of Mountain Iron sanitary sewage system where it is managed and disposed of in accordance with NPDES/SDS MN0040835.
2. West Pit Dry Area is an extended aeration activated sludge package treatment plant with a subsurface disposal system for the treated effluent. The sludge produced is removed and transferred to the City of Mountain Iron sanitary sewage system where it is managed and disposed of in accordance with NPDES/SDS MN0040835.
3. East Pit Dry Area is an extended aeration activated sludge package treatment plant with a subsurface disposal system for the treated effluent. The sludge produced is removed and transferred to the City of Mountain Iron sanitary sewage system where it is managed and disposed of in accordance with NPDES/SDS MN0040835.

NPDES/SDS permit MN0050504 for the Main Wastewater Plant is for the main domestic wastewater for the mine's processing facility. It consists of an extended aeration activated sludge package treatment plant with disinfection of the treated effluent that is discharged to the tailings basin. The sludge produced is removed and transferred to the City of Mountain Iron sanitary sewage system where it is managed and disposed of in accordance with NPDES/SDS MN0040835.

The proposed project is an extension of mining operations and would not change the volume or composition of wastewater generated at the Minntac mine.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies (identifying any impaired waters), and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

Sanitary wastewater generated at the processing facility buildings is treated and discharged on-site, either to subsurface disposal via drainfields, or to the tailings basin following effluent disinfection. Waste sludge is transported to the City of Mountain Iron Municipal Wastewater Treatment System for disposal. Because there would be no change or increase in sanitary waste generation, no changes would be necessary for the existing wastewater treatment methods or pollution prevention efforts related to sanitary wastewater.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

In addition to the response to item (b) above, sanitary waste generated at Minntac's Administration Building is discharged directly into the City of Mountain Iron's municipal sanitary collection system. No change in sanitary waste volume or quality is anticipated from the Minntac Administration Building as a result of the proposed project.

19. ***Geologic hazards and soil conditions***

a. Approximate depth (in feet) to ground water:
0 feet (surface) minimum, 35 feet below ground surface average; Source: http://pubs.usgs.gov/wsp/1759d/report.pdf
The source data from the U.S. Geological Survey notes groundwater in wells at 35 feet below ground surface. However, minimum depths could be interpreted as at the surface because of groundwater presence at the surface of streambeds and wetlands. However, dewatering activities at the mine affects depth to groundwater, therefore an average depth to groundwater is highly variable.

to bedrock:
0 feet (surface) minimum, variable average; Source: *Bedrock and Quaternary Geology of the Central Mesabi Iron Range, Northeastern Minnesota* (Jirsa and Meyer, 2007) http://conservancy.umn.edu/handle/109019
The source data from the University of Minnesota indicates that depth to bedrock in this area varies between 450 feet to -270 feet. Bedrock in the East Pit ranges from 20 to 90 feet with an average of 50 feet. Bedrock in the West Pit ranges from 35 to 130 feet with an average of 70 feet.

Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

The iron ore formation mined at Minntac is part of the Biwabik Iron Formation in the Mesabi Range, which can be followed over a distance of 100 miles, has a width of 1.5 to 3 miles, and extends to a depth of 600 ft.

The Biwabik Iron Formation is of the Lake Superior type banded iron formation (BIF) of Proterozoic Age, about 2.1 billion years old. The formation is formed of thick-bedded granular units of cherts, iron silicates, magnetite and hematite inter-bedded with thin-bedded to laminated units of iron silicates, carbonates, magnetite or hematite. Generally, the oxide facies is composed of magnetite, hematite and geothite, whereas the silicate

facies consists of minnesotaite, stilpnomelane and greenalite. Local carbonate facies could be encountered with calcite and siderite.

The rock is mildly metamorphosed with metamorphic grade increasing on the eastern portion of the Mesabi Range where the Biwabik BIF comes in direct contact with the gabbroic Duluth Complex. East of Minntac, the Mesabi Range is deformed by a regional Z-fold known as the Virginia Horn.

Local Geology:
In the Minntac area, the Biwabik Iron Formation strikes generally ENE with a 6 to 9 degree SSE dip. Some minor folding and small scale Z-folds that mirror the Virginia Horn are also present. Fault zones exist and are marked by local oxidation of the host rocks.

The geological units that are found in the Minntac Area, from top to bottom, are:

- Upper Slate (Over 100 ft. thick, not exposed at Minntac). Fine-grained argillite/greywacke with occasional granular chert beds. The unit is very lean and uneconomic.

- Upper Chert (140 ft. thick). A variable unit with upper packages of mottled and fragmental granular massive chert with argillitic layers. This grades down into a horizon of very lean jaspery chert and argillitic layers with algal structures. In turn, this package grades into a zone of fragmental to conglomeratic grey chert with a chertmagnetite matrix. The bottom of the Upper Chert unit becomes interlayered with more laminated argillitic chert silicate magnetite beds.

- Lower Slate (L.S., 150 ft. thick). (*Note that the term "intermediate slate" is not used at Minntac because it does not accurately reflect the local geology.*) The top of the L.S. features fine-grained laminated chert-silicate-magnetite-carbonate taconite. Often present in the middle of the L.S. is podshaped massive chert-silicate-magnetite "interbedded chert" or IBC. The IBC pinches and swells laterally and is occasionally stacked. The bottom portion of the L.S. is dark green to black (graphitic) and is finely laminated and fissile. Portions of this unit are economic and marked by a quartz-carbonate vein at the LC5B contact. This contact, at certain exposures along the East Range features pyrite and is denoted in the literature as the "intermediate slate". At Minntac however, the bottom portion of the L. S. is 20 to 30 feet thick, dark green or gray (graphitic) in color and usually features a thin quartz-carbonate vein at the LC5B contact. The percentage of magnetite decreases as the LC5B contact is approached. This contact subunit is very thinly bedded and fissile; therefore oxidation is not common and is restricted locally. Sulfide mineralization near the base of the L. S. is rare and a noteworthy amount has not been encountered by Minntac's geologist. This finding is supported by results of a study conducted by Harlan B. Niles of Coleraine Minerals Research Laboratory in 2003. The study report "Chemistry and Mineralogy of Diamond Drill Core Samples from USS Minntac" indicates that random drill holes were selected across Minntac for chemical and mineralogical analysis. Results revealed the presence of sulfur and pyrite in the lowest portion of the L.S. in very small amounts – generally less than ½ of one percent.

  Though sulfides (such as pyrite) are present in only small amounts in the L.S., it is acknowledged that sulfate levels in the tailings basin have become problematic for seepage discharged to the environment. This situation is an existing issue that will continue to be addressed though ongoing water quality permitting, whether or not the proposed extension project is implemented. DNR Lands and Minerals and the MPCA are currently exploring if materials handling/stockpiling at the site could be managed in such a way that reductions in sulfate levels could be achieved. The manner in which materials are handled/stored could reduce or avoid long term generation and release of sulfate. Potential changes in operations related to materials handling/stockpiling could become requirements or conditions incorporated into the Permit to Mine Amendment if and when it is issued for the extension project. The timing of the amendment for the extension project presents an opportunity to address this broader issue. Please see EAW Items 17 and 30 for additional discussion.

- Lower Chert 5B (LC5B, 23 ft. thick). Massive to thick bedded, coarsely granular silicate-chert-carbonate taconite. Often interbedded with green to black slate bands. Very rarely economic.

- Lower Chert 5A (LC5A, 23 ft. thick). Granular, fragmental to conglomeratic. Magnetite is disseminated throughout and this unit is sometimes economic.

- Lower Chert 4 (LC4, 60 ft. thick). Upper part is massive to wavy and thick-bedded silicate-chert-magnetite with magnetite-carbonate layers. Lower part features magnetite mottles. Usually of economic grade.

- Lower Chert 3 (LC3, 35 ft. thick). Medium to coarse granular chert-magnetite-silicate-carbonate taconite. This unit is best recognized by wispy veils of magnetite. Occasional magnetite mottles and grains. Usually of economic grade.

- Lower Chert 2 (LC2, 25-30 ft. thick). Thick, even bedded to massive chert-magnetite-hematite-carbonate taconite. Often marked by pink oxides and carbonates and by the first appearance of primary hematite. Usually of economic grade.

- Lower Chert 1 (LC1, 30 ft. thick). Granular massive chert-carbonate-hematite-magnetite horizons, usually interbedded with laminated argillitic layers. Often of uneconomic grade.

The majority of the easily recoverable iron units are found in the Lower Chert.

Mineralization:
The mineralization mainly consists of very fine magnetite with some occurrences of hematite, maghemite and goethite. The mineralization appears as fine layers of iron minerals alternating with chert. The bands in turn may contain laminae in the order of microns in thickness.

Gangue minerals are comprised of chert, minnesotaite, stilpnomelane, greenalite, calcite, ankerite, siderite, graphite with some sulfides as pyrite and marcasite.

Recoverable iron ore grades could vary from 15 to 30% iron content with a concentrate silica content ranging from 4 to 10% and a concentrate weight recovery in the order of 28-32% after flotation.

There are no known sinkholes, shallow limestone formations, or karst conditions observed on, or adjacent to the site according to the DNR's Karst Features Database.

The forthcoming Permit to Mine Amendment will include discussion of measures to prevent or minimize potential environmental problems associated with the proposed extension and roadway relocations related to geology or soil conditions. Methods for stockpiling, volumes, and stockpile locations will be addressed.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil texture and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

The Soil Survey for St. Louis County (Web Soil Survey 2.1, National Cooperative Soil Survey, Version 9, November 17, 2008) provides soils information with regards to the project. Soils information for the entire study area was retrieved and reviewed (see **Figure 9**).

The majority of the soils in the project area are composed of loam or sandy loam, often associated with glacial till. Areas of peat and muck deposits are also present. The MPCA's "Groundwater Contamination Susceptibility in Minnesota" map identifies the project area as having Low Susceptibility.

"Soils of Statewide Importance" is a farmland classification for soils as defined by the USDA Natural Resources Conservation Service policy and procedures on prime and unique farmlands as published in the Federal Register (Vol. 43, No. 21, January 31, 1978). Farmland classification for a soil is due to its location, extent, and best suitability for food, feed, fiber, forage, and oilseed crops. In the case of any of the land areas within the Minntac Extension, no areas are currently farmed or utilized for active production of food, fiber (such as silviculture),forage, or oilseed crops. Those soils within the Extension area classified as "Soils of Statewide Importance" will be cleared and stripped in preparation for mining in the same fashion as surrounding soils. It is not feasible to discriminate between differing soil consociations during land-stripping activities to stockpile these soils in separate stockpiles based on soil classification. All topsoil and underlying parent material and residuum is stripped and piled together within designated stockpile areas within the active mine.

Table19-1 provides a summary of the soils within the 483-acre mine extension area. **Table 19-2** indicates the mapped soils within the new mine access road corridor. **Table 19-3** indicates the mapped soils within the CSAH 102 relocation corridor.

Table 19-1. Summary of Soil Classifications and Characteristics within the Proposed Mine Extension

Soil Symbol	Soil Name	Approx. Acres	% of Area	Hydric Soil	Prime Farmland
1003B	Udorthents, loamy (cut and fill land)	145.7	30%	Unknown Hydric	Not Prime
1020A	Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	16.3	3%	All Hydric	Not Prime
1048	Dumps, iron mine	59.7	12%	Unknown Hydric	Not Prime
1049	Pits, iron mine	8.6	2%	Unknown Hydric	Not Prime
B27A	McQuade-Buhl complex, 0 to 3 percent slopes	31.7	7%	Partially Hydric	Not Prime
B28B	Buhl loam, 1 to 5 percent slopes	11.9	2%	Partially Hydric	Not Prime
B29B	Hibbing-Buhl complex, 1 to 8 percent slopes	53.8	11%	Partially Hydric	Statewide Importance
B31D	Hibbing loam, 8 to 18 percent slopes	3.6	1%	Not Hydric	Statewide Importance
B32A	McQuade-Dora, depressional-Fayal, depressional complex, 0 to 2 percent slopes	10.2	2%	All Hydric	Not Prime
B33A	McQuade-Fayal, depressional complex, 2 to 8 percent slopes	24.5	5%	Partially Hydric	Not Prime
B34B	Majestic-Hibbing complex, 2 to 8 percent slopes	19.8	4%	Partially Hydric	Statewide Importance
B63B	Urbanland-McQuade-Buhl complex, 0 to 12 percent slopes	60.9	13%	Partially Hydric	Not Prime
M-W	Water, miscellaneous	36.4	8%	Unknown Hydric	Not Prime
	Total	**483.2**	**100%**		

Table 19-2. Summary of Soil Classifications and Characteristics within the Proposed Mine Access Road Corridor

Soil Symbol	Soil Name	Approx. Acres	% of Area	Hydric Soil	Prime Farmland
1003B	Udorthents, loamy (cut and fill land)	17.6	66%	Unknown Hydric	Not Prime
1048	Dumps, iron mine	2.8	11%	Unknown Hydric	Not Prime
1049	Pits, iron mine	3.9	15%	Unknown Hydric	Not Prime
B29B	Hibbing-Buhl complex, 1 to 8 percent slopes	0.7	2%	Partially Hydric	Statewide Importance
M-W	Water, miscellaneous	1.6	6%	Unknown Hydric	Not Prime
	Total	**26.6**	**100%**		

Table 19-3. Summary of Soil Classifications and Characteristics within the CSAH 102 Relocation Corridor

Soil Symbol	Soil Name	Approx. Acres	% of Area	Hydric Soil	Prime Farmland
1003B	Udorthents, loamy (cut and fill land)	17.8	42%	Unknown Hydric	Not Prime
1020A	Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	1.1	2%	All Hydric	Not Prime
1048	Dumps, iron mine	8.4	20%	Unknown Hydric	Not Prime
B27A	McQuade-Buhl complex, 0 to 3 percent slopes	3.2	8%	Partially Hydric	Not Prime
B29D	Hibbing-Buhl complex, 1 to18 percent slopes	11.2	26%	Partially Hydric	Statewide Importance
B63B	Urbanland-McQuade-Buhl complex, 0-12% slopes	0.5	1%	Partially Hydric	Not Prime
B67A	Rifle soils, Hibbing catena, 0 to 1 percent slopes	0.1	0.3%	All Hydric	Not Prime
M-W	Water, miscellaneous	0.2	1%	Unknown	Not Prime
	Total	**42.5**	**100%**		

20. ***Solid wastes, hazardous wastes, storage tanks***
a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

Minntac mine waste will continue to be managed as indicated under the existing Permit to Mine. The mine waste characterization remains the same as under the original permit. In general terms, mine waste consists of surface overburden, loose material, and waste rock. Waste rock consists of blasted material of sufficient size to be loaded into haul trucks – typically 8 feet square down to minus 50 mesh.

Mine Extension
Minntac is currently licensed as a Small Quantity Generator of hazardous waste. Wastes are managed and disposed of in accordance with this license. However, no changes to waste production would result from the proposed mine extension.

New Mine Access Road
Construction of the proposed roadway would not generate substantial amounts of solid or hazardous waste. Contractors would be likely to produce small amounts of solid waste during construction that would be hauled offsite and disposed of in accordance with federal, state and local requirements.

County State Aid Highway 102 Relocation – Connected Action
Construction of the proposed roadways would likely not generate substantial amounts of solid or hazardous waste. It is anticipated that the existing bituminous driving surface from CSAH 102 will not be reused for the relocated CSAH 102 due to the timing of vacating the road. The deconstruction of the existing CSAH 102 will likely occur after the new road is constructed in order to allow for continuity of the connection between Mountain Iron and Virginia. The contractor responsible for the construction/deconstruction activities may stockpile re-useable materials from the existing CSAH 102 for future use in other roadway projects.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

Mine Extension
Continuation of mining operations would include the continued transportation and use of blasting agents including ANFO (ammonium nitrate and fuel oil) and emulsion blend explosives. Other materials present would include those associated with mobile equipment including lubricants (greases, hydraulic fluid, oil), fuel oil and gasoline, antifreeze, batteries, and tires. Current operations include preventative measures such as transportation of explosives by vendors in leak-proof trucks, proper maintenance and best management practices in fueling and waste disposal. These practices would continue as mining progresses into the extension area.

New Mine Access Road
During construction, it is anticipated that construction equipment would contain gasoline, diesel fuel, antifreeze, lubricants, and other fluids. If these products are used, they would be disposed of in accordance with local, state, and federal regulations. Fueling of construction machinery and equipment will be completed in areas away from wetlands, water bodies and waterways.

County State Aid Highway 102 Relocation – Connected Action
During construction, it is anticipated that construction equipment will contain gasoline, diesel fuel, antifreeze, lubricants, and other fluids. Fueling of construction machinery and equipment will be completed in areas away from wetlands, water bodies and waterways.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

Mine Extension
There are aboveground storage tanks (ASTs) on the Minntac property. Currently at the West Pit, Minntac maintains two diesel fueling sites with ASTs for heavy mobile equipment. At the East Pit, Minntac maintains one diesel fueling site with an AST for heavy mobile equipment. There would be no new above or below ground petroleum product storage facilities within the limits of the proposed mine extension area. All fuels, lubricants and other liquid products to be used would continue to be supplied from existing storage and supply sources within the mining operation. All on-site equipment fueling would continue to be performed using best management practices to avoid and clean up spills.

New Mine Access Road
Minntac has Emergency Response Plans and procedures in place through the ISO 14001 management system which would be utilized for this project. The procedures provide instructions for actions to be taken should an incident occur, such as a spill.

County State Aid Highway 102 Relocation – Connected Action
U. S. Steel has no knowledge of tanks which would be used for this project, or emergency response plans in place.

21. **Traffic.** Parking spaces added: N/A
Existing spaces (if project involves expansion): None
Estimated total average daily traffic generated: No increase over existing traffic levels
Estimated maximum peak hour traffic generated and time of occurrence:
Indicate source of trip generation rates used in the estimates.
If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Using the format and procedures described in the Minnesota Department of Transportation's Traffic Impact Study Guidance (available at: http://www.oim.dot.state.mn.us/access/pdfs/Chapter%205.pdf) or a similar local guidance, provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.

CSAH 102 (also known as Old Highway 169) provides a continuous connection along CSAH 102 between Trunk Highways 53 and 169 and the communities of Virginia and Mountain Iron. CSAH 102 is a public roadway which provides access to the Minntac mine facility as well as connectivity between TH 53 and 169.

The western segment of the roadway provides access to the historic area of Mountain Iron as well as access to the Minntac mine from the west. The proposed mine extension would result in elimination of approximately 1.5 miles of the eastern segment of CSAH 102 and require relocation of the roadway in accordance with Minn. Statute 160.10. Traffic going to the Minntac facility would utilize the new mine entrance road and no longer have the option of going through downtown Mountain Iron. However, the proposed mine extension would not increase the number of personnel at the Minntac operation or result in any net change in daily trips or the time of peak traffic.

A Minntac Entrance Traffic Impact Study was conducted by the St. Louis County Public Works Department in 2009 to assess existing traffic and turning movements at the Minntac entrance and determine the potential effect of the loss of CSAH 102 access from the east. The study investigated whether Mineral Avenue is physically/structurally capable of carrying the additional traffic generated if a new mine access road was not constructed. The traffic study's conclusion addresses only the physical capacity of the roadway quantified in vehicles per hour, i.e. could the road handle the additional traffic.

The study evaluated two options for rerouting mine traffic: 1) routing traffic on the western segment of CSAH 102 (Mineral Avenue) through Mountain Iron, and 2) using a new mine access road that would bypass the old downtown area of Mountain Iron. Traffic projections were completed for CSAH 102 and the mine entrance road.

There are currently an estimated 2,050 vehicles per day using Mineral Avenue through Mountain Iron. The study shows that the loss of CSAH 102 east of the existing mine entrance would result in an additional 510 eastbound vehicles and 400 westbound vehicles traveling through Mountain Iron each day with a peak during the period between 5:30 a.m. and 7:00 a.m. (the shift change involving the largest number of employees). This would increase the traffic volume on Mineral Avenue by 910 vehicles per day to approximately 2,960 vehicles. This represents an increase of approximately 44 percent, but is less than the estimated 4,000 vehicles per day that would use the roadway if mine employment were at the higher levels of the 1970s.

The study reports that the increase in traffic that would result from routing mine traffic along Mineral Avenue in Mountain Iron would not exceed the capacity of the roadway, would not diminish the level of service from an "A" rating without altering existing traffic control. Therefore, no adverse consequences would be expected.

Construction and use of a private mine access road would accommodate approximately 2,790 mine-related trips and reduce traffic in Mountain Iron from 2,050 vehicles per day to 170 vehicles per day.

22. ***Vehicle-related air emissions.*** *Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.*

Mine Extension
There would be no net effect on air quality as a result of the proposed project. Employees would continue to report to work at existing locations resulting in no increase in personal vehicle emissions. As mining activities continue into the extension area, emissions related to the operation of production trucks, loaders, graders, automotive vehicles would continue at their current operational levels into the adjacent extension area. Haul distance and mining equipment usage requirements would be similar to the current operation.

New Mine Access Road
Employees would report to work using the new access road resulting in no net increase in personal vehicle emissions.

County State Aid Highway 102 Relocation – Connected Action
Traffic on the realigned CSAH 102 is expected to be the same as that carried on the existing CSAH 102. Traffic could increase as development occurs in the area, but this would be unrelated to the proposed project.

23. ***Stationary source air emissions.*** *Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult EAW Guidelines for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.*

No new sources of air emissions would result from the proposed project. The proposed mine extension would not be expected to increase any air emissions above the current levels.

24. ***Odors, noise and dust.*** *Will the project generate odors, noise or dust during construction or during operation?* ☒ Yes ☐ No *If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)*

Mine Extension
The proposed project would generate mining equipment diesel engine exhaust; dust as a result of blasting, materials handling, and equipment movement on unpaved roads; and noise as a result of blasting and heavy mining equipment engine operation.

Dust: Fugitive dust generated from haul road traffic and other routine mining activities would be minimized by following the procedures outlined in Minntac's Fugitive Emissions Control Plan. This Plan includes control measures such as use of dust suppressants, watering, grading, and covering roadway surfaces with crushed rock. Dust generated from blasting would be controlled by blast technique and taking advantage of optimum weather conditions (*i.e.*, wind).

Blasting: Generally, mine blasting is one of the greatest public concerns. Blasting is a necessary part of mining; it cannot be eliminated but it can be controlled to what most people agree is acceptable. Blasting regulation has focused on establishing noise and ground vibration limits designed to prevent structural damage to buildings and other manmade structures. These levels are measurable with sensitive instrumentation, and were developed by observing the impacts on structures exposed to actual mine blasts. The noise and vibration limits that were established are well below the levels that cause damage such as the initiation or expansion of cracks in plaster walls.

Window glass cracking or breakage is the most common type of damage due to blasting. While it can be substantially reduced by meeting blasting limits, it is not always eliminated. Experience has shown that a number of factors beyond blasting influence this type of damage, including extremes in air temperatures, stresses on the glass resulting from poor alignment within the window frame, or simply the age of the glass that can cause it to become brittle. In almost every case where window damage occurs as a result of blasting, the windows affected directly face the direction from which the blast occurred, making it simpler to assess the cause of the damage.

The work on developing noise and ground vibration blasting levels was done by the U.S. Bureau of Mines between 1950 and 1975. While the Bureau's main emphasis was on developing blasting limits to prevent structural damage, the Bureau also studied impacts of blasting on people. On the basis of its research, the Bureau concluded that if blasting is controlled so that the structural damage limits are met, most people find the noise and vibrations tolerable, though sometimes disconcerting.

There are a number of factors that influence the level of noise from a blast. These include: the size of the blast, the amount of explosive ignited at any given instant, the direction and speed of the wind that will carry the noise, the integrity of the rock being blasted (degree of fractures and weathering), the barometric pressure, the physical location of the blast (near the surface or deep in the pit), and many other factors. These factors are so variable that mining company personnel must continually adjust blasting patterns to compensate for the variability. Such adjustments are based on the experience the company gains from each blast and the mandatory monitoring of noise and vibration levels. If the levels of noise and vibration start to approach the DNR threshold

standards, actions must be taken on subsequent blasts to lower them. Frequent adjustments include changing spacing of blast holes, reducing the size of the blast pattern, reducing the amount of explosives ignited at any given instant, or delaying the blast until the wind direction or barometric pressure changes.

U. S. Steel's Minntac facility uses rotary drills to bore widely-spaced, large diameter holes. These holes are loaded with emulsion blend blasting agents. The upper portions of the holes are back-filled with crushed stone to contain the energy. The holes are tied together using a non-electric system. Milli-second delays interrupt the large blasts, breaking them up into many small, closely-spaced blasts that appear to be one event. Seismographs and sound level meters are placed in nearby neighborhoods to monitor whether ground vibration and noise levels are held to acceptable levels.

U. S. Steel completes blasts at its Minntac facility only when the meteorological conditions are conducive. Surface winds, winds aloft and temperatures aloft all have a profound effect on the resulting sound level. Blasts are designed to withstand a wait of several weeks if unfavorable weather conditions persist. To insure that no personnel are in the flyrock zone, affected mine areas and neighboring properties are secured before blasts are set off.

A noise survey was conducted in association with the environmental review conducted for the previous Minntac mine extension in 1996. At that time, the nearest residence was located 2,500 feet from the perimeter of the extension and the study concluded that noise standards would not be exceeded at that location. The proposed extension of the West Pit would not decrease the distance between mine operations and residential uses (i.e.; bring these land uses closer together). Extension of the East Pit would decrease the distance to the Parkville area. Currently, there are two remaining residences within 1200 feet of the future East Pit Extension pit boundary. The closest residence is approximately 250 feet from the boundary. The second residence is approximately 400 feet from the future boundary. Relocation efforts are on-going with both residences. U. S. Steel continues to purchase residences in the northern portion of Parkville in order to provide a buffer between residences and mining activities. It is expected that that portion of Parkville between 2nd Avenue and Township Road 6811 will be vacated by the time mining begins in the proposed extension area, providing a similar buffer as the one that exists today, to ensure that noise standards will continue to be met.

New Mine Access Road
Odors generated during construction are anticipated to be minor. Noise may be generated by equipment during construction. Contractors would be required to follow the local noise ordinances and would follow industry standard for times worked during the day.

Fugitive dust is expected to be generated on-site by heavy equipment during construction. Dust generation would be minimized through BMPs during construction including minimizing the periods and extent of exposed and/or graded areas, watering construction areas as appropriate, and minimizing the use of vehicles on unpaved surfaces.

25. ***Nearby resources.*** *Are any of the following resources on or in proximity to the site? If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.*

Archaeological, historical or architectural resources? ☒ Yes ☐ No
Prime or unique farmlands or land within an agricultural preserve? ☒ Yes ☐ No
Designated parks, recreation areas or trails? ☒ Yes ☐ No
Scenic views and vistas? ☒ Yes ☐ No
Other unique resources? ☒ Yes ☐ No

Archaeological, historical or architectural resources
The Mountain Iron Mine Historic Site is a water-filled pit of the previous Mountain Iron Mine (and known as the Mountain Iron Pit). It is listed on the National Register of Historic Places (NRHP) and is a National Historic Landmark (NHL). The mine was first discovered in 1890 and began shipping ore in 1892. This mine, along with the other natural iron ore mines of Minnesota's Mesabi Range, provided more than half the iron ore mined in the entire country between 1892 and 1961. The large amount of ore mined identified the fact that the Mesabi

Range contained the world's largest deposits of iron ore and made Minnesota the leading iron supplier in the nation. The mine closed in 1956, yielding more than 48 million tons of ore during its 64 years of operation. The pit is now used as a reservoir by U.S. Steel. The Mountain Iron Mine Historic Site is on the National Park Service Listing of National Historic Landmarks and is named as an historic place by the State of Minnesota. Mountain Iron Park in the City of Mountain Iron contains some historic mining equipment used at the mine.

The Mountain Iron Landscape Historic District (District) includes ten properties located at the southeast tip of the Mountain Iron Mine water-filled pit. One of the investigations completed in the project area indicated that the District may be eligible for inclusion in the NRHP under Criterion A for its association with early mine exploration and the development of the Mesabi Iron Range.

Neither the Mountain Iron Mine Historic Site nor the District will be directly impacted with the mining extension or construction of the proposed new roadways. The sites are within the Environmental Settings Boundary for the Minntac Mine but are not within the current or proposed permit to mine limits.

No other archaeological, historic, or architectural resources are known to exist within or near the proposed mine extension. A Phase IA literature search and field reconnaissance for archaeological potential (July 2011) and Phase I archaeological survey (October 2011) were conducted for the Minntac extension area and mine access road (Landscape Research LLC and Two Pines Cultural Resources LLC, 2011). The results of the Phase IA literature search indicated a generally low potential for intact precontact archaeological resources to be present within the project area of potential effect (APE). No archaeological sites were identified in the subsequent Phase I archaeological survey and no additional work is recommended within the Extension areas. Correspondence has been sent to the Minnesota State Historic Preservation Office (SHPO) to obtain their concurrence that no historic properties would be affected by the proposed project. The USACE is coordinating with SHPO regarding potential effects on historic properties. Any adverse effects on historic properties would need to be resolved before permits could be issued for the project.

Prime or unique farmlands or land within an agricultural preserve

There are no Prime Farmlands within the project limits; however, there are three soil consociations within the project limits that are classified as Soils of Statewide Importance (B29B, B31D, and B34B). These soils compose 77.2 acres, or 16% of the proposed mine extension, and 0.7 acres (2%) of the proposed new access road alignment. Ownership by U. S. Steel prevents agricultural use, resulting in no adverse impacts to Soils of Statewide Importance.

Designated parks, recreation areas or trails

The Mesabi Trail extends from Grand Rapids to Ely and bisects the project area traversing through the City of Mountain Iron and east to the City of Virginia (see **Figure 4**). The proposed mine access road would cross the Mesabi Trail. There may be temporary impacts to users of the trail during construction of the road, including temporary closure of the trail, dust, and noise. In addition, the trail experience/surroundings in this area will be somewhat different after the road's construction as there will be occasional traffic and associated noise. Other portions of the trail extend through areas with traffic, and the impact to trail users is not anticipated to be substantial. Current plans indicate a below grade box culvert will be used to reroute the trail at the new mine access road crossing, thus trail connectivity through the area will be maintained. The proposed reroute plan has been reviewed and approved by the St. Louis County Regional Rail Authority.

The Minnesota DNR manages a state snowmobile trail (The Laurentian Trail), which has segments that originate on the west side of the project area in Kinney, and on the east side in Virginia. The trail is entirely outside the extension area, and would not be affected by the proposed project.

Scenic views and vistas

Located approximately one mile from Mountain Iron Park, the Wacootah Overlook provides a view of the Minntac taconite plant and mine (see **Figure 4**). Due to the proximity to the existing mine entrance, privatization of the proposed mine access road would eliminate public access to the Wacootah Overlook.

26. ***Visual impacts.*** *Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks?* ☐ Yes ☒ No If *yes, explain.*

The proposed project would not increase visual impacts related to lighting, cooling towers, exhaust stacks, or other barriers. Due to the isolated location, large property boundary, fencing, berming, and forested buffers surrounding Minntac, adverse visual impacts have been and will continue to be minimal. Height increases in stockpiles and inner tailings basin cells would continue to be noticeable from certain distant viewpoints. However, future mining activity and roadway closures are scheduled to eliminate the current best publicly accessible views of Minntac such as the northbound Highway 53 Eveleth to Virginia corridor, the Virginia "Mine View in the Sky" overlook, and the Mt. Iron Wacootah overlook.

27. ***Compatibility with plans and land use regulations.*** *Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency?* ☒ Yes ☐ No
If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

Mine Extension
The City of Mountain Iron has zoned the mine extension area "Mineral Mining District" (MM), the purpose of which is *"to provide areas for active mining use and to protect from urban development those areas which have minerals, timber or other potentially marketable natural resources."* Mining, processing, storage and transportation of taconite and other metallic ores are permitted uses.

New Mine Access Road
The new Mine Access Road would serve as an entrance to the Minntac facility to alleviate the need for traffic flow through downtown Mountain Iron.

County State Aid Highway 102 Relocation – Connected Action
Minn. Statute 160.10 provides a mechanism for the relocation of roads on mineral lands. Based on the statute, St. Louis County and U.S. Steel have negotiated a tentative (yet to be signed) agreement regarding responsibility for the relocation of CSAH 102. As it currently stands, the agreement stipulates that U.S. Steel will be responsible for construction of the road and associated permit submittals. Per Minn. Statute 160.10, the roadway must be constructed to at least the engineering standards of the old roadway. Due to roadway designation and funding, it must be designed to current CSAH standards. To that end, Minntac has coordinated with St. Louis County Public Works and the City of Mountain Iron to identify an alignment for CSAH 102 south of the current alignment as shown on **Figure 3**. This is the preferred alignment for the roadway relocation and will connect CSAH 109 and the existing CSAH 102 (Mineral Avenue) in Mountain Iron. It will reasonably replace the functionality of the existing CSAH 102 and provide local transportation connectivity independent of Trunk Highway 169. Final road alignment is pending wetland permitting.

Although the preferred alignment does not provide full replacement of the function of the existing CSAH 102, the proposed alignment minimizes wetland impact and will not likely be eliminated by future mining activities in the area. Other corridors/alternatives explored for the roadway relocation would likely be mined within the useful service life of the reconstructed roadway and would have resulted in a substantial impact to wetlands between existing CSAH 109 and Trunk Highway 53.

28. ***Impact on infrastructure and public services.*** *Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project?* ☒ Yes ☐ No
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see EAW Guidelines for details.)

The proposed mine extension would result in elimination of a portion of the eastern segment of CSAH 102 which impacts the public road infrastructure and access to the mining facility from the east. Elimination of this segment of CSAH 102 will also remove the local highway connection between Trunk Highways 53 and 169 and the communities of Mountain Iron and Virginia.

Minn. Statute 160.10 provides a mechanism for the relocation of roads on mineral lands. Based on the statute, St. Louis County and U.S. Steel have negotiated a tentative (yet to be signed) agreement regarding responsibility for the relocation of CSAH 102. As it currently stands, the agreement stipulates that U.S. Steel will be responsible for construction of the road and associated permit submittals. Per Minn. Statute 160.10, the roadway must be constructed to at least the engineering standards of the old roadway. Due to roadway designation and funding, it must be designed to current CSAH standards.

In cooperation with St. Louis County Public Works and the City of Mountain Iron, US Steel has identified an alignment for CSAH102 south of the current alignment as shown on **Figure 3**. Reconstruction of CSAH 102 is being designed by a consultant engineering firm retained by U.S. Steel and is subject to review and approval by the St. Louis County Public Works Department and the Minnesota Department of Transportation State Aid Office. The roadway reconstruction project will be permitted, funded, and constructed by U.S. Steel, based on the tentative agreement reached between the company and the County. Upon completion and approval of the reconstructed roadway, the St. Louis County Public Works Department will take over ownership of the new CSAH 102 transportation corridor.

29. ***Cumulative potential effects.*** *Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement.*
Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)
Describe the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects (or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form).

Cumulative effects are those that result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or individual undertakes such other actions.

Stream habitat loss from past, current and future mining activities has a cumulative effect. The health of a river system is dependent on connectivity and access to diverse habitat is important for game fish populations as well as their prey. The West Two Rivers Reservoir dam is a barrier to fish passage, and since the fish and mussel populations in the reservoir are already disconnected from downstream waters and populations, loss of upstream tributary habitat is important. As indicated in Item 12, approximately 4,002 linear feet of stream would be removed through the proposed Extension Project. Approximately 45,123 linear feet (8.5 miles) of stream has already been removed due to past mining activity.

In addition to the direct loss of stream habitat, cumulative effects to downstream public waters and other water bodies will also occur as the natural hydrology of the area is changed. Contributing watershed areas can be severed or completely removed due to mining activity. The proposed Extension Project will impact 470 acres of watershed contributing area. Approximately 10,052 acres of watershed have already been impacted or will be, due to past or current mining activities.

The proposed project would include impacts to 66.7 acres of wetland for the Mine Extension Area and new mine access road. Impacts resulting from the new mine access road are expected to be minimized where possible during the planning and design process. The potential new CSAH 102 relocation corridor could affect up to 2.0 acres of additional wetlands.

The Environmental Assessment prepared in 1976 for the "Step III" Expansion Project does not identify any wetland impacts, but it is likely that wetland loss occurred with the initial development and growth of the mine

as well as from the initial mining in the 1950s. The EAW prepared for the previous Minntac mine extension in 1996 reports loss of 275 acres of wetland habitat from the 1,360-acre extension of the mine pits. Permitting efforts are ongoing for 80.6 acres of wetland impact, the last portion of the 275 acres described in the 1996 EAW.

The proposed extension of the Minntac mine will result in further wetland loss in the headwaters of the St. Louis River watershed. However, upon cessation of mining, dewatering will cease and the mined pits will flood and become other deep water pits. This will result in a loss of the functions and values provided by shallow marsh, shrub, and forested wetland habitat that are not replaced by open water habitat.

The proposed action will result in 66.7 acres of direct wetland impacts. Previous permits have been granted for 5.1 acres of wetland impact. In addition, it is expected that 5.4 acres of additional wetland area will be lost due to indirect impacts by fragmenting portions of wetlands. Subtracting previously permitted impacts (5.1 acres) and adding potential indirect impacts (5.4 acres), mitigation is expected to be required for up to 67.0 acres of impact. These wetland losses will be replaced at an anticipated minimum ratio of 1.5:1 in advance of or concurrent with the extension. The loss of wetland functions and values was mitigated from the last mine extension and will be mitigated from the proposed extension as well.

Reasonably foreseeable future projects within the vicinity of the Minntac Extension area are described in the following table.

Table 29-1. Reasonably Foreseeable Future Projects

Project	Owner	Watershed
Mountain Iron Industrial Park Development	Unknown projects of various potential and ownership	St. Louis River
2012 Reclaim and Overlay of County Highway 16	St. Louis County	St. Louis River
2019 Reclaim and Overlay of County Highway 25	St. Louis County	St. Louis River
2013 Reclaim and Overlay of County Highway 65	St. Louis County	St. Louis River

See **Figure 10** for the location of these potential future projects in relation to the proposed Extension. No other reasonably foreseeable future projects were identified after consideration of potential projects by the individual municipalities in the study area and the St. Louis County Public Works Department.

Construction of the new of County State Aid Highway 102 corridor is expected to generate development in the City of Mountain Iron industrial park (see **Figure 10**). The number, size, and location of potential developments along the relocated roadway corridor cannot be quantified at this time. The National Wetlands Inventory identifies wetlands in the area. However, sufficient upland area is available for development without substantial impacts to wetlands.

The 10-Year Road & Bridge Construction Program of the St. Louis County Public Works Department identifies three "reclaim and overlay" projects as shown on **Figure 10**. Because these projects all include reconstruction of existing facilities, no substantial wetland impacts, if any, are expected.

30. ***Other potential environmental impacts.*** *If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.*

Existing Site Issue – Sulfate Concentrations in Facility Related Discharges
The following information pertains to sulfate concentrations in facility related discharges, which is an existing issue at the Minntac site. The existing situation is not anticipated to be appreciably affected by the proposed

mine extension project. The issue will continue to be addressed through ongoing water quality permitting, whether or not the proposed extension project is implemented.

Tailings Basin
The ore to be mined through the proposed extension project is of similar sulfur content as the ore currently being mined and processed at the site. Because production rates will remain the same, potential future increases in sulfate levels in the tailings basin are not anticipated. Monitoring at the existing site has shown elevated sulfate levels in tailings basin water. As stated in Item 19, although sulfides (such as pyrite) are present in only small amounts in the Lower Slaty, it is acknowledged that sulfate levels in the tailings basin have become problematic for seepage discharged to the environment. The company has been issued a Schedule of Compliance (SOC) and is working to reduce pollutant loadings from the tailings basin. The SOC requires the company to investigate measures to eliminate or reduce constituents in the tailings basin, or at their source including the installation of dry air pollution controls in place of the existing wet scrubber system, and using alternate water sources with lower concentrations of pollutants for its process make-up water. With these measures implemented, it is anticipated that sulfate levels in the tailings basin will decrease over time.

The company has taken steps toward addressing tailings basin issues, including the installation of a seepage collection and return system on the eastern side of the tailings basin. This system initiated operation in 2010. Construction for a seepage collection and return system on the west side of the tailings basin is scheduled to be completed in 2013, pending USACE/MPCA Section 404/401 permitting. The company has also proposed the use of the #6 sump water as an alternate process water source. This source is lower in sulfate concentration than current sources and it would assist in lowering contributions to the tailings basin.

Mine Site
As referenced earlier the ore to be mined through the proposed extension project is of similar sulfur content as the ore currently being mined and processed at the site. The extension will expose additional materials in stockpile areas as well as in the new pit area. Future increases in sulfate levels could potentially be associated with the accumulation over time of additional materials and areas exposed to the elements.

Monitoring of mine pit dewatering waters in the Prindle Sump (SD004) and the #3 Sump (SD001) over the last five years has reported sulfate levels ranging from 371 mg/L to 501 mg/L and 261mg/L to 358 mg/L, respectively. Sulfate levels in the #6 Sump (SD003) have ranged from 126 mg/L to 154 mg/L. Sulfate levels in mine pit dewatering waters will be taken into account in future NPDES/SDS permitting.

DNR Lands and Minerals and the MPCA are currently exploring if materials handling/stockpiling at the site could be managed in such a way that reductions in sulfate levels could be achieved at the mine site. The manner in which materials are handled/stored could reduce or avoid long term generation and release of sulfate. Potential changes in operations related to materials handling/stockpiling could become requirements or conditions incorporated into the Permit to Mine Amendment if and when it is issued for the extension project. The timing of the amendment for the extension project presents an opportunity to address this broader issue.

31. ***Summary of issues.*** *Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.*
List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

Detailed information about the schedule and implementation of the proposed mine extension has not yet been developed. A detailed mine model and stockpiling plan will be included in the forthcoming application to the DNR for the Permit to Mine Amendment.

Approximately 4,002 linear feet of stream habitat would be removed through the proposed Extension Project. Approximately 45,123 linear feet (8.5 miles) of stream has already been removed due to past mining activity. Stream habitat loss from past, current and future mining activities has a cumulative effect. The health of a river system is dependent on connectivity and access to diverse habitat is important for game fish populations as well

as their prey. The West Two Rivers Reservoir dam is a barrier to fish passage, and since the fish and mussel populations in the reservoir are already disconnected from downstream waters and populations, any loss of upstream tributary habitat is important.

In addition to the direct loss of stream habitat, impacts to downstream public waters and other water bodies will also occur as the natural hydrology of the area is changed. Contributing watershed areas can be severed or completely removed due to mining activity. The proposed Extension Project will impact 470 acres of watershed contributing area. Approximately 10,052 acres of watershed have already been impacted or will be, due to past or current mining activities.

The proposed mine extension will result in the direct loss of 66.7 acres of wetland habitat and potentially affect an additional 5.4 acres of wetland indirectly from alteration of hydrology from fragmentation. Impacts to wetlands will require a permit from the MDNR and from the USACE , as well as certification of the USACE permit by the MPCA. Mitigation for wetland loss will be provided through use of the existing U. S. Steel project-specific wetland replacement bank as well as through replacement at a new U.S. Steel project-specific wetland bank currently being established in Aitkin County, Minnesota and pending approval by the USACE.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

* The information contained in this document is accurate and complete to the best of my knowledge.
* The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.
* Copies of this EAW are being sent to the entire EQB distribution list.

Signature _____ Date August 1, 2012

Title Planner Principal State

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-201-2492, or http://www.eqb.state.mn.us

U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 417
Mt. Iron, MN 55768

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CERTIFIED MAIL: 7012 1640 0000 6703 5680

July 9, 2013

Jill Bathke
Department of the Army
St. Paul District, Corps of Engineers
180 5th St. East, Suite 700
St. Paul, MN 55101

Re: MVP-2012-00415-JCB Response to Information Request

Dear Ms. Bathke,

U. S. Steel received a letter dated May 24, 2013 from Tamara Cameron requesting additional information on the Environmental Impact Assessment for the Minntac Extension project. In the letter the Corp outlined a number of information requests which would assist the Corp in completing the Environmental Assessment for the project as required under the National Environmental Protection Act (NEPA) and the Corp public interest review.

The information requested has been enclosed with this letter and is in a question and response format with additional information included as attachments. Because of the overall volume of the supporting information, the attachments have been included on a CD in electronic format. Two additional copies have been enclosed for USEPA and MDNR review. If you have any questions please feel free to contact me at (218) 749-7364 or clbartovich@uss.com.

Sincerely,

Chrissy Bartovich
Director – Environmental

cc: Tishie Woodwell – U. S. Steel
Eric Williams – U. S. Steel
Monica Gesk – U. S. Steel
Tom Moe – U. S. Steel
Josh Zika – U. S. Steel

USACE Question: ***Mining Activities:*** *Provide additional information on where waste rock and overburden stockpiling will occur. Maps showing the locations of proposed stockpiling locations and a description of proposed increases in the height of those stockpiles should be included.*

USS Response:

Maps showing the location of stockpiling locations at the beginning, mid-life and end-life of the Permit to Mine amendment for the Extension are included in Attachment A. The existing and future heights of various stockpiles are estimated below.

Minntac Mine Extension Stockpile Elevations

West Pit			East Pit		
Stockpile	**Current Elevation**	**Maximum Elevation**	**Stockpile**	**Current Elevation**	**Maximum Elevation**
N West	1140	1230	Q	1220	1290
N East	1160	1320	T	1150	1210
34	1100	1120	55	1070	1070
GG	---	950	63	940	1020
KK	---	1060	50	1035	1035
HH	1105	1140	54	1000	1000
II	985	1030	69	1080	1120
65	1090	1150	--	--	--
51 West	970	1200	--	--	--
51 East	---	1010	--	--	--
51 South	---	910	--	--	--
57	1175	1430	--	--	--
20	1130	1260	--	--	--
49/68	920	1000	--	--	--
49 (incl. 1050 lift)	1010	1050	--	--	--
49 North Ext	980	1100	--	--	--
14	1000	1140	--	--	--
Land Bridge	---	1020	--	--	--
In-Pit Rock	---	1050	--	--	--

Note: **Refer to** Figures 6-E.1 **through** 6-E.6 **in Attachment A for stockpile locations and elevations.**

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USACE Question: ***Access Road:*** *More details on the proposed construction and design of the access road is needed, including:*

- *Construction plans showing the width of the roadway, right-of-ways, ditches (if any), and any aquatic features such as streams, lakes, or wetlands;*
- *Locations, dimensions, and types of culverts;*
- *The design speed and load rating for the proposed roadway;*
- *The anticipated average daily traffic of the access road;*
- *Any temporary wetland impacts need to be described and shown on plan view drawings;*

- *Description of any potential secondary impacts due to drainage;*
- *The proposed material that would be used for the road construction;*
- *A description of any management practices that would occur during construction to reduce the release of suspended particulates to downstream waters.*

USS Response:

- The design plan and profile drawings which pertain to the USS Minntac access road are shown in Attachment B.
- The locations, dimensions and types of culverts planned for the proposed USS Minntac access road are shown on the design plan and profile drawings contained in Attachment B.
- The USS Minntac access roadway design speed is 50 mph and it is designed as a 10 ton roadway.
- The average daily traffic for the USS Minntac access road is anticipated to be 2,900 ADT, with an estimated 10% trucks.
- Temporary wetland impacts related to the USS Minntac access road are illustrated in the design plan and profile drawings and shown on plan sheets 69, 70, and 76 of 155, contained in Attachment C.
- Secondary impacts would likely consist of roadway surface drainage into adjacent wetland areas via roadside ditches and culverts. Refer to Attachment B for exact locations.
- Roadway section consists of bituminous mixture, class V material will be provided by the contractor and will likely be 100% crushed material meeting gradation specifications per MnDOT standards. The material beneath the roadway shall consist of native materials found through the roadway corridor.
- Erosion and sediment control plans are included in the plans to be in compliance with the Minnesota Pollution Control Agency NPDES general stormwater permit for construction activity required for the project. Specific items to limit the release of suspended particulates include erosion control blanket, ditch checks, silt fences, and sediment basins.

USACE Question: ***Air and Atmospheric Values:*** *In the interest of disclosure and to accurately describe the impacts to the affected environment pursuant to NEPA, please provide the status of the application/potential timing of the issuance of a new Air Emissions Permit- Title V Air Emissions #13700005.*

USS Response:

The Title V Air Emissions Permit #13700005 for the Minntac facility is administratively extended. The expiration date on the Title V Permit is 2/26/08 and the Title V Renewal Application was submitted to the MPCA on 8/9/07, within the required time frame. USS continues to follow the conditions of the permit, including submittal of semi-annual reports, and annual compliance certifications. USS also follows the requirements of the Taconite MACT, although they have not been incorporated into the permit at this time. It is unknown as to when MPCA will begin working on the reissuance application.

USACE Question: ***Air and Atmospheric Values:*** *Although we understand that there may not be an increase in the rate of air pollutants emitted beyond existing levels, the proposed project would extend the life of the mine and would therefore prolong pollutant emissions into the affected environment. Using the best available data, please quantify the potential incremental release of air pollutants under the proposed Extension project including: CO, NOx, VOCs, PM_{10}, $PM_{2.5}$, and diesel exhaust particulate matter. This information will be used to disclose impacts to the affected environment pursuant to NEPA.*

USS Response:
Using U. S. Steel Minntac's 2011 and 2012 Air Emissions Inventory data, a pound of pollutant per long ton of pellet produced factors were calculated. The factors are as follows:

Pollutant	lb pollutant per long ton of pellet produced
CO	0.07
NO_x	0.95
VOC	0.01
PM_{10}	0.42*
$PM_{2.5}$	0.42*

*USS in unable to measure PM_{10} or $PM2_{.5}$ due to having wet stacks, therefore, as a conservative estimate we assume all particulate matter is $PM_{2.5}$ and PM_{10}

Production levels depend on many different factors that including economic conditions and maintenance activities. Therefore, it is difficult to make a future prediction of an annual production level. However, using historical production data encompassing both high and low production years, the average production rate is 12,900,000 long tons per year.

In addition, USS anticipates further emission decreases. Permit action 13700005-006, for which public comment ended on July 8, 2013, includes the installation of low NO_x main burners on two Agglomerator indurating lines. Also, a permit application has been submitted for changing out numerous existing dust collectors with higher removal efficiency dust collectors. Work continues on the major permit application for installation of dry controls on Agglomerator Line 6 which would reduce SO_2, mercury and particulates. None of these projects were taken into consideration when calculating the emission factors provided above. Therefore, the emission factors provided above are a conservative estimate of future operations.

MPCA does not require, and USS does not quantify, diesel exhaust particulate matter. Therefore, no information is available to provide.

USACE Question: ***Water Resources:*** *Explain and quantify all effects (permanent, temporary, and secondary) to mine pit lakes. Describe the aquatic environment and provide any collected water quality data from the last five years for the mine pit lakes.*

USS Response:
Mine pit lakes that would be affected by the project include the Hanna Mine Pit, Pilot Mine Pit and Wacootah Mine Pit. The Hanna and Pilot pits are existing mine pit lakes and are isolated, deep water habitat water bodies with no public access that would either be de-watered or removed by the Minntac extension project. A small portion of the western arm of the Wacootah pit would be filled with available fill material from nearby stockpiles or Minntac waste rock to create a land bridge to support the new access road.

No water quality data is available for these mine pit lakes. However, the East Pit Extension would not facilitate the processes that could lead to reduced water quality in mine pit lakes. This is because the existing mine pit lakes that will be affected by the extension will either be removed (Hanna and Pilot) or will be partially filled (Wacootah).

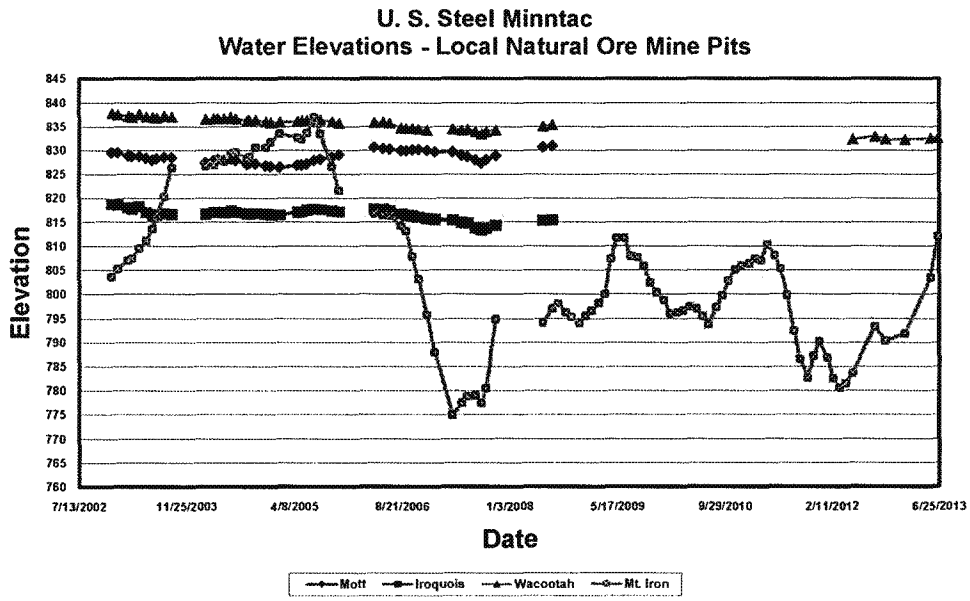
USACE Question: ***Water Resources:*** *Please provide information on how the indirect wetland impacts were calculated. What would the indirect effects consist of (i.e.: wetland plant conversion or dewatering).*

USS Response:
Indirect wetland impact information was excerpted from the Environmental Assessment Worksheet (EAW) developed for the Minntac Mine Extension project. In that document, indirect wetland impacts were quantified by looking at wetlands that would be partially removed by the extension, leaving only small remnant wetlands. These remnant wetlands would likely no longer provide their current functions, and would effectively cease to be wetlands. It is possible that most or all of them would be de-watered, or at the very least experience a significant alteration in their hydrologic regimes. There were eight such wetlands identified, totaling 5.4 acres. Figure 7 from the Minntac Extension EAW shows the indirect impacts (see Attachment H).

USACE Question: ***Water Resources:*** *The document does not provide an adequate explanation of why the cone of depression from mine pit dewatering would not indirectly impact adjacent wetlands by lowering ground water levels. Please provide evidence to support the following statement: "wetlands near the proposed pit extension may not be directly connected to groundwater and may be supported primarily from precipitation and surface runoff. Therefore, these wetlands are not anticipated to be impacted by the proposed Project."*

USS Response:
This statement was made based on the professional judgment of the wetland scientists contributing to the text. It does not state definitively that wetlands near the proposed pit are not connected to groundwater; however, it is typical of wetlands in this part of the Iron Range that precipitation and surface runoff are significant contributors to the wetlands'

hydrology. Additionally, historical monitoring of the water surface elevation in the mine pit lakes (exhausted natural ore pits) directly south of the active Minntac mining operation indicate that mine pit dewatering is not affecting water levels in those pit lakes (see graph below). This would suggest that there is a very limited/narrow cone of depression in the bedrock next to the active mining area and that direct precipitation and runoff from surrounding uplands near the adjacent wetlands is the dominant hydrologic process.



USACE Question: ***Water Resources:*** *In the interest of disclosure and to accurately describe impacts to the affected environment pursuant to NEPA, please:*

- *Provide a detailed description of the direct and indirect downstream effect to water quality and aquatic habitat from water discharged from the tailings basin that is greater than state water quality limits;*

USS Response:

There are two waterbodies or stream reaches downstream of the Minntac tailings basin specifically listed in MN Rule 7050.0470 – the Dark River downstream of Dark Lake (Dark River Trout Reach – T.60, R.19, S.19, 20, 30; T.60, R.20, 10, 11, 12, 13, 24: 1B, 2A, 3B) and Lake Vermilion (T.61, 62, 63, R.14, 15, 16, 17, 18: 1C, 2Bd, 3C). With the exception of

secondary drinking water standards associated with the Class 1B listing of the Dark River under low-flow conditions, the specific beneficial use classifications assigned to these listed waters are not impacted by Minntac discharges. Therefore, the water quality standards primarily applicable to surface water discharges from the tailings basin are those defined by MN Rule 7050.0430 (Unlisted Waters; 2B, 3C, 4A, 4B, 5, 6), while groundwater discharges from the tailings basin are regulated by MN Rule 7060.0400 (Uses of Underground Waters; generally defined as "...all underground waters are best classified for use as potable water supply...").

MN Rule 7050.0222, Subp. 4 defines a Class 2B water (aquatic life and recreation) as of sufficient quality to "...permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water." The specific Class 2B Rule contains numeric standards for a large list of organic and inorganic compounds, metals, and other parameters such as radioactive material, E. coli, dissolved oxygen, pH, chlorophyll, transparency, etc., most of which are set equal to chronic or acute toxicity values.

MN Rule 7050.0223, Subp. 4 defines a Class 3C water (industrial consumption) as "such as to permit their use for industrial cooling and materials transport without a high degree of treatment being necessary to avoid severe fouling, corrosion, scaling, or other unsatisfactory conditions." The current standards for Class 3C waters are:

- Chlorides (Cl), 250 mg/L
- Hardness, Ca+Mg as $CaCO_3$, 500 mg/L
- pH, 6.0 – 9.0.

MN Rule 7050.0224, Subp. 2 defines a Class 4A water (agriculture) as "shall be such as to permit their use for irrigation without significant damage or adverse effects upon any crops or vegetation usually grown in the waters or area, including truck garden crops." The current standards for Class 4A waters are:

- Bicarbonates (HCO_3), 5 milliequivalents per liter (meq/L)
- Boron (B), 0.5 mg/L
- pH, 6.0 – 8.5
- Specific conductance, 1000 umhos/cm at 25°C
- Total dissolved salts, 700 mg/L
- Sodium (Na), 60% of total cations as meq/L
- Sulfate (SO4), 10 mg/L, applicable to water used for the production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels

- Radioactive materials, not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as prescribed by the appropriate authority having control over their use.

MN Rule 7050.0224, Subp. 3 defines a Class 4B water, (wildlife) as "such as to permit their use by livestock and wildlife without inhibition or injurious effects." The current standards for Class 4B waters are:

- pH, 6.0 – 9.0
- Total salinity, 1000 mg/L
- Radioactive materials (defined as shown above for Class 4A waters); and Toxic substances, none at levels harmful either directly or indirectly.

MN Rule 7050.0225, Subp. 2 defines a Class 5 water (aesthetic enjoyment and navigation) as "such as to be suitable for aesthetic enjoyment of scenery, to avoid any interference with navigation or damaging effects on property." The current standards for Class 5 non-wetlands are:

- pH, 6.0 – 9.0
- Hydrogen sulfide (S), 0.2 mg/L.

The current standards for Class 5 wetlands are:

- pH, maintain background
- Hydrogen sulfide (S), maintain background.

MN Rule 7050.0226, Subp. 2 states the following for Class 6 waters (other uses) "The uses to be protected in Class 6 waters may be under other jurisdictions and in other areas to which the waters of the state are tributary, and may include any or all of the uses listed in parts 7050.0221 to 7050.0225, plus any other possible beneficial uses." Note that MN Rule 7050.0221 defines those standards applicable to Class 1 waters.

As per MN Rule 7060.0400, since underground waters are classified as potable water supply, groundwater quality standards would be governed by the national primary and secondary drinking water standards. The national primary drinking water standards are legally enforceable standards developed to protect human health by limiting the level of contaminants in drinking water. The national primary drinking water standards contain numeric standards for a number of potential contaminants in the following general categories: microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals and radionuclides. Conversely, the national secondary drinking water standards are guidelines, non-enforceable at the federal level, regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor or color) in drinking water. The following table lists the national secondary drinking water guidelines.

National Secondary Drinking Water Contaminants and Secondary Standards

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

Limited data from a certified laboratory is available to characterize tailings basin discharges. However, there is data available from samples collected for NPDES permit compliance, as well as sampling conducted to complete applications for NPDES permit reissuance. Based on these data sources and the water quality standards information provided above, discharges from the Minntac tailings basin are exceeding a limited number of standards defined by the Class 3C, Class 4A (and possibly Class 4B) and underground waters classifications. Specifically, sampling results have indicated that the following water quality standards are potentially being exceeded by tailings basin discharges:

- Hardness (Class 3C Industrial Use Standard)
- Sulfate (Class 1B Drinking Water Standard, underground potable water standard)
- Specific Conductance (Class 4A Irrigation Standard)
- Total Dissolved Solids (underground potable water standard)

In addition, it appears that bicarbonate alkalinity (Bicarbonates as HCO_3) has periodically been over the Class 4A standard in discharges from the tailings basin. As reported in the December 2011 application for reissuance of NPDES Permit No. MN0057207 (Minntac Tailings Basin), out of a total of 63 samples collected at SD001 (Seep 020, seep monitoring station on the west side of the tailings basin) the maximum concentration for bicarbonate alkalinity was 346 mg/L (5.67 meq/L), with an average concentration of 196 mg/L (3.21 meq/L). Also from data reported in the December 2011 application referred to above, discharges from the tailings basin may be exceeding the Class 4A Total Dissolved Salts standard, depending on how that standards parameter compares to total dissolved solids. The

average total dissolved solids concentration from a total of 34 samples collected at SD001 was reported as 1380 mg/L.

Minntac tailings basin discharges do not contain any of the constituents/parameters regulated by the national primary drinking water standards. Of the secondary drinking water standards, fluoride, manganese, sulfate and total dissolved solids are at levels in tailings basin discharges that may be greater than State Class 1 and groundwater water quality standards. Only sulfate and total dissolved solids at levels over the groundwater standards have been confirmed in samples from a new monitoring well on the northeast corner of the tailings basin (MW12). The same is true for samples collected at the head of the Dark River trout reach (D-1A) during low flow conditions (January 2012). Samples collected at D-1A under normal flow conditions indicate that compliance with water quality standards is being achieved.

U. S. Steel implemented a seep collection and return system (SC&R) on the east side of the tailings basin in 2010, which became fully operational in June 2011. Following full implementation of the SC&R, all surface seepage and shallow subsurface seepage discharges previously reporting to the Sand River Watershed have been collected and returned to the tailings basin clear pool reservoirs for reclaim to the facility. Since there is no surface discharges, the NPDES permit was modified by MPCA and the NPDES surface water quality standards do not apply. Deeper groundwater seepage discharges still exist on the east side of the tailings basin and are regulated by the SDS portion of NPDES/SDS Permit No. MN0057207. Groundwater discharges are regulated at the facility property boundary by MN Rule 7060, as described above.

Minntac tailings basin discharges contain hardness concentrations that are greater than the MN Class 3C standard of 500 mg/L. There are no direct downstream effects to water quality from this exceedance, as there is no known industrial consumption of water out of the streams that receive discharges from the tailings basin prior to concentrations dropping below the standard. Downstream sampling has indicated that under normal-flow conditions, hardness levels are below the Class 3C standard in the Dark River at D-1A. From an indirect effect perspective, elevated hardness levels decrease the potential toxicity of metals to aquatic organisms and therefore could be considered as a positive effect.

Minntac tailings basin discharges contain bicarbonate alkalinity concentrations that are greater than the MN Class 4A standard of 5 meq/L (305 mg/L as $CaCO_3$). There are no direct downstream effects to water quality from this exceedance, as the bicarbonate standard is directly applicable to water used for irrigation of crops. Downstream sampling has indicated that bicarbonate alkalinity under low-flow conditions is in compliance with, or slightly greater than, the Class 4A standard within several stream miles of the tailings basin (e.g., the Dark River at Cty Rd 668, aka D-1). During normal flow, the bicarbonate alkalinity within the receiving waters is well below the standard at these same sampling locations. Irrigation water with alkalinity levels greater than that in the soil being irrigated can lead to problems with the crops being raised. Also, additional soil treatment may be required to maintain proper soil pH if the water used for irrigation contains elevated levels of alkalinity. There are

no crop irrigation operations present downstream of the tailings basin within the area that may show elevated alkalinity. Similar to elevated water hardness, there are indications that, from an indirect effect perspective, elevated alkalinity can help reduce metals toxicity to some aquatic organisms.

In general, Minntac tailings basin discharges have elevated levels of dissolved constituents, which results in a greater potential for the water to conduct an electrical charge, i.e., electrical conductivity. Specific conductance is a normalized measure of the conductivity of a water sample at a given standard temperature (e.g., 25°C). The primary contributors to specific conductance in Minntac tailings basin discharges include hardness-causing constituents (i.e., calcium and magnesium), bicarbonate, sulfate and chloride. Specific conductance of Minntac tailings basin discharges are generally in exceedance of the MN Class 4A standard of 1000 umhos/cm. According to various sources, water with a specific conductance of 1000 umhos/cm is suitable for irrigation of most crops. Sampling has indicated that specific conductance of the downstream receiving waters generally follows the trends seen with bicarbonates, i.e., under low flow conditions specific conductance is at or very near the standard at D-1A, while during normal flow specific conductance in the Dark River at D-1 is approximately equal to the standard. There are no direct or indirect downstream effects to water quality from this exceedance as, similar to the bicarbonate standard, specific conductance is applicable to water used for irrigation of crops. There are no crop irrigation operations present downstream of the tailings basin within the area that may show elevated specific conductance. There are also no known direct or indirect downstream effects to aquatic habitat from this exceedance.

Assuming that the MN Class 4A total dissolved salts standard of 700 mg/L is equivalent to total dissolved solids (TDS), the Minntac tailings basin discharges would generally be considered in excess of the standard. Sampling has indicated that the TDS of the downstream receiving waters follows the trends described above for bicarbonate and specific conductance. There are no direct or indirect downstream effects to water quality from this exceedance as the total dissolved salts (solids) standard is applicable to water used for irrigation of crops. There are no crop irrigation operations present downstream of the tailings basin within the area that may show elevated TDS. There are also no known direct or indirect downstream effects to aquatic habitat from this exceedance.

Similar to total dissolved salts, total salinity is probably equivalent to TDS. No data exists to indicate the level of total salinity in the Minntac tailings basin discharges. There are no known or suspected adverse effects of TDS in the Minntac tailings basin water on wildlife. The Minntac tailings basin and surrounding wetlands contains a diverse population of wildlife, both terrestrial and aquatic, as evidenced by frequent sightings of deer, bear, wolves, coyotes, occasionally moose, various raptors (eagles, hawks, owls), migratory birds (geese, pelicans, mergansers, ducks) and song birds. Test netting of the Minntac clear pool reservoir has revealed the presence of northerns and white suckers, as well as a diverse population of zooplankton.

Sampling of groundwater at monitoring well MW12, approximately 500 ft off the northeast corner of the Minntac tailings basin perimeter dike, has shown that groundwater at the nearby property boundary is likely exceeding the MN underground waters standards for sulfate (250 mg/L) and total dissolved solids (500 mg/L). There are no direct or indirect effects of these secondary drinking water exceedances, as the Minntac tailings basin is surrounded by miles of undeveloped wetlands and no drinking water wells are present within these wetlands. Based on the St. Louis County Well Index, the closest drinking water well is nearly 10,000 ft away from the Minntac tailings basin perimeter dike.

USACE Question: ***Water Resources:*** *In the interest of disclosure and to accurately describe impacts to the affected environment pursuant to NEPA, please:*

- *Quantify the total amount of sulfate that would be discharged into Sandy, Johnson, and Dark River Watersheds due to the incremental additional tailings added to the basin as a result of the Extension project;*

USS Response:
Nearly all of the seepage discharges from the Minntac tailings basin report to the Sand River and Dark River watersheds. Tailings basin seeps do not flow to any great extent to the north based on recent groundwater monitoring at the U. S. Steel property boundary in the Johnson Creek Watershed closest to the tailings basin perimeter dike (MW14) and findings of a study conducted in 1994 by the Minnesota Department of Natural Resources (*Hydrologic Impacts of the USX Tailings Basin on Sand Lake,* J. Adams, MNDNR, 1994*)*. Sand Lake is within the Johnson Creek Watershed approximately one mile north of the Minntac tailings basin. Based on this information, the following response is focused solely on sulfate discharges to the Sand River and Dark River watersheds.

The mass of sulfate generated by the production of tailings from the Minntac process can be quantified via a facility sulfate model previously developed by Liesch Associates (Liesch). Liesch developed the facility sulfate model on behalf of U. S. Steel for estimating future sulfate concentrations in the Minntac tailings basin as conditions change in the future. The model was originally developed with known sulfate inputs including make-up water and scrubber blow-down as well as sulfate outputs that include tailings basin seepage, void volume lock-up in the tails, and sulfate within the pellets shipped off-site.

Sulfate was known to be produced within the tailings basin through the oxidation process; however the rate of production was not well understood. The rate of tailings oxidation was calibrated based on measured increases in the tailings basin sulfate concentration prior to the installation of scrubbers (when the primary source of sulfate loadings would be attributable to tailings oxidation). Therefore, a factor was added to the model to account for sulfate generated due to the exposure of tailings to process water and/or precipitation, known as the tailings oxidation factor. A tailings oxidation factor of 0.2 lbs of sulfate per long-ton of pellets produced was developed to calibrate the model. The factor represents the total sulfate produced from the tailings for each long-ton of pellets produced. A good correlation between predicted and measured sulfate concentrations utilizing over 40 years of data

provides a reasonable level of confidence in the factor. This model has been reviewed by both MPCA and MDNR.

To quantify the total amount of sulfate potentially discharged into the Sand River and Dark River watersheds, the total sulfate produced from the tailings deposition associated with the extension area mining was estimated using the tailings oxidation factor. It was assumed that the extension area would be contributing 100% of the tailings to the basin at the time of mining. Using a typical historical production level of 14 million long tons of pellets, the total annual sulfate generated from tailings would be:

$$\frac{(0.2\text{ lbs sulfate/long ton pellets})(14\text{ million long tons/year})}{(2000\text{ lbs/ton})} = 1400\text{ tons sulfate/year}$$

Previous mass balance modeling of conservative constituents, such as chloride, at monitoring locations downstream of the tailings basin in the Sand and Dark Rivers suggests that the amount of seepage is approximately equally split between the two watersheds. As such, sulfate loadings to the two watersheds are believed to be approximately equivalent. Therefore it is estimated that the incremental increase of sulfate load to each watershed would be approximately 700 tons per year. However, as discussed previously and in more detail below, the SC&R operating on the east side of the tailings basin is collecting approximately 50% of the total seepage reporting to the Sand River Watershed. Therefore, the incremental increase in sulfate load to the Sand River Watershed due to the Minntac Extension would be closer to 350 tons per year.

It is estimated that the extension project would add up to an additional eight years of pellet production to the facility at current rates.

Minntac has implemented and/or is in the process of implementing numerous sulfate mitigation efforts. These include the Sand River SC&R, a similar seep collection and return system on the west side of the tailings basin for surface seepage reporting to the Dark River, implementation of waste gas dry controls in place of the existing Line 6 once-through wet scrubber, addition of tertiary treatment of effluent from the Line 3 scrubber blow-down treatment system to improve in-plant sulfate and hardness removals, development of an alternative process makeup water source to reduce sulfate inputs to the facility (the #6 Sump Project), and a Groundwater Sulfate Reduction Plan focused on sulfate discharges to the Sand River Watershed via groundwater near MW12. Each of these projects is designed to reduce the concentration of sulfate within the facility's recirculating process water system and/or reduce the overall discharge of sulfate into the receiving waters downstream of the tailings basin. In total, the sulfate reductions produced by these projects will be much greater than the additional sulfate generated by the incremental additional tailings associated with the proposed Minntac Extension.

USACE Question: ***Water Resources:*** *In the interest of disclosure and to accurately describe impacts to the affected environment pursuant to NEPA, please:*

- *Provide a description of the water quality and aquatic habitat of the West Two River and Sand Creek Watersheds;*

USS Response:
Information specifically related to the water quality of the West Two River and Sand Creek (Parkville Creek) watersheds is addressed in response to the following additional information request shown further below: *Provide water quality and quantity monitoring data USS has collected in the West Two River and Sand Creek Watersheds for the last five years. Please provide in tabular format and specify the location of the monitoring point on a map.*

During the Summer/Fall of 2012, Barr Engineering conducted a stream geomorphology and aquatic biota assessment of Sand Creek (Parkville Creek), which is located within the West Two River Watershed. The following is a brief summary of the results. Detailed results can be found in Attachment D – Parkville Creek Stream Geomorphology and Aquatic Biota Assessment.

Results from the Geomorphology Survey classified the stream as a Type "C" stream. The characteristics of a Type "C" stream typically have a wide, shallow channel with a well developed floodplain. The channel bottom primarily consists of gravel and sand with other areas consisting of sand and soft sediment. The banks were found to be well vegetated with little signs of erosion.

The aquatic biota assessment consisted of fish and macroinvertebrate surveys. Five taxa of fish were identified during the fish survey. Four of the five taxa were classified as being "tolerant" to "very tolerant" to stressors. One "sensitive" taxon, the Mottled Sculpin, was found to be present in Parkville Creek. This taxon of fish is found in the presence of cooler waters with higher flows; these two factors are present due to the main source of flow to the creek – mine pit dewatering discharge from the Prindle Sump.

Results of the macroinvertebrate survey were similar to the fish survey. The majority of the identified species were found to be "tolerant" to "very tolerant," with one species found to be intolerant to environmental stressors. Results of the habitat survey resulted in a Channel Morphology Score of 24 out of a possible 36.

In addition to the geomorphology and aquatic biota surveys, the following water quality and quantity parameters were sampled:

- Ammonia
- Nitrate + Nitrite
- Total Phosphorus
- Total Suspended Solids
- Volatile Suspended Solids
- Temperature

- Dissolved Oxygen
- pH
- Specific Conductivity
- Turbidity
- Flow

Please refer to Section 3.2.4 of Appendix D for the complete analytical and field results.

It should be noted that due to the lack of publically available data sets of other streams in the area, and the complete lack of streams identified in the MPCA Environmental Data Access database exhibiting the same characteristics as Parkville Creek, this survey alone does not accurately reference all aquatic habitat and water quality within the West Two River Watershed. However, it does provide a good indication of the aquatic habitat in those headwater streams that receive mine pit dewatering discharge flow from the Minntac mining operations.

The following information related to the West Two River Reservoir in St. Louis County was taken from the MDNR's on-line Lake Finder application, which lists it as the **West Two Rivers Reservoir**:

> West Two Rivers Reservoir is in Ecological Lake Class 11, which consists of 49 lakes in northeast Minnesota that are small and have moderately hard (mineralized) water. West Two Rivers Reservoir is larger, has a more irregular shoreline, and has harder (more mineralized) water than typical for this lake class.
>
> West Two Rivers Reservoir was thermally stratified on 06/09/2003 with a surface temperature of 66 F and a bottom temperature of 52 F. Adequate oxygen for fish (more than 2 ppm) in the south central basin was present to a depth of 14 ft, where the temperature was 59 F. Oxygen levels in the old Pickerel Lake basin are typically poorer than in the south central basin, but were not tested in 2003. Known winterkills occurred in West Two Rivers Reservoir in 1968, 1974, and 1986, and low oxygen has been measured under the ice a number of times. This reservoir is fairly new, being created in the 1960's to supply the MinnTac taconite processing facility with water. Problems with water quality due to excessive nutrients may diminish over time.
>
> West Two Rivers Reservoir has five inlets draining local wetlands. The outlet, to the St. Louis River, has a dam with a 25 ft head. Shoal water substrates are mostly clay and sand. Aquatic plants grow to a depth of 8 ft; flatstem and narrowleaf pondweed, cattails, and burreed are the most common plants. Heavy algae blooms occur later in the summer.
>
> This fish population assessment consisted of two gillnet sets and nine trapnet sets. Previous investigations (1968, 1974, 1979, 1986, 1991) used 1-17 gillnets and 8-13 trapnets.

Fish populations in 2003 were very high, due to very high numbers of black bullhead, high numbers of brown bullhead, northern pike, and white sucker, and good numbers of black crappie.

Black bullhead were first observed in this reservoir in 1974, and their numbers peaked in the gillnets in 1979 at 600/net and in the trapnets in 1991 at 388/net. Black bullhead numbers in 2003 (72/gillnet, 83/trapnet) were in the fourth quartile for this lake class. Black bullhead sizes in 2003 averaged 6"; the largest was 8.5". The black bullheads captured in 2003 did not have the heavy infestation of skin parasites observed during commercial harvest of bullheads in the fall of 1992.

Brown bullhead were first observed in this reservoir in 1974, and their numbers peaked in the gillnets in 1974 at 33/net and in the trapnets in 1991 at 68/net. Brown bullhead numbers in 2003 in the gillnets (2/net) were at the median for this lake class while their numbers in the trapnets (31/net) were in the fourth quartile for this lake class. Brown bullhead sizes in 2003 averaged 9"; the largest was 11.4".

Northern pike were present in the initial investigation on this reservoir in 1968, and their numbers have been quite stable over time. Pike numbers in the gillnets in 2003 (7.5/net) were in the fourth quartile for this lake class and were similar to the median catch of 7.1/gillnet in all investigations on this lake. Pike numbers in the trapnets in 2003 (1.3/net) were similar to the median catch of 1.2/trapnet in all investigations on this lake. The largest pike captured in 2003 was 30". Scales of pike captured in 2003 were difficult to read, and the results of the ageing analysis were too inconsistent to arrive at any conclusions about year class strength and growth.

White sucker were present in the initial investigation on this reservoir in 1968, and their numbers in 2003 (17/gillnet and 5/trapnet) were in the fourth quartile for this lake class and were higher than in previous investigations on this lake. Sucker sizes in 2003 were larger than in previous investigations, averaging 17".

Black crappie were first observed in this reservoir in the 1974 investigation, and their numbers peaked in the gillnets in 1979 and in the trapnets in 2003. Crappie numbers in 2003 (8.5/gillnet and 10.0/trapnet) were in the fourth quartile for this lake class. Crappies sizes in 2003 averaged 6"; the largest, caught in a trapnet, was 13.5".

About half of the northern pike examined in 2003 were infected with neascus. Some of the perch had neascus and yellow grub. Neascus (black spot) and yellow grub are common parasites that are native to the area. They cannot infect humans, are often removed by filleting, and are killed at temperatures used to cook fish.

USACE Question: ***Water Resources:*** *In the interest of disclosure and to accurately describe impacts to the affected environment pursuant to NEPA, please:*

- *Provide a detailed description of the direct and indirect downstream effects on water quality and aquatic habitat from water discharged from the east and west pits into West Two River and Sand Creek Watersheds that is greater than state water quality limits;*

USS Response:

There are no waterbodies or stream reaches in the West Two River or Sand Creek (Parkville Creek) watersheds downstream of the Minntac East or West Pits (Mining Area) that are specifically listed in MN Rule 7050.0470. Therefore, the water quality standards applicable to surface water discharges from the Minntac Mining Area are those defined by MN Rule 7050.0430 (Unlisted Waters; 2B, 3C, 4A, 4B, 5, 6). In addition, since the Mining Area discharges to the Lake Superior Basin, standards contained in MN Rule 7052.0100 also apply.

MN Rule 7050.0222, Subp. 4 defines a Class 2B water (aquatic life and recreation) as of sufficient quality to "...permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water." The specific Class 2B Rule contains numeric standards for a large list of organic and inorganic compounds, metals, and other parameters such as radioactive material, E. coli, dissolved oxygen, pH, chlorophyll, transparency, etc., most of which are set equal to chronic or acute toxicity values.

MN Rule 7050.0223, Subp. 4 defines a Class 3C water (industrial consumption) as "such as to permit their use for industrial cooling and materials transport without a high degree of treatment being necessary to avoid severe fouling, corrosion, scaling, or other unsatisfactory conditions." The current standards for Class 3C waters are:

- Chlorides (Cl), 250 mg/L
- Hardness, Ca+Mg as $CaCO_3$, 500 mg/L
- pH, 6.0 – 9.0.

MN Rule 7050.0224, Subp. 2 defines a Class 4A water (agriculture) as "shall be such as to permit their use for irrigation without significant damage or adverse effects upon any crops or vegetation usually grown in the waters or area, including truck garden crops." The current standards for Class 4A waters are:

- Bicarbonates (HCO_3), 5 milliequivalents per liter (meq/L)
- Boron (B), 0.5 mg/L
- pH, 6.0 – 8.5
- Specific conductance, 1000 umhos/cm at 25°C

- Total dissolved salts, 700 mg/L
- Sodium (Na), 60% of total cations as meq/L
- Sulfate (SO4), 10 mg/L, applicable to water used for the production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels
- Radioactive materials, not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as prescribed by the appropriate authority having control over their use.

MN Rule 7050.0224, Subp. 3 defines a Class 4B water, (wildlife) as "such as to permit their use by livestock and wildlife without inhibition or injurious effects." The current standards for Class 4B waters are:

- pH, 6.0 – 9.0
- Total salinity, 1000 mg/L
- Radioactive materials (defined as shown above for Class 4A waters); and Toxic substances, none at levels harmful either directly or indirectly.

MN Rule 7050.0225, Subp. 2 defines a Class 5 water (aesthetic enjoyment and navigation) as "such as to be suitable for aesthetic enjoyment of scenery, to avoid any interference with navigation or damaging effects on property." The current standards for Class 5 non-wetlands are:

- pH, 6.0 – 9.0
- Hydrogen sulfide (S), 0.2 mg/L.

The current standards for Class 5 wetlands are:

- pH, maintain background
- Hydrogen sulfide (S), maintain background.

MN Rule 7050.0226, Subp. 2 states the following for Class 6 waters (other uses) "The uses to be protected in Class 6 waters may be under other jurisdictions and in other areas to which the waters of the state are tributary, and may include any or all of the uses listed in parts 7050.0221 to 7050.0225, plus any other possible beneficial uses." Note that MN Rule 7050.0221 defines those standards applicable to Class 1 waters.

MN Rule 7052.0100, Subp. 5 lists the water quality standards applicable to Class 2B, 2C, and 2D waters tributary to Lake Superior. The only constituent listed in this rule and found in measurable quantities in Mining Area discharges is mercury, with an applicable chronic standard set at 0.0013 µg/L (1.3 ng/L).

NPDES/SDS Permit No. MN0052493 (Minntac Mining Area) contains seven surface discharge outfalls, four of which are not active. Each of the remaining three surface discharge outfalls are associated with a specific mine pit dewatering sump that drains different portions of the East and West Mine Pits. The #3 Sump drains the east half of the West Pit and

discharges through SD001 to a ditch that runs into the East Branch of the West Two River and becomes the West Two River Reservoir. The #6 Sump drains the west half of the West Pit and discharges through SD003 to Kinney Creek, which is tributary to the West Two River south of the West Two River Reservoir. The Prindle Sump drains the east half of the East Pit and discharges through SD004 to Parkville Creek, which flows into the head of the West Two River Reservoir. The west half of the East Pit is dewatered by the #2 Sump, which is continuously pumped into the Mt. Iron Pit.

Limited data from a certified laboratory is available to characterize Mining Area discharges from samples collected for NPDES permit compliance, as well as sampling conducted to complete applications for NPDES permit reissuance. Based on these data and the water quality standards information provided above, discharges from the Minntac Mining Area have exceeded a limited number of standards defined by the Class 2B, Class 3C, and Class 4A waters classifications. Specifically, sampling results have indicated that Mining Area discharges are either continuously or occasionally exceeding the following downstream water quality standards, depending upon the outfall:

- Mercury (Class 2B Lake Superior Wildlife Chronic Standard)
- Hardness (Class 3C Industrial Use Standard)
- Specific Conductance (Class 4A Irrigation Standard)

Mining Area discharges from Outfalls SD003 and SD004 occasionally exceed the Lake Superior Class 2B Wildlife Chronic Standard for mercury, set at 1.3 ng/L. Quarterly sampling of Mining Area discharges since 2004 has indicated that the Lake Superior Class 2B mercury discharge standard has been exceeded in approximately 20 – 25% of the samples collected from these outfalls. The majority of these exceedances are within 50 – 70% of the standard at SD003 and 25 – 50% of the standard at SD004. These mercury discharges result in little, if any, direct or indirect downstream water quality effects, as research has shown that the vast majority of mercury inputs to Minnesota water bodies is derived from air deposition.

Mining Area discharges from Outfall SD001 and SD004 generally contain hardness concentrations that are greater than the MN Class 3C standard of 500 mg/L. There are no direct downstream effects to water quality from this exceedance, as there is no known industrial consumption of water out of the streams that receive discharges from the tailings basin prior to concentrations dropping below the standard. Downstream sampling has indicated that hardness levels are well below the Class 3C standard in the West Two River Reservoir regardless of flow conditions. From an indirect effect perspective, elevated hardness levels decrease the potential toxicity of metals to aquatic organisms and therefore could be considered as a positive effect.

Mining Area discharges from Outfall SD001 and SD004 generally exhibit levels of specific conductance exceeding the MN Class 4A standard of 1000 umhos/cm. According to various sources, water with a specific conductance of 1000 umhos/cm is suitable for irrigation of most crops. Sampling has indicated that specific conductance levels are well below the

standard within the West Two River Reservoir. There are no direct or indirect downstream effects to water quality from these exceedances as specific conductance is applicable to water used for irrigation of crops. There are no crop irrigation operations present between the Mining Area and the West Two River Reservoir. Additionally, based on recent aquatic biota assessment work downstream of SD004, Parkville Creek has been deemed as a good/fair quality stream that supports a number of aquatic species that are either sensitive or intolerant to one or more environmental stressors. The sensitive fish taxon found during the aquatic assessment is generally found in cooler waters with higher flow. This would indicate that discharges from the Mining Area are leading to positive downstream effects on aquatic habitat.

USACE Question: ***Water Resources:*** *In the interest of disclosure and to accurately describe impacts to the affected environment pursuant to NEPA, please:*

- *Quantify the total amount of sulfate that would be discharged into St. Louis River Watershed (West Two River and Sand Creek watersheds) as a result of mine pit dewatering within the pit extension area.*

USS Response:
USS will require additional time to arrive at an accurate response to the question posed, primarily due to the difficulties associated with predicting the amount of groundwater that will be collected in the mine pit dewatering sumps as the mine pits get deeper in the Extension areas. USS has engaged consultants to assist in compiling the response to this question but due to the complexities of the area an accurate response could not be completed in the allotted time. It should be noted that the Biwabik Iron Formation dips at an angle of approximately 7 degrees to the south in the vicinity of Minntac, and therefore the depths to recoverable ore will continue to increase as mining progresses through the Extension. USS will provide a response to this additional information request within 30 days of this submittal.

USACE Question: ***Water Resources:*** *Provide a discussion of measures USS could implement in the West Two River watershed that would mitigate for the loss of water quality functions provided by wetlands located in the direct footprint of the Extension project.*

USS Response:
Current mining practices utilize mine pit dewatering via dewatering sumps. These sumps provide effective treatment of precipitation runoff for the removal of suspended solids, as well as equalization for the reduction of peak flows. Minntac mine pit dewatering discharges are regulated under NPDES/SDS Permit No. MN0052493, which contains effluent limits for a number of constituents including TSS. This treatment mitigates the equivalent functions lost by the impacted wetlands.

In addition to the treatment functions provided by the pit sumps, loss of water quality functions provided by wetlands impacted within the West Two River Watershed are offset through the reclamation of waste rock and overburden stockpiles. All stockpiles are designed,

constructed, and vegetated to promote the treatment of surface water runoff according to the standards set forth in MN Rules, Chapter 6130 (Attachment E). MN Rule 6130.2100, Subp. F. identifies measures which shall be implemented in the event that "a water quality problem has occurred." The sloping, landform design, and vegetation provided by the reclamation process mitigates the loss of the filtration and nutrient uptake functions of the wetlands. Reclamation will also provide wildlife habitat previously provided by the impacted wetlands.

Over the course of the previous five years, 177 acres of stockpiles within the West Two River Watershed have been permanently reclaimed in accordance with these standards. Annual reports documenting all reclamation activities, both completed and proposed, are submitted to the MDNR who regulates reclamation activities and a copy is provided to the United States Army Corps of Engineers (USACE).

USACE Question: ***Water Resources:*** *For the Minntac Progression, USS demonstrated that the Progression project would not result in an increase of net sulfate loading into the Sandy River Watershed. Please clarify if you are planning additional activities or projects which would eliminate, reduce, mitigate, or offset, the incremental increase of sulfate loading into the Sandy River Watershed that would occur as a result of the Extension project.*

USS Response:
In order to assess the effect of sulfate reduction activities on loading to the Sand River Watershed we first must determine the potential sulfate generation. The amount of sulfate generated by the production of tailings from the Minntac process can be quantified via a facility sulfate model previously developed by Liesch Associates (Liesch). Liesch developed the facility sulfate model on behalf of U. S. Steel for estimating future sulfate concentrations in the Minntac tailings basin as conditions change in the future. The model was originally developed with known inputs such as sulfate loadings from the make-up water and scrubber blow-down, as well as sulfate outputs such as estimated seep rates, void volume lock-up in the tails, and sulfate removed with the pellets shipped off-site.

The model was fine-tuned with other minor known inputs and outputs and initially was under-predicting the tailings basin sulfate concentration compared to actual measured concentrations. Therefore, a factor was added to the model to account for sulfate generated due to the exposure of the tailings to process water and/or precipitation, otherwise known as the tailings oxidation factor. A tailings oxidation factor of 0.2 lbs of sulfate per long-ton of pellets produced was developed to calibrate the model. The factor represents the total sulfate produced from the tails for each long-ton of pellets produced. A good correlation between predicted and measured sulfate concentrations utilizing over 40 years of data provides confidence in the factor. This model has been reviewed by both MPCA and MDNR.

In looking at the sulfate potentially produced from tailings that would be generated from mining in the proposed Minntac extension, we analyzed this question on an annual basis assuming that the mine extension would contribute 100% of the tailings to the tailings basin. Using a typical historical production level of 14 million long tons of pellets, the total sulfate generated from tailings would be:

$$\frac{(0.2 \text{ lbs sulfate/long ton pellets}) * (14 \text{ million long tons/year})}{2000 \text{ lbs/ton}} = 1400 \text{ tons sulfate/year}$$

There are two main watersheds receiving seepage from the Minntac basin, the Dark River and the Sand River. Mass balance modeling of conservative constituents at monitoring sites in the Dark River and Sand River downstream of the tailings basin estimated approximately equal seepage volumes to those two watersheds. In order to estimate the amount of sulfate which could potentially affect the Sand River Watershed, the total must be split. Therefore, the sulfate total to the Sand River Watershed is:

(1400 tons sulfate/year) / 2 = 700 tons sulfate/year

The existing SC&R, installed along the east side of the tailings basin perimeter dike in 2010 and fully operational since June 2011, is collecting roughly one-half of the total volume of seepage estimated to be reporting to the Sand River Watershed and returning it to the tailings basin clear pool reservoirs. Therefore, approximately 50% of the total mass of sulfate that will be generated from mine extension tailings will be prevented from entering the Sand River Watershed. This equates to 350 tons of sulfate/year.

A proposed project which will have a considerable effect on the reduction of sulfate loading to the watersheds surrounding the tailings basin is the Dry Controls project. In August 2011 U. S. Steel submitted an application to the MPCA for an amendment to the facility Title V operating permit to allow the installation of a gas suspension absorber (otherwise known as a dry scrubber) for SO_2 control, activated carbon injection for mercury control and a dry electrostatic precipitator (ESP) for particulate control on Agglomerator Line 6. U. S. Steel has been working with the MPCA since that time on the permit application. Once the issues have been resolved to the MPCA's satisfaction, a draft permit will be placed on public notice. During the detailed engineering and design process it was found that a baghouse would be feasible and is being permitted in lieu of an ESP. The baghouse has additional benefits as compared to the ESP including reduced opacity during startup and operator familiarity with the equipment. Once the air permit is received, without appeal, the engineering process will move on for appropriation of funds and installation of controls. A combination of equipment lead times, construction season and maintenance outages will dictate when the ultimate startup of the installation will occur. A major water benefit of this project is the reduction of sulfate which enters the recirculating process water stream due to the scrubbing of SO_2 in the existing waste gas wet scrubbers.

Based on annual average analytical results from the existing Line 6 waste gas scrubber discharge from 2006 – 2010, the sulfate mass increase to the system is 708 tons per year. Installation of the dry controls system on Line 6 alone will offset the potential sulfate mass that is projected to be released to the Sand River Watershed from tailings generated by the proposed Extension project.

Additional projects:
In addition to the projects listed above, Minntac is working on other projects to mitigate sulfate impacts to downstream waters. U. S. Steel continues to evaluate the viability of tertiary treatment of effluent from the Line 3 waste gas scrubber blow-down treatment system. A pilot test of a novel ion exchange treatment technology (BioteQ) was completed in early 2013 with the final report pending. Follow-on pilot testing is being considered for later in 2013 to develop design factors for a full-scale treatment system.

Engineering design on a Seep Collection and Return system for the west side of the tailings basin continues. The Minntac Tailings Basin NPDES permit was modified to allow installation of the system. Work continues on detailed design and wetland mitigation information. This is a project required by the June 9, 2011 Schedule of Compliance (SOC) with MPCA and is also included in discussions on the Tailings Basin NPDES permit reissuance.

Also, as required by Amendment No. 1 to the SOC, a Groundwater Sulfate Reduction Plan will be submitted to the MPCA on or before July 12, 2013 to address compliance with the groundwater sulfate standard at the property boundary near MW12. Evaluations related to this plan will focus on mitigation alternatives that will further reduce sulfate mass discharges to the Sand River Watershed.

USACE Question: ***Water Resources:*** *Provide water quality and quantity monitoring data USS has collected in the West Two River and Sand Creek Watersheds for the last five years. Please provide in tabular format and specify the location of the monitoring point on a map.*

USS Response:
Summaries of water quality data, and quantity data as available, collected in the West Two River and Sand Creek (Parkville Creek) watersheds for the last five years can be found in Attachment F. Attachment F contains data from the following sources:

- Discharge Monitoring Report data from surface discharge outfalls contained in, and regulated by, NPDES/SDS Permit No. MN0052493;
- Water quality and flow data from a monitoring site on the West Branch of the West Two River at Old Hwy 169 to satisfy requirements of MPCA 401 Certification of wetland impacts related to the Minntac West Pit Western Progression;
- Limited water quality data collected from the West Two River Reservoir at the U. S. Steel pumphouse during periodic appropriation of water for additional process makeup.

Attachment F also contains a map (Figure 1) showing the location of each of the monitoring sites for which water quality, and quantity data as available, has been summarized.

USACE Question: ***Water Resources:*** *Describe the "secondary impacts [that] may occur through alteration of the watershed areas and stream hydrology" that are mentioned on page 36 of the EIA.*

USS Response:
The potential secondary impacts include decreases in stream flow volumes and rates, due to decreases in the area of the contributing watershed and, consequently, decreased surface runoff to those headwater streams that do not receive mine pit dewatering discharge.

USACE Question: *Water Resources: Provide a detailed discussion of the proposed impacts to the hydrology and water quality of Parkville Creek and other streams receiving mine pit water or wastewater discharge under the proposed mining extension. Describe any alterations in flow regimes and address any changes in water chemistry and temperature. When determining impacts to water chemistry parameters, please account for changes in stream flow (ie: lower discharges usually equate to increased constituent concentrations).*

USS Response:
There are three streams that will receive mine pit dewatering flows from the extension area. These are the Parkville Creek, the East Branch of the West Two River/West Two River Reservoir, and Kinney Creek. Discharges to these streams originate from the Prindle Sump, #3 Sump, and #6 Sump, respectively. The impact from the proposed extension on hydrology and water quality for each of these streams is discussed in more detail below.

<u>Parkville Creek</u>
Approximately 4000' of the Parkville creek will be eliminated under the proposed extension. The Prindle sump serves as the headwaters to the Parkville Creek currently and will continue to do so under the proposed extension. The Parkville Creek is an ephemeral stream over its entire length and would run dry without dewatering discharges during periods with no precipitation-/snowmelt-related runoff. Due to the Prindle Sump discharges, the stream has a fairly constant flow rate that is dictated by pumping rates from the sump. Over the past decade the Prindle Sump has discharged an average of 3.7 million gallons per day (MGD) with a maximum of 7.9 MGD and a minimum of 1.3 MGD.

It is estimated that there will be limited impact on the hydrology and water quality of Parkville Creek as those conditions are largely dictated by the current dewatering discharges from the Prindle Sump. The hydrologic impacts would largely be related to the reduction in dynamic flows that currently occur within the 4000' section following precipitation or snow-melt runoff events. Under the proposed extension, these dynamic flows in the 4000' section of the creek would be metered through the Prindle Sump. This will homogenize both the flow rate and the water quality immediately downstream in the Parkville Creek. Overall flow rates are expected to increase, but peak flows will decrease, within the creek as both runoff and groundwater associated with the extension area will be discharged to the creek via the Prindle Sump. The stormwater and snowmelt runoff currently generated within that section of Parkville Creek proposed to be impacted will drain into the mine pit upon development of the

mine extension. Therefore, a portion of the increased flow to downstream reaches of the Parkville Creek would have ended up there regardless of any additional mining activities.

Water quality data from the past decade indicates that constituent concentrations are gradually increasing in Prindle Sump discharges (see Attachment F). Water quality is expected to trend similar to the Prindle Sump and be more consistent due to the homogenizing effect of the dewatering pool. Daily fluctuations in water quality due to precipitation events will be less pronounced. Downstream water quality and aquatic habitat are not expected to be significantly impacted, as the constituents that are increasing are generally not creating problems with beneficial uses designated for Parkville Creek. Parkville Creek is tributary to the West Two River Reservoir, at which point constituent concentrations are significantly reduced. Temperature of the discharge would likely be slightly colder than current flow downstream of the section proposed to be impacted, as additional groundwater will be dewatered along with the warmer surface water runoff currently reporting to the stream.

Regarding the USACE statement that lower discharges usually equate to increased constituent concentrations, that typical trend is not observed in the Minntac discharges due to the homogenizing effect of the dewatering sumps.

Unnamed Ditch/East Branch of West Two River to the West Two River Reservoir

The #3 Sump discharges to an unnamed ditch that flows into the East Branch of the West Two River which ultimately discharges to the West Two River Reservoir. Discharges from this sump are expected to increase as the catchment area and depth of mining increase through the extension. Constituent concentrations monitored in the #3 Sump discharge have not indicated any significant upward trends in the past decade, therefore it is not anticipated that higher concentrations will result from the extension area mining. The increase in flow rates will be dependent on plant make-up water needs as the #3 Sump will provide make-up water in the event that the #6 Sump is unable to provide adequate volumes. It is not anticipated that this increase would have a significant impact on the unnamed ditch or the East Branch of the West Two River as these conveyances are channelized and have adequate capacity for these additional discharges. The West Two Rivers Reservoir discharges to the West Two River downstream through a discharge control structure. It should be noted that a portion of the predicted increased flow rate from the extension, in particular the stormwater run-off component and some of the intercepted groundwater, will reach the West Two River Reservoir with or without the extension.

Kinney Creek

The #6 Sump discharges to Kinney Creek, which flows into the Kinney Pit Lake south of the west end of the West Pit. Recent wetlands permitting for the Western Progression of the West Pit included a requirement to use #6 Sump water as an alternate source of process makeup water for the plant. The wetlands permit requires a minimum of 2000 gpm of #6 Sump discharge used for process makeup water calculated on a monthly rolling average basis. A recent amendment to water appropriations permit 1980-2084 by the MDNR included a requirement to provide 1,000 gpm of discharge water to Kinney Creek to maintain base flow stream conditions. The pumping strategy described above for the #6 Sump would

continue during mining activities associated with the proposed extension to satisfy the Western Progression wetlands permit and the 1,000 gpm stream maintenance discharge into Kinney Creek. All water in excess of 1,000 gpm would likely be utilized for plant make-up water.

Water quality monitoring of #6 Sump discharge has not indicated an upward trend in dissolved constituent concentrations in the past decade. Therefore, #6 Sump discharge water quality to Kinney Creek is not expected to change significantly in the future. Due to the permit requirements discussed above, discharge flows to Kinney Creek will be reduced to the minimum maintenance flow for large stretches of time throughout the year.

USACE Comment: *CSAH 102: The County State Aid Highway 102 relocation project is also a connected action under NEPA.*

USS Response:
Comment noted.

USACE Comment: *Watercourses: As correctly stated in the EIA, the Corps did complete a site visit in May 2012 to investigate the extent of waters of the U.S. within the proposed Extension area. However, on page 35 the EIA states there are streams in the direct footprint of the mine extension which appear to have ephemeral flow. Although the National Hydrography Dataset identifies watercourses in the review area, other than Parkville Creek, the Corps did not find any other streams within the direct footprint of the proposed extension area.*

USS Response:
Comment noted.

USACE Comment: *Stream Mitigation: To Date, the Corps has not received a final stream mitigation proposal; therefore, no stream mitigation ratio has been determined.*

USS Response:
U. S. Steel is currently working with the applicable regulatory agencies on a suitable stream mitigation plan. One or more alternatives will be submitted to USACE, MPCA and MDNR within 30 days of this submittal.

USACE Comment: *Wetland Mitigation: Before Palisades III credits can be considered for use outside of BSA 5, U. S. Steel must demonstrate that they have searched for compensatory mitigation sites within BSA 1 in accordance with a March 9, 2012 Public Notice entitled "Guidance on the Compensatory Mitigation Siting Sequence in Northeast Minnesota (Wetland Bank Service Areas 1 and 2)."*

USS Response:
A wetland mitigation feasibility study has been completed in accordance with the above Public Notice and will be provided to the Corps upon final internal review.

USACE Comment: *EPA Comments: We have received comments on the EIA from the Region 5 Environmental Protection Agency (EPA) and have provided them as an attachment to theis letter. With the exception of the questions on the alternatives analysis for CSAH 102, we concur that additional information on the issues addressed in their letter is necessary. Please address the EPA's comments in your response to this letter.*

USS Response:
EPA comments are addressed below.

USEPA Comment: ***Section 404(b)(l) Guidelines and NEPA: Alternatives Analysis and County Road 102:*** *We recommend that the EA include an examination of additional alternatives that consider different configurations and alignments for the proposed access road that might result in less impact to aquatic resources.*

USS Response: There were three alternatives considered for designing a new access road that would connect a realigned CSAH 102 to the existing main entrance to the Minntac facility. They are referred to here as Alternative A, Alternative B, and the Preferred Access Alternative. Each alternative would be a paved, 4-lane roadway within an anticipated 100-foot right-of-way, similar to the roadway within the existing Minntac property.

Alternative A would have extended north from the preferred CSAH 102 realignment for roughly 1000 feet, then turned northwest to avoid the Wacootah Pit before turning northeast to connect with the Minntac main entrance road.

Alternative B is essentially the northern terminus of CSAH 102 realignment alternative B. Under this alternative, CSAH 102 would have curved northwest around the east side of the Wacootah Pit, then turned north to the existing Minntac main entrance road.

The Preferred Access Alternative turns north from the preferred CSAH 102 realignment, and then essentially continues north, crossing the western arm of the Wacootah Pit before turning slightly northwest to the existing Minntac main entrance road. The segment of mine access road that crosses the Wacootah Pit would be constructed on a land bridge made from available fill material from nearby stockpiles or Minntac waste rock.

Alternatives A and B were eliminated from consideration. Alternative A would pass within approximately 200 feet of an unnamed cemetery site dating from the early 20th century. Examination of the site during the Phase II historic resources evaluation for the Minntac Extension project found approximately twenty interments on uneven, overgrown terrain. Small metal crosses have been placed on some of the interments. Historical documents suggest that the cemetery (designated SL-MIC-029 in the Phase II study) was established in ca. 1892. It is currently owned by the State of Minnesota. The Phase II historic resources evaluation found that the cemetery may be "potentially eligible for listing in the National Register of Historic Places as contributing property within the Mountain Iron Mining

Landscape...because of its association with early community development of the Mesabi Range."[1]

Alternative A was eliminated from consideration because of its proximity to this potentially historic site.

Alternative B was eliminated from consideration because portions of the overall Alternative B that were proposed as the CSAH 102 realignment required encumbrance of State of Minnesota School Trust Lands. These lands are owned by the state in trust for all public schools in Minnesota and are managed "for maximum long-term economic return under sound natural resource and conservation practices."[2] The northernmost terminus of Alternative B does not encumber School Trust Lands; however, since some of the potential CSAH 102 realignment portions of Alternative B encumber these lands, the alternative, including its use as an access road, was eliminated from consideration.

The Preferred Access Alternative is sufficiently far from the cemetery site and does not encumber State of Minnesota School Trust Lands. Therefore it is the preferred alignment for the new access road.

USEPA Comment: ***Section 404(b)(l) Guidelines and NEPA: Alternatives Analysis and County Road 102:*** *Further, we recommend CSAH 102 be reconstructed using recycled materials, including (but not limited to) reclaimed cement and concrete, and shredded rubber. Paint used should also be low in Volatile Organic Carbon (VOCs). The realigned road should also contain vegetated buffers or other forms of bioretention to control stormwater. EPA also encourages USACE, Minnesota Department of Transportation (MnDOT) and St. Louis County to adopt an anti-idle policy for the roadway construction trucks and equipment.*

USS Response:
Comment noted. USEPA's recommendation of utilizing recycled materials including but not limited to those listed above will be passed on to St. Louis County.

USEPA Comment: ***Section 404(b)(l) Guidelines and NEPA: Wetland Impacts and Mitigation:*** *According to the EIA, the boundaries of many of the wetlands identified in the wetland delineation extend beyond the proposed project boundary limits, but only areas within the extension project have been quantified. The EIA further states, "there is the potential that mine pit dewatering could indirectly impact wetlands as the cone of depression from mine dewatering extends further to the south and lowers groundwater levels." Given this and the assertion by the applicant that "overall, functions of the wetlands within the Project area were relatively low due to the previous mining activities in the area," the EA should include a more thorough analysis, which includes the quantification and assessment of indirect impacts to adjacent wetlands*

[1] Landscape Research LLC, 2011. *Phase II Historic Resources Evaluation: Minntac Mine Extension Mine Access Road, Submitted to United States Steel Corporation Minnesota Ore Operations, Mountain Iron, MN 55768*, pp. 50-52
[2] School Trust Lands: What are School Trust Lands? 2012. Minnesota Department of Natural Resources. July 20, 2012. http://www.dnr.state.mn.us/aboutdnr/school_lands/index.html

outside the project boundary is needed. Indirect impacts may result in permanent changes to, or losses of, specific wetland functions and may require mitigation.

USS proposes to impact approximately 66.2 acres of wetlands. USS proposes to use the Palisades III wetland bank site currently under development in Aitkin County, Minnesota at a mitigation ratio of 1: 1 vs 1.5: 1, depending on whether the credits are in-advance and in-kind. The Palisades III bank was just recently approved. Credit release for this bank will not occur until performance standards are met over a period of 10 years. As such, credits types and quantities required to fulfill mitigation may not be able to be secured in-advance at this bank. This situation may result in greater mitigation ratios or will require securing mitigation credits elsewhere. The EA should include a discussion of alternative wetlands mitigation ratios and locations for securing wetlands credits.

USS Response:
Information related to indirect impacts was included in the response to the USACE question on the same topic. According to the credit release schedule developed for Palisades III a total of 80.64 credits would be available for use by Minntac after Year 1, and 120.96 after Year 2. Based on the timing of the Palisades III site as compared to the timing of permit issuance and site work, credits will be released sufficiently in advance of the impacts.

USEPA Comment: ***Section 404(b)(l) Guidelines and NEPA: Stream Assessment and Mitigation***
The Corps issued an April 19, 2013, letter in which your Agency concurred with USS's April 2013 technical memorandum stating USS will now seek stream mitigation opportunities in the St. Louis River watershed (8-digit HUC). USS could not find mitigation in the Corps determined watershed priority areas due to landownership issues and the low probability that restoration of accessible streams would result in a benefit to the watershed. As such, the stream mitigation has yet to be determined. The type and quality of streams on site are important in determining the amount of compensatory mitigation. Based on the information provided, Parkville Creek appears to be a moderate-to-high-quality stream. Mitigation ratios should be determined based on the quality of the resource impacted, location of the stream mitigation in relation to the impact, and the type of compensatory mitigation performed.

USS Response:
U. S. Steel is currently working with applicable regulatory agencies on a suitable stream mitigation plan. USS has submitted information related to the quality of Parkville Creek and is awaiting additional information from the USACE as to the required mitigation ratio.

USEPA Comment: Section 404(b)(l) Guidelines and NEPA: Cumulative Impacts
In order to fully analyze the past, present, and reasonable foreseeable impacts as required under NEPA and the Guidelines, EPA recommends that USS prepare a more detailed cumulative impacts analysis. Impact assessments for wetlands should include direct and indirect impacts from previous and current actions as well as potential impacts from future actions as a result of changes in surface and groundwater hydrology. To fully evaluate the cumulative impacts, the EA

should include a detailed discussion on the affect mining has and will have on biology and water quality in these watersheds. Further, EPA requests the cumulative impacts assessment include the potential impacts from reasonably foreseeable future USS mine projects/project amendments in this watershed. This discussion should detail USS's property holdings in the surrounding 8-digit HUC watersheds and include an analysis of the cumulative reduction in these watersheds due to the course of previous and sequential expansions. The cumulative impacts section of the EA should be expanded to include (but not limited to) analyses of projected water quality and impacts to wild rice, air emissions, loss of habitat, loss of wetlands and wetland functions, impacts to Ceded Territories, impacts to stream ecology, and changes in groundwater drawdown, etc. To comply with the Guidelines, the EA should address our comments regarding the alternatives analysis, wetland impact assessment, compensatory mitigation, and the cumulative impacts analysis.

USS Response:
A cumulative impacts assessment of past, present and reasonably foreseeable future projects on streams in the vicinity of the Minntac mining operation was completed by Liesch Associates for U. S. Steel as part of the Environmental Assessment Worksheet (EAW) developed for the proposed Minntac Mine Extension project. The assessment focused on the impacts of past, present and future mine development on receiving waters downstream of the Minntac East and West Pits in the West Two River Watershed. This assessment can be found in Attachment G.

Cumulative effects associated with the incremental impact of the action when added to other past, present and reasonably foreseeable future actions were evaluated as a part of the Minntac Extension EAW and discussed in EAW Items 11, 12, 17 and 29. The EAW has been included in Attachment H. The EAW was a collaborative document which evaluated all state regulatory programs and was extensively commented on by various groups within MPCA, MDNR and MDH. Based on the multi-agency review and comment process a list of environmental effects was established for the project in relation to cumulative effects. A summary of cumulative effects is also included in the Record of Decision from the MDNR starting on page 83 included in Attachment I. The MDNR found that the Minntac Mine Extension project may have the following environmental effects that could combine with other projects for cumulative potential effects:

- Land Conversion/Habitat
- Stream Habitat Loss and Watershed Alteration
- Wetland Loss
- Impaired Waters
- Water Quality

USEPA Comment: ***NPDES: Sand River:*** *The EIA provides a general description of the seep collection and return system installed in 2011 and designed to collect direct surface seepage from the 13 surface seepage points identified by USS's consultants in 2008. There is no mention of water quality standards applicable in the Sand River watershed, or whether or not those standards are being met. However, there may continue to be seepage from the tailings basin to the Sand River watershed. For example, data collected by USS at the "SW-001" monitoring*

location, as required by its NPDES permit, indicate a potential connection between tailings basin seepage and the Sand River monitoring location. See the attached page from USS's Minntac Tailings Basin Area Discharge Monitoring Report for SW-001.

USS Response:
A discussion of water quality discharged from the tailings basin that is greater than state water quality standards is provided in responses to USACE Water Resource Questions above. Groundwater seepage from the tailings basin continues to report to the Sand River Watershed, as the SC&R was designed to collect all of the surface seepage and a portion of the subsurface seepage from the east side of the tailings basin. Based on mass balance modeling, it is estimated that the SC&R is collecting approximately one-half of the total seepage reporting to the Sand River Watershed. At the time the system was designed and permitted with MPCA it was both parties' understanding that since all surface discharges to the Sand River Watershed had been eliminated by the SC&R, there was no longer a point source discharge. Therefore, the NPDES discharge monitoring point (SD002 in NPDES/SDS Permit No. MN0057207) was eliminated and the surface water quality standards were no longer applicable. However, groundwater discharges from the tailings basin continue to be regulated under the State Disposal System (SDS) portion of the permit. Within the last year the concept of deep seepage has become an emerging issue within the state of Minnesota. USS is currently working with MPCA on the NPDES permit reissuance for the Minntac Tailings Basin. The concept of deep seepage and the potential for tailings basin groundwater seepage to be considered as a point source discharge regulated under NPDES is in early discussion phases where additional data is being collected. Once the MPCA completes its determination as to if NPDES is applicable to tailings basin groundwater seepage, they will be able to assess which water quality standards are applicable and require effluent limits.

USEPA Comment: ***NPDES: Dark River****: With regard to the seepage from the tailings basin to the west and into the Dark River Watershed, the EIA states that USS plans to install another seep collection and return system, designed to eliminate " ... all surface seepage ... ". As with the Sand River seepage, this surface seepage may not be inclusive of all of the seepage discharging to the Dark River from the tailings basin.*

USS Response:
Comment noted.

USEPA Comment: ***NPDES: Point Source Discharges****: EPA has consistently interpreted the Clean Water Act (CWA) to apply to discharges of pollutants from a point source to surface water that occur via directly connected ground water.' The CWA defines point sources as follows:*

> *The term 'point source' means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.*

The need for a NPDES permit is highly dependent on the facts surrounding each situation. 66

Fed Reg. at 3,015; 63 Fed. Reg. at 7,881. As EPA has explained:

> *The determination of whether a particular discharge to surface waters via ground water which has a direct hydrologic connection is a discharge which is prohibited without an NPDES permit is a factual inquiry, like all point source determinations. The time and distance by which a point source discharge is connected to surface waters via hydrologically connected [ground] waters will be affected by many site specific factors, such as geology, flow, and slope ... 66 Fed. Reg. at 3017.*

EPA understands that USS may have installed the seep collection and return system as an approach to eliminate the surface discharge. EPA is concerned that such systems may not capture all of the flow to surface waters, thus resulting in continued discharges to surface waters. Section 301 of the CWA prohibits point source discharges to surface waters, either directly or via directly connected ground water, unless the discharge is in compliance with an NPDES permit. The CWA provides that NPDES permits may be modified or terminated for cause, including where there has been a "change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge." 33 U.S.C. § 1342(b)(l)(C)(iii). Should a discharger eliminate one or more point source outfalls covered under an existing NPDES permit then it is appropriate to terminate permit coverage for those outfalls only where "the entire discharge is permanently terminated by eliminating the flow .... " 40 C.F.R. §§ 122.64(a)-(b), applicable to state programs, see 40 C.F.R. § 123.25(a)(23).

To the extent that USS may only be converting the path through which pollutants are discharged to surface water or reducing the volume of the discharge, EPA expects that the discharges will continue to be subject to NPDES permit requirements. If a permit is terminated (or a discharger decides not to seek renewal of a permit) without permanent elimination of the entire discharge, the discharger would risk being found in violation of the CWA for discharge without a permit. The EA, therefore, should include a discussion of the hydrology of surface water and groundwater seeps that connect to surface waters.

USS Response:

As discussed previously, this topic is currently under review and discussion with the MPCA as a part of the Tailings Basin NPDES permit reissuance process.

USEPA Comment: ***Additional Recommendations: Permit to Mine****: The proposed mine extension includes areas that are not included in the existing Permit to Mine issued in 1983. The EIA indicates a Minnesota Department of Natural Resources Permit to Mine Amendment application is forthcoming. We recommend that the EA provide a map of the boundaries of the amended Permit to Mine.*

USS Response:

A map including the current and Extended Permit to Mine boundaries has been included as Attachment J.

USEPA Comment: ***Additional Recommendations: Species Considerations:*** *The EA should discuss whether or not a field survey was conducted to locate or identify potential habitat (e.g. nests, dens, etc.) for any federally or state-listed threatened or endangered species. A field*

reconnaissance of game trails/animal paths should be conducted to determine where, along the proposed route of the reconstructed CSAH 102 animals using those trails/paths animals are likely to cross. We recommend, for safety reasons, remediating the potential for auto-animal collisions by constructing wildlife crossings where applicable. Most animals move along riparian corridors, making the road/stream location an appropriate place for a wildlife crossing. Furthermore, large enough crossings can also decrease habitat and wetland fragmentation, as hydrology would not be constricted at the road. In these cases, EPA would agree, depending on the crossing, that these may qualify as additional mitigation for wetland impacts.

USS Response:
A lynx survey was conducted in the area in 2011. The report was previously submitted to the USACE and utilized in consultation with the USFWS. A copy of the report has been included as Attachment K. A threatened and endangered plant survey was also completed in 2011, and is included with the lynx survey in Attachment K. This topic was also discussed in the Minntac Extension EAW in Items 10, 11, 12 and 29 and summarized in the Record of Decision on pages 56-57.

USEPA Comment: ***Additional Recommendations: Consultation Records:*** *We recommend attaching consultation documents regarding historic and treaty resources (Minnesota State Historic Preservation Office and any affected Chippewa Bands) and Federally and state-listed threatened and endangered species (U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources) with the EA. Additionally, we request a list of these agencies' staff contacts be included in the EA.*

USS Response:
This appears to be a comment for the USACE, not for USS.

Current Compliance Status at Minntac Tailings Basin
NPDES/SDS Permit No MN0057207

Monitored Parameter	Effluent Limit?	Compliant with Effluent Limit?
Groundwater Stations		
amines	No	NA
pH	No	NA
sp. conductance	No	NA
sulfate	No	NA
temperature	No	NA
Station SD001-Dark River & SD002*-Sandy River		
oil & grease	*Yes*	*Yes*
pH	*Yes*	*Yes*
TSS	*Yes*	*Yes*
sp. conductance	No	NA
sulfate	No	NA
Station SW001 – Sandy River @ Hwy 53		
sulfate	No	NA
SW002 - McNiven Creek		
amines	No	NA
whole effluent toxicity	No	NA
WS002 – Plant water to Line 3 scrubber		
hardness	No	No
sulfate	No	No
WS003- thickener overflow		
chloride	No	NA
fluoride	No	NA
hardness	No	NA
sulfate	No	NA
pH	No	NA
WS004 – concentrate slurry & WS005 – step 1 reclaim thickener influent		
pH	No	NA
WS006 – Fine tailings discharge – East basin & WS007 – fine tailings discharge – West basin		
amines	No	NA
evaporation	No	NA
precipitation	No	NA
whole effluent toxicity	No	NA

*as of July, 2010 there has been no discharge from this station.

Since the major permit modification of April 21, 2006 to authorize construction of the Line 3 scrubber wastewater treatment system and discharge of the treated effluent to the tailings basin, there have been violations of requirements associated with that system. Chapter 4 Parts 3.1 and 3.2 of the permit require that the Line 3 scrubber system not contribute hardness and sulfate to the tailings basin. The following violations of these requirements have occurred:

Year of Operation	Excess Pounds of Sulfate	Excess Pounds of Hardness
2006	80,847	0
2007	69,839	241,167
2008	54,904	352,125
2009	18,207	31,133
2010	57,558	741,468

Recent Past Enforcement Actions

1. February, 2006 Schedule of Compliance (SOC) – required submittal of a permit application for a line 3 scrubber wastewater treatment system that had been installed prior to MPCA review and approval. Minntac installed the line 3 scrubber to meet a federal air quality deadline of October, 2006. WQ permit was (major) modified to require no net increase in sulfate and hardness to the tailings basin from operation of the Line 3 scrubber.

2. November, 2007 Schedule of Compliance – issued to address tailings basin water discharges to Sandy and Dark Rivers as well as possible discharges to the St. Louis River (West Two River). The November, 2007 SOC included the following required submittals:
   - Seep Collection and Treatment Feasibility Reports
   - Sandy River Modeling
   - Pilot Testing of Treatment Technologies Report
   - Revised Water Management Plan
   - Permit Renewal Application

3. Stipulated Penalty to November, 2007 Schedule of Compliance – June, 2008. Minntac submitted a late economic and technical feasibility report (for tailings basin water treatment) and paid a penalty of $14,400.

4. September, 2008 Stipulation Agreement – issued for both WQ and AQ violations. Water quality violations were failure to properly operate and maintain the line 3 scrubber blowdown treatment system which was installed to eliminate sulfate and hardness discharges to the tailings basin from this scrubber. A civil penalty of $119,544 was paid by the Company (approx. $88,000 was for WQ violations).

5. February 25, 2010 Amendment #1 to November, 2007 SOC – required completion of a seepage collection and return system on east side of the tailings basin within eight construction season months of initiation. Minntac paid a stipulated penalty of $18,000 for failure to notify MPCA of construction initiation in a timely manner.

Law Offices of Charles M. Tebbutt
P.O. Box 10112, Eugene, OR 97440
470 W. Broadway , Eugene, OR 97401
Ph: 541-344-8312, Fax: 541-344-0188
charlie.tebbuttlaw@gmail.com

January 25, 2010

CERTIFIED MAIL, RETURN RECEIPT REQUESTED AND
UNITED STATES FIRST-CLASS MAIL

Bruce C. Gerlach, Facility Manager
Cliffs Erie LLC
PO Box 900
County Road 666
Hoyt Lakes, MN 55750

Joseph Carrabba, Chairman, President and CEO
Cleveland Cliffs, Inc., aka Cliffs Natural Resources, Inc.
200 Public Square, Suite 3300
Cleveland, OH 44114-2544

RE: Notice of Intent to Sue Pursuant to Section 505 of the Federal Water Pollution Control Act

Dear Messrs. Gerlach and Carrabba:

This letter is to provide you with notice of intent of the Center For Biological Diversity, Save Lake Superior Association, and the Indigenous Environmental Network ("Notifiers"), to file a citizen suit against Cliffs Erie, LLC, Cleveland Cliffs, Inc., Cliffs Natural Resources, Inc. and any other necessary party or successors in interest for violations of multiple NPDES permits held under the Federal Water Pollution Control Act ("Clean Water Act"), located at three separate locations and described in NPDES permits MN0042536, MN0042579, and MN0054089, pursuant to section 505(a)(1)(A) of the Clean Water Act (CWA), 33 U.S.C. § 1365(a)(1)(A). You are hereby given notice that, upon the expiration of the sixty (60) day statutory waiting period, or sooner based upon violations of 33 U.S.C. § 1317(a), Notifiers will file a civil action in federal district court.

This lawsuit will allege that Cliffs Erie, LLC, a wholely owned subsidiary of Cleveland Cliffs, Inc., also known as Cliffs Natural Resources, Inc., and any successors in interest to the three permits mentioned herein, and collectively referred to hereafter as Cliffs Erie, have violated, continue to violate, and will continue to violate the CWA, and applicable state water pollution control laws, including but not limited to water quality standards.

Section 301 of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant from a point source into waters of the United States unless such discharge is permitted in a National Pollutant Discharge Elimination System (NPDES) permit. Many of Cliffs Erie's discharges violate the NPDES permits issued pursuant to 33 U.S.C. § 1342, and the state authorized equivalents to the federal law, while other discharges are unpermitted and thus subject to the more general prohibitions of 33 U.S.C. §

1311(a).

I. Cliffs Erie, LLC-Hoyt Lakes Tailings Basin Area- NPDES MN0054089

As described in the permit, drainage from the northern portion of the tailings basin, including outfalls SD005 and SD002, flows to unnamed wetlands to Kaunonen and Trimble Creeks to the Embarrass River. Drainage from the far western portion of the tailings basin, including outfalls SD006, SD001 and SD004, flows to an unnamed creek and wetlands to the Embarrass River. The wetlands are class 2D, 3D, 4C, 5 and 6 waters. The creeks and river are class 2B, 3B, 4A, 4B, 5 and 6 waters. These waters are part of the Lake Superior watershed and eventually reach Lake Superior.

Surface water monitoring station SW003 (Site 3) is located on an unnamed tributary creek/wetland drainage to the Embarrass River, at the former DMIRR railroad grade bridge crossing in Section 36, Waasa Township. Monitoring stations SW004 and SW005 are located on the Embarrass River at the bridge crossings on County Road 620 (Salo Road, upstream of Spring Mine Creek) and Highway 135 in White Township, respectively.

Permit MN0054089 sets forth effluent standards and limitations for numerous pollutant discharges at multiple outfalls. Cliffs Erie is required by its permit to self-monitor and report the monitoring results on Discharge Monitoring Reports. According to its DMRs, Cliffs Erie has violated its permitted effluent standards and limitations for the following pollutants at the following outfalls:

1. Bicarbonates

The permit limit for Bicarbonates for all relevant outfalls is 305 mg/l on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD001	2005-Mar	463	mg/L
SD001	2005-Sep	401	mg/L
SD001	2006-Sep	432	mg/L
SD001	2006-Dec	426	mg/L
SD001	2007-Mar	483	mg/L
SD001	2007-Sep	456	mg/L
SD001	2007-Dec	356	mg/L
SD001	2008-Mar	393	mg/L
SD001	2009-Sep	445	mg/L
SD002	2005-Mar	438	mg/L
SD002	2005-Jun	393	mg/L
SD002	2005-Sep	426	mg/L
SD002	2005-Dec	394	mg/L
SD002	2006-Mar	392	mg/L
SD002	2006-Jun	398	mg/L
SD002	2006-Sep	440	mg/L

SD002	2006-Dec	428	mg/L
SD002	2007-Mar	430	mg/L
SD002	2007-Jun	385	mg/L
SD002	2007-Sep	443	mg/L
SD002	2007-Dec	431	mg/L
SD002	2008-Mar	441	mg/L
SD002	2008-Jun	389	mg/L
SD002	2009-Mar	455	mg/L
SD002	2009-Jun	416	mg/L
SD002	2009-Sep	451	mg/L
SD004	2005-Mar	409	mg/L
SD004	2005-Jun	397	mg/L
SD004	2005-Sep	427	mg/L
SD004	2005-Dec	426	mg/L
SD004	2006-Mar	403	mg/L
SD004	2006-Jun	432	mg/L
SD004	2006-Sep	440	mg/L
SD004	2006-Dec	435	mg/L
SD004	2007-Mar	430	mg/L
SD004	2007-Jun	420	mg/L
SD004	2007-Sep	460	mg/L
SD004	2007-Dec	514	mg/L
SD004	2008-Mar	553	mg/L
SD004	2008-Jun	562	mg/L
SD004	2009-Mar	555	mg/L
SD004	2009-Sep	556	mg/L
SD006	2005-Mar	402	mg/L
SD006	2005-Sep	367	mg/L
SD006	2005-Dec	381	mg/L
SD006	2006-Mar	427	mg/L
SD006	2006-Jun	317	mg/L
SD006	2006-Sep	408	mg/L
SD006	2006-Dec	475	mg/L
SD006	2007-Mar	450	mg/L
SD006	2007-Sep	316	mg/L
SD006	2007-Dec	441	mg/L
SD006	2008-Mar	514	mg/L
SD006	2008-Jun	309	mg/L
SD006	2009-Mar	492	mg/L
SD006	2009-Jun	386	mg/L
SD006	2009-Sep	452	mg/L

2. Boron

The permit limit for Boron for outfall 004 is 500 mg/l on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD004	2005-Jun	521	ug/L
SD004	2005-Sep	520	ug/L
SD004	2005-Dec	511	ug/L
SD004	2006-Mar	547	ug/L
SD004	2006-Dec	514	ug/L
SD004	2007-Mar	503	ug/L
SD004	2007-Dec	504	ug/L
SD004	2009-Mar	515	ug/L
SD004	2009-Sep	518	ug/L

3. Carbonate Hardness

The permit limit for Carbonate Hardness (as CaCo3) for all relevant outfalls is 250 mg/l on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD001	2005-Mar	626	mg/L
SD001	2005-Jun	367	mg/L
SD001	2005-Sep	485	mg/L
SD001	2005-Dec	408	mg/L
SD001	2006-Mar	463	mg/L
SD001	2006-Jun	400	mg/L
SD001	2006-Sep	499	mg/L
SD001	2006-Dec	584	mg/L
SD001	2007-Mar	818	mg/L
SD001	2007-Jun	292	mg/L
SD001	2007-Sep	495	mg/L
SD001	2007-Dec	548	mg/L
SD001	2008-Mar	597	mg/L
SD001	2008-Jun	303	mg/L
SD001	2009-Jun	304	mg/L
SD001	2009-Sep	445	mg/L
SD002	2005-Mar	422	mg/L
SD002	2005-Jun	417	mg/L
SD002	2005-Sep	443	mg/L
SD002	2005-Dec	379	mg/L
SD002	2006-Mar	357	mg/L
SD002	2006-Jun	456	mg/L
SD002	2006-Sep	425	mg/L
SD002	2006-Dec	441	mg/L

SD002	2007-Mar	439	mg/L
SD002	2007-Jun	401	mg/L
SD002	2007-Sep	429	mg/L
SD002	2007-Dec	433	mg/L
SD002	2008-Mar	475	mg/L
SD002	2008-Jun	404	mg/L
SD002	2009-Mar	455	mg/L
SD002	2009-Jun	416	mg/L
SD002	2009-Sep	451	mg/L
SD004	2005-Jun	494	mg/L
SD004	2005-Sep	637	mg/L
SD004	2005-Dec	692	mg/L
SD004	2006-Sep	671	mg/L
SD004	2006-Dec	650	mg/L
SD004	2007-Mar	703	mg/L
SD004	2007-Jun	651	mg/L
SD004	2007-Sep	717	mg/L
SD004	2007-Dec	828	mg/L
SD004	2008-Mar	838	mg/L
SD004	2008-Jun	871	mg/L
SD004	2009-Mar	555	mg/L
SD004	2009-Sep	556	mg/L
SD006	2005-Mar	494	mg/L
SD006	2005-Jun	340	mg/L
SD006	2005-Sep	488	mg/L
SD006	2005-Dec	476	mg/L
SD006	2006-Mar	520	mg/L
SD006	2006-Jun	371	mg/L
SD006	2006-Sep	514	mg/L
SD006	2006-Dec	629	mg/L
SD006	2007-Mar	617	mg/L
SD006	2007-Jun	323	mg/L
SD006	2007-Sep	375	mg/L
SD006	2007-Dec	585	mg/L
SD006	2008-Mar	670	mg/L
SD006	2008-Jun	408	mg/L
SD006	2009-Mar	492	mg/L
SD006	2009-Jun	386	mg/L
SD006	2009-Sep	465	mg/L

4. Dissolved Iron

The permit limits for Dissolved Iron (as FE) for all relevant outfalls are 1 mg/l on a calendar

month average and 2 mg/l for a calendar month maximum for at least the months of March, June, September and December each year. Cliffs Erie has violated the limits (specified below) as follows:

SD001	2005-Mar	1	2.56	mg/L
SD001	2005-Mar	2	2.56	mg/L
SD001	2005-Dec	1	1.3	mg/L
SD001	2006-Mar	1	1.5	mg/L
SD004	2005-Jun	1	2.82	mg/L
SD004	2005-Jun	2	2.82	mg/L
SD004	2005-Sep	1	3.47	mg/L
SD004	2005-Sep	2	3.47	mg/L
SD004	2005-Dec	1	3.7	mg/L
SD004	2005-Dec	2	3.7	mg/L
SD004	2006-Mar	1	2.87	mg/L
SD004	2006-Mar	2	2.87	mg/L
SD004	2006-Jun	1	2.57	mg/L
SD004	2006-Jun	2	2.57	mg/L
SD004	2006-Sep	1	2.45	mg/L
SD004	2006-Sep	2	2.45	mg/L
SD004	2006-Dec	1	2.92	mg/L
SD004	2006-Dec	2	2.92	mg/L
SD004	2007-Mar	1	2.76	mg/L
SD004	2007-Mar	2	2.76	mg/L
SD004	2007-Jun	1	2.51	mg/L
SD004	2007-Jun	2	2.51	mg/L
SD004	2007-Sep	1	2.68	mg/L
SD004	2007-Sep	2	2.68	mg/L
SD004	2007-Dec	1	2.84	mg/L
SD004	2007-Dec	2	2.84	mg/L
SD004	2008-Mar	1	4.14	mg/L
SD004	2008-Mar	2	4.14	mg/L
SD004	2008-Jun	1	4.61	mg/L
SD004	2008-Jun	2	4.61	mg/L
SD004	2009-Mar	1	6.44	mg/L
SD004	2009-Mar	2	6.44	mg/L
SD004	2009-Sep	1	6.23	mg/L
SD004	2009-Sep	2	6.23	mg/L

5. pH

The permit limit for pH for all relevant outfalls and surface water monitoring stations is no greater than 8.5 standard units and no less than 6.5 standard units as an instantaneous maximum for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SW004	2008-Jun	6.1	SU

6. Specific Conductance

The permit limit for Specific Conductance, Field, for all relevant outfalls is 1000 umh/cm on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD001	2005-Mar	1230	umh/cm
SD001	2005-Sep	1018	umh/cm
SD001	2005-Dec	1086	umh/cm
SD001	2006-Mar	1099	umh/cm
SD001	2006-Sep	1121	umh/cm
SD001	2006-Dec	1098	umh/cm
SD001	2007-Mar	1111	umh/cm
SD001	2007-Sep	1098	umh/cm
SD001	2007-Dec	1122	umh/cm
SD001	2008-Mar	1079	umh/cm
SD001	2009-Sep	1181	umh/cm
SD002	2005-Mar	1010	umh/cm
SD002	2005-Sep	1308	umh/cm
SD002	2005-Dec	1122	umh/cm
SD002	2006-Mar	1127	umh/cm
SD002	2006-Jun	1011	umh/cm
SD002	2006-Sep	1222	umh/cm
SD002	2006-Dec	1178	umh/cm
SD002	2007-Mar	1110	umh/cm
SD002	2007-Sep	1167	umh/cm
SD002	2007-Dec	1078	umh/cm
SD002	2008-Mar	1198	umh/cm
SD002	2008-Jun	1209	umh/cm
SD002	2009-Mar	1148	umh/cm
SD002	2009-Jun	1069	umh/cm
SD002	2009-Sep	1158	umh/cm
SD004	2005-Mar	1130	umh/cm
SD004	2005-Jun	1178	umh/cm
SD004	2005-Sep	1283	umh/cm
SD004	2005-Dec	1380	umh/cm
SD004	2006-Mar	1290	umh/cm
SD004	2006-Sep	1376	umh/cm
SD004	2006-Dec	1301	umh/cm
SD004	2007-Mar	1311	umh/cm
SD004	2007-Jun	1325	umh/cm

SD004	2007-Sep	1518	umh/cm
SD004	2007-Dec	1575	umh/cm
SD004	2008-Mar	1487	umh/cm
SD004	2008-Jun	1576	umh/cm
SD004	2009-Mar	1675	umh/cm
SD004	2009-Sep	1751	umh/cm
SD006	2005-Mar	1069	umh/cm
SD006	2005-Sep	1078	umh/cm
SD006	2005-Dec	1092	umh/cm
SD006	2006-Mar	1133	umh/cm
SD006	2006-Sep	1209	umh/cm
SD006	2006-Dec	1148	umh/cm
SD006	2007-Mar	1118	umh/cm
SD006	2007-Sep	1219	umh/cm
SD006	2007-Dec	1420	umh/cm
SD006	2008-Mar	1290	umh/cm
SD006	2009-Mar	1528	umh/cm
SD006	2009-Jun	1169	umh/cm
SD006	2009-Sep	1395	umh/cm

7. Turbidity

The permit limit for Turbidity for all relevant outfalls is 25 NTUs on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD001	2005-Mar	28	NTU
SD004	2005-Mar	80	NTU
SD004	2005-Jun	29	NTU
SD004	2005-Sep	33.4	NTU
SD004	2006-Mar	38	NTU
SD004	2006-Dec	56.2	NTU
SD004	2007-Mar	25.9	NTU
SD004	2007-Dec	39.8	NTU
SD004	2008-Mar	49.2	NTU
SD004	2008-Jun	65.1	NTU
SD004	2009-Mar	89.3	NTU
SD004	2009-Sep	88.6	NTU

In addition to the specific limits violated as set forth above, Cliffs Erie has also generally violated the CWA and its permit in numerous other respects. For example, Cliffs Erie is violating the permit requirement that they not discharge toxics, including but not limited to aluminum and mercury. Notifierw believe and allege , based upon Cliffs Erie's own monitoring data that it is discharging toxics

via surface water discharges and ground water discharges that are hydrologically connected to nearby surface waters.

Cliffs Erie is also discharging through unpermitted point sources, including but not limited to seeps such as the "West Side Seep" and from the "emergency basin" identified in its NPDES permit. In addition, the LTVSMC Tailings Basin contributes both groundwater and surface water seepage that ultimately reaches the Embarrass River between monitoring stations PM-12 and PM-13. The LTVSMC Tailings Basin has had and likely continues to have at least 33 locations where tailings water seeps through the embankment to surface waters.

II. Cliffs Erie, LLC-Hoyt Lakes Mining Area-NPDES MN0042536

As described in the permit, the receiving waters for discharges associated with this facility are Second Creek, Wyman Creek, Spring Mine Creek, and unnamed tributaries to Partridge River/Colby Lake. These waters are part of the Lake Superior watershed and eventually reach Lake Superior.

Permit MN0042536 sets forth effluent standards and limitations for numerous pollutant discharges at multiple outfalls. Cliffs Erie is required by its permit to self-monitor and report the monitoring results on Discharge Monitoring Reports. According to its DMRs, Cliffs Erie has violated its permitted effluent standards and limitations for the following pollutants at the following outfalls:

1. pH

The permit limit for pH for all relevant outfalls and surface water monitoring stations is no greater than 8.5 standard units and no less than 6.5 standard units as an instantaneous maximum for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit as follows:

SD012	2005-Jun	8.75
SD012	2005-Dec	8.7
SD012	2006-Sep	8.6
SD012	2008-Dec	8.56

2. Specific Conductance, Field

The permit limit for Specific Conductance, Field, for outfall SD026 is 1000 umh/cm on a calendar month average for each month of each year. Cliffs Erie has violated the limit as follows:

SD026	2005-Feb	1108
SD026	2005-May	1053
SD026	2005-Jul	1075
SD026	2005-Aug	1080
SD026	2005-Sep	1089
SD026	2005-Oct	1039

SD026	2005-Nov	1010
SD026	2005-Dec	1004
SD026	2006-Jan	1012
SD026	2006-Feb	1088
SD026	2006-Mar	1103
SD026	2006-May	1048
SD026	2006-Jun	1097
SD026	2006-Jul	1162
SD026	2006-Aug	1166
SD026	2006-Sep	1183
SD026	2006-Oct	1140
SD026	2006-Nov	1080
SD026	2006-Dec	1011
SD026	2007-Jan	1028
SD026	2007-Feb	1001
SD026	2007-Mar	1018
SD026	2007-May	1011
SD026	2007-Jul	1104
SD026	2007-Aug	1247
SD026	2007-Sep	1227
SD026	2007-Oct	1051
SD026	2007-Nov	1099
SD026	2007-Dec	1169
SD026	2008-Jan	1119
SD026	2008-Feb	1144
SD026	2008-Mar	1197
SD026	2008-Apr	1187
SD026	2008-Jul	1191
SD026	2008-Aug	1243
SD026	2008-Sep	1166
SD026	2008-Oct	1184
SD026	2008-Nov	1160
SD026	2008-Dec	1260
SD026	2009-Jan	1298
SD026	2009-Feb	1322
SD026	2009-Mar	1251
SD026	2009-Apr	1104
SD026	2009-Jun	1140
SD026	2009-Jul	1225
SD026	2009-Aug	1220
SD026	2009-Sep	1249

3. Temperature

The permit limit for Temperature for outfall SD012 is "not materially greater than" the

temperature (in degrees Fahrenheit) of the sample at the outfall compared with the simultaneously recorded temperature at reference point monitoring station SW007 for at least the months of March, June, September and December each year. Cliffs Erie has violated the permit limit as follows (represented in degrees Fahrenheit):

SD012	2005-Mar	0.1
SD012	2005-Jun	2.4
SD012	2005-Sep	2.8
SD012	2005-Dec	0.3
SD012	2006-Mar	0.4
SD012	2006-Jun	0.8
SD012	2006-Sep	0.1
SD012	2006-Dec	0.2
SD012	2007-Mar	0.5
SD012	2007-Jun	0.4
SD012	2007-Sep	0.2
SD012	2007-Dec	1.98
SD012	2007-Dec	1.98
SD012	2008-Mar	2.52
SD012	2008-Jun	1.044
SD012	2008-Sep	9.162
SD012	2008-Dec	3.6
SD012	2009-Mar	0.5
SD012	2009-Jun	4.3
SD012	2009-Sep	8.1

III. Cliffs Erie, LLC- Dunka Mining Area- NPDES MN0042579

As described in the permit, the receiving waters for discharges from the outfalls in this permit are Unnamed Creek, a tributary to Unnamed Creek ('Billiken Creek'), and a tributary to Birch Lake ('Flamingo Creek').

Permit MN0042579 sets forth effluent standards and limitations for numerous pollutant discharges at multiple outfalls. Cliffs Erie is required by its permit to self-monitor and report the monitoring results on Discharge Monitoring Reports. According to its DMRs, Cliffs Erie has violated its permitted effluent standards and limitations for the following pollutants at the following outfalls:

1. Dissolved Iron

The permit limit for Dissolved Iron (as FE) for the relevant outfalls is 1 mg/l on a calendar month average for at least the months of March, June, September and December each year. Cliffs Erie has violated the limit (specified below) as follows:

SD005	2007-Mar	1.24	mg/L
SD005	2009-Mar	1.82	mg/L

SD006	2007-Dec	1.44	mg/L
SD006	2008-Apr	1.05	mg/L
SD006	2008-Dec	1.02	mg/L

2. Toxicity

The permit requires (Chapter 1.3.1, page 15) additive acute toxicity value testing as a surrogate for specified metals copper, nickel and zinc at certain outfalls, including SD008 and SD009. The limits are based a calendar month maximum and are different depending upon the months of the year. Cliffs Erie has violated the permit limitations on at least the following occasions:

SD008	2007-Sep	1.5	4.25	toxunt
SD009	2008-Jun	1	1.08	toxunt
SD009	2008-Jul	1	1.2	toxunt

Notifiers believe and allege that a history of violations, similar in type and nature to the violations listed above, as well as reporting violations, and if different, are all related to improper construction, operation and maintenance of the Cliffs Erie facilities, and have continued from at least January 25, 2005, to the present. Further, Notifiers believe and allege, in part based upon the history of violations, that such discharges will continue or are reasonably likely to continue. Such violations are known to the Dischargers and may be included in future legal actions by Notifiers without further notice. Such discharges or reporting violations may only be known to Dischargers and eyewitnesses to be determined.

Notifiers intend, at the close of the sixty (60) day notice period, or sooner pursuant to violations of 33 U.S.C. § 1317(a), to file a citizen suit under Section 505 of the CWA against Cliffs Erie for the statutory maximum of $37,500 per day for each violation stated above in addition to those which have occurred of which you are aware and those occurring subsequent to this letter, plus injunctive and remedial relief, costs, attorney and expert witness fees, and such other relief as may be appropriate.

The names, addresses and phone numbers of the persons giving Notice of Intent to Sue under the Clean Water Act are:

Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702-0710
Tel: 520–623-5252

Save Lake Superior Association
P.O. Box 101
Two Harbors, MN 55616
Tel: 218-834-6137

Indigenous Environmental Network
P.O. Box 485
Bemidji, MN 56619
Tel: 218-751-4967

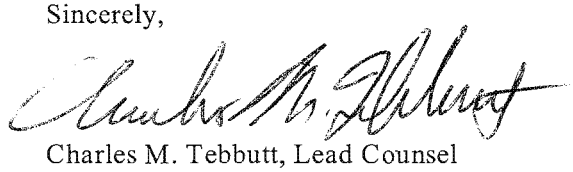
Counsel for Notifiers are:

Charles M. Tebbutt
Law Offices of Charles M. Tebbutt
P.O. Box 10112
Eugene, OR 97440
Phone: (541) 344-8312
E-mail: charlie.tebbuttlaw@gmail.com

Marc Fink
Center for Biological Diversity
209 East 7th St.
Duluth, Minnesota 55805
Tel: 218-525-3884

Notifiers request that any person receiving this notice direct all inquiries to the undersigned legal counsel.

Sincerely,



Charles M. Tebbutt, Lead Counsel
Law Offices of Charles M. Tebbutt

Via Certified Mail, Return Receipt Requested

cc: Lisa P. Jackson, Administrator
United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Bharat Mathur, Acting Regional Adminisitrator
EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507

Paul Eger, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

CT Corporations System, Inc.
Registered Agent for Cliffs Erie L.L.C.
100 S 5th Str #1075
Minneapolis, MN 55402

Polymet Mining Corp.
PO Box 475
6500 County Road 666
Hoyt Lakes, MN 55750

STATE OF MINNESOTA | DISTRICT COURT

COUNTY OF RAMSEY | SECOND JUDICIAL DISTRICT

Case Type: Other Civil

State of Minnesota, by its Minnesota Pollution Control Agency,

Plaintiff,

vs.

Cliffs Erie, L.L.C.,

Defendant.

Court File No. _____

COMPLAINT

INTRODUCTION

This is an action for civil penalties and for an order requiring the Defendant to take certain specific corrective actions to address various violations of environmental protection requirements.

PARTIES

1. The Minnesota Pollution Control Agency ("MPCA") is a statutory agency of the State of Minnesota responsible for administering and enforcing statutes, rules, and permits relating to the pollution of the waters of the State of Minnesota. Minn. Stat. chs. 115 and 116 (2010) and rules promulgated thereunder.

2. Defendant Cliffs Erie ("Cliffs Erie") is a Limited Liability Corporation that owns and operates a number of mining facilities in northeastern Minnesota. Defendant operates its facilities pursuant to several water discharge permits that were issued and are enforced by the MPCA.

JURISDICTION

3. This is an action for civil penalties and for an order compelling performance of corrective actions to address violations of Defendant's permits and unpermitted discharges from Defendant's facilities. This Court has jurisdiction over the Defendant and is authorized to hear this matter pursuant to Minn. Stat. § 115.071, subds. 3, 4 and 5 (2010).

VENUE

4. The parties have expressly consented to venue in Ramsey County.

FACTUAL BACKGROUND

5. Defendant owns and operates a number of mining facilities in Minnesota. As part of its operations, Defendant operates the three facilities known as the Hoyt Lakes Tailings Basin, the Hoyt Lakes Mine Area, and the Dunka Mine Area (collectively hereinafter "Facilities"). Each of these three Facilities is subject to a MPCA-issued National Pollutant Discharge Elimination System / State Disposal System ("NPDES/SDS") permit that regulates the discharge of wastewater from the Facilities. Prior to Cliffs Erie, L.L.C., being issued NPDES/SDS Permit coverage for the three facilities, the LTV Steel Mining Company (LTVSMC) was the previous Permittee. After LTVSMC's bankruptcy in 2000 or 2001, the three NPDES/SDS permits for these facilities, originally issued to LTVSMC, were transferred to Cliffs Erie, L.L.C., on October 30, 2001. At that time Cliffs Erie became responsible for maintaining compliance with the permits at the three facilities. As discussed in greater detail below, the Defendant has violated its NPDES/SDS permits and other applicable environmental protection requirements regarding the pollution of the waters of the State of Minnesota.

APPLICABLE LAW

6. Pursuant to Minn. Stat. § 115.03, subd. 1 (a) (2010), the MPCA is authorized and required to enforce all laws relating to the pollution of the waters of the State of Minnesota. Pursuant to Minn. Stat. § 115.03, subd. 5 (2010), the MPCA is authorized and required to enforce the National Pollutant Discharge Elimination ("NPDES") permitting program in Minnesota.

7. Pursuant to Minn. Stat. § 115.071, subd. 1 (2010), the statutes, rules, and permits that are administered by the MPCA "may be enforced by any one or any combination of the following: criminal prosecution; action to recover civil penalties; injunction; action to compel performance; or other appropriate action, in accordance with the provisions of said chapters and this section."

8. Pursuant to Minn. Stat. § 115.071, subd. 3 (2010), a person who violates, among other things, any provision of ch. 115, or any rules or permits issued by the MPCA is subject to a penalty not to exceed $10,000 per day of violation. Such penalties may be recovered by a civil action brought in the name of the State of Minnesota.

9. Pursuant to Minn. Stat. § 115.071, subd. 5 (2010), "In any action to compel performance of an order of [the MPCA] for any purpose relating to the prevention, pollution, control or abatement of pollution under this chapter and chapters 114C and 116, the court may require any defendant adjudged responsible to do and perform any and all acts and things within the defendant's power which are reasonably necessary to accomplish the purpose of the order."

COUNT I
VIOLATION OF HOYT LAKES TAILINGS BASIN PERMIT

10. The Defendant owns and operates a facility referred to as the Hoyt Lakes Tailings Basin. The Defendant operates the Hoyt Lakes Tailings Basin facility pursuant to NPDES/SDS

Permit No. MN0054089. The permit regulates surface and groundwater discharges from this closed taconite tailings basin.

11. The NPDES/SDS Permit for the Tailings Basin (NPDES/SDS Permit No. MN0054089) includes enforceable discharge limits that govern how much of a specific pollutant the Defendant may legally discharge. The permit identifies five surface discharge stations known as SD001, SD002, SD004, SD005, and SD006. The permit requires the Defendant to monitor the discharge from those stations to verify that the discharge meets the applicable discharge limits. The Defendant has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN0054089 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when violations of those limits occurred, through the filing of this Complaint.

Monitoring Station	**Parameter**	**Limit (mg/l unless otherwise noted)**	**Reported Value (mg/l unless otherwise noted)**	**Limit Type**	**Reporting Period**
SD001	Total Suspended Solids	20	24	CalMoAvg	February 2005
SD001	Total Suspended Solids	20	26	CalMoAvg	February 2007
SD001	Turbidity	25 NTU	28 NTU	CalMoAvg	March 2005
SD001	Turbidity	25 NTU	26 NTU	CalMoAvg	February 2007
SD001	Dissolved Iron	1.0	2.6	CalMoAvg	March 2005
SD001	Dissolved Iron	2.0	2.6	CalMoMax	March 2005
SD001	Dissolved Iron	1.0	1.3	CalMoAvg	December 2005
SD001	Dissolved Iron	1.0	1.5	CalMoAvg	March 2006
SD002	Total Boron	500 µg/l	502 µg/l	CalMoAvg	January 2009
SD002	Total Suspended Solids	20	22	CalMoAvg	January 2007

SD002	Total Suspended Solids	20	30	CalMoAvg	November 2007
SD004	Total Boron	500 µg/l	521 µg/l	CalMoAvg	June 2005
SD004	Total Boron	500 µg/l	520 µg/l	CalMoAvg	September 2005
SD004	Total Boron	500 µg/l	511 µg/l	CalMoAvg	December 2005
SD004	Total Boron	500 µg/l	547 µg/l	CalMoAvg	March 2006
SD004	Total Boron	500 µg/l	514 µg/l	CalMoAvg	December 2006
SD004	Total Boron	500 µg/l	503 µg/l	CalMoAvg	March 2007
SD004	Total Boron	500 µg/l	504 µg/l	CalMoAvg	December 2007
SD004	Total Boron	500 µg/l	526 µg/l	CalMoAvg	December 2008
SD004	Total Boron	500 µg/l	515 µg/l	CalMoAvg	March 2009
SD004	Total Boron	500 µg/l	518 µg/l	CalMoAvg	September 2009
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	June 2005
SD004	Dissolved Iron	2.0	2.8	CalMoMax	June 2005
SD004	Dissolved Iron	1.0	3.5	CalMoAvg	September 2005
SD004	Dissolved Iron	2.0	3.5	CalMoMax	September 2005
SD004	Dissolved Iron	1.0	3.7	CalMoAvg	December 2005
SD004	Dissolved Iron	2.0	3.7	CalMoMax	December 2005
SD004	Dissolved Iron	1.0	2.9	CalMoAvg	March 2006
SD004	Dissolved Iron	2.0	2.9	CalMoMax	March 2006
SD004	Dissolved Iron	1.0	2.6	CalMoAvg	June 2006
SD004	Dissolved Iron	2.0	2.6	CalMoMax	June 2006
SD004	Dissolved Iron	1.0	2.5	CalMoAvg	September 2006
SD004	Dissolved Iron	2.0	2.5	CalMoMax	September 2006
SD004	Dissolved Iron	1.0	2.9	CalMoAvg	December 2006
SD004	Dissolved Iron	2.0	2.9	CalMoMax	December 2006
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	March 2007
SD004	Dissolved Iron	2.0	2.8	CalMoMax	March 2007

SD004	Dissolved Iron	1.0	2.5	CalMoAvg	June 2007
SD004	Dissolved Iron	2.0	2.5	CalMoMax	June 2007
SD004	Dissolved Iron	1.0	2.7	CalMoAvg	September 2007
SD004	Dissolved Iron	2.0	2.7	CalMoMax	September 2007
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	December 2007
SD004	Dissolved Iron	2.0	2.8	CalMoMax	December 2007
SD004	Dissolved Iron	1.0	4.1	CalMoAvg	March 2008
SD004	Dissolved Iron	2.0	4.1	CalMoMax	March 2008
SD004	Dissolved Iron	1.0	4.6	CalMoAvg	June 2008
SD004	Dissolved Iron	2.0	4.6	CalMoMax	June 2008
SD004	Dissolved Iron	1.0	5.5	CalMoAvg	September 2008
SD004	Dissolved Iron	2.0	5.5	CalMoMax	September 2008
SD004	Dissolved Iron	1.0	6.0	CalMoAvg	December 2008
SD004	Dissolved Iron	2.0	6.0	CalMoMax	December 2008
SD004	Dissolved Iron	1.0	6.4	CalMoAvg	March 2009
SD004	Dissolved Iron	2.0	6.4	CalMoMax	March 2009
SD004	Dissolved Iron	1.0	6.2	CalMoAvg	September 2009
SD004	Dissolved Iron	2.0	6.2	CalMoMax	September 2009
SD004	Dissolved Iron	1.0	6.9	CalMoAvg	December 2009
SD004	Dissolved Iron	2.0	6.9	CalMoMax	December 2009
SD004	Dissolved Iron	1.0	2.0	CalMoAvg	March 2010
SD004	Turbidity	25 NTU	80 NTU	CalMoAvg	March 2005
SD004	Turbidity	25 NTU	29 NTU	CalMoAvg	June 2005
SD004	Turbidity	25 NTU	33 NTU	CalMoAvg	September 2005
SD004	Turbidity	25 NTU	38 NTU	CalMoAvg	March 2006

SD004	Turbidity	25 NTU	56 NTU	CalMoAvg	December 2006
SD004	Turbidity	25 NTU	26 NTU	CalMoAvg	March 2007
SD004	Turbidity	25 NTU	40 NTU	CalMoAvg	December 2007
SD004	Turbidity	25 NTU	49 NTU	CalMoAvg	March 2008
SD004	Turbidity	25 NTU	65 NTU	CalMoAvg	June 2008
SD004	Turbidity	25 NTU	93 NTU	CalMoAvg	September 2008
SD004	Turbidity	25 NTU	99 NTU	CalMoAvg	December 2008
SD004	Turbidity	25 NTU	89 NTU	CalMoAvg	March 2009
SD004	Turbidity	25 NTU	89 NTU	CalMoAvg	September 2009
SD004 SD004	Turbidity Turbidity	25 NTU 25NTU	113 NTU 95NTU	CalMoAvg CalMoAvg	December 2009 March 2010
SD004	Total Suspended Solids	20	79	CalMoAvg	October 2006
SD004	Total Suspended Solids	20	21	CalMoAvg	October 2007
SD006	pH	8.5 s.u.	8.6 s.u.	InstantMax	October 2005

COUNT II
VIOLATION OF HOYT LAKES MINE AREA PERMIT

12. The Defendant owns and operates a facility known as the Hoyt Lakes Mine Area. The Defendant operates the Hoyt Lakes Mine Area pursuant to NPDES/SDS Permit No. MN0042536.

13. The permit for the Hoyt Lakes Mine Area (NPDES/SDS Permit No. MN0042536) includes enforceable limits that govern how much of a specific pollutant the Defendant may legally discharge. The permit identifies nine surface discharge stations known as SD008, SD009, SD0013, SD010, SD011, SD012, SD026, SD030, and SD033. The permit requires the Defendant to monitor the discharge from those stations to verify that the discharge meets the applicable limits. The Defendant has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN 0042356 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when violations of those limits occurred, through the filing of this Complaint. The temperature difference limit at SD012 is

based on a comparison of temperature monitored at SD012 with the temperature of the receiving water (E. Branch Wyman Creek), downstream of where SD012 discharges to the receiving water.

Monitoring Station	Parameter	Limit	Reported Value	Limit Type	Reporting Period
SD012	pH	8.5 s.u.	8.8 s.u.	InstantMax	February 2005
SD012	pH	8.5 s.u.	8.8 s.u.	InstantMax	June 2005
SD012	pH	8.5 s.u.	8.7 s.u.	InstantMax	December 2005
SD012	pH	8.5 s.u.	8.7 s.u.	InstantMax	August 2006
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	September 2006
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	October 2008
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	November 2008
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	December 2008
SD012	Temperature difference	0° C.	1.8° C.	InstantMax	February 2005
SD012	Temperature difference	0° C.	0.1° C.	InstantMax	March 2005
SD012	Temperature difference	0° C.	2.0° C.	InstantMax	April 2005
SD012	Temperature difference	0° C.	2.8° C.	InstantMax	September 2005
SD012	Temperature difference	0° C.	4.4° C.	InstantMax	October 2005
SD012	Temperature difference	0° C.	0.3° C.	InstantMax	December 2005
SD012	Temperature difference	0° C.	0.4° C.	InstantMax	March 2006
SD012	Temperature difference	0° C.	3.0° C.	InstantMax	April 2006
SD012	Temperature difference	0° C.	0.5° C.	InstantMax	August 2006
SD012	Temperature difference	0° C.	3.8° C.	InstantMax	October 2006
SD012	Temperature difference	0° C.	0.2° C.	InstantMax	December 2006
SD012	Temperature difference	0° C.	0.5° C.	InstantMax	March 2007
SD012	Temperature difference	0° C.	2.3° C.	InstantMax	April 2007
SD012	Temperature difference	0° C.	0.4° C.	InstantMax	June 2007
SD012	Temperature difference	0° C.	2.5° C.	InstantMax	August 2007

SD012	Temperature difference	0° C.	0.2° C.	InstantMax	September 2007
SD012	Temperature difference	0° F.	2.0° F.	InstantMax	December 2007
SD012	Temperature difference	0° F.	1.8° F.	InstantMax	January 2008
SD012	Temperature difference	0° F.	2.0° F.	InstantMax	February 2008
SD012	Temperature difference	0° F.	2.9° F.	InstantMax	March 2008
SD012	Temperature difference	0° F.	2.3° F.	InstantMax	April 2008
SD012	Temperature difference	0° F.	1.0° F.	InstantMax	June 2008
SD012	Temperature difference	0° F.	1.1° F.	InstantMax	July 2008
SD012	Temperature difference	0° F.	9.2° F.	InstantMax	September 2008
SD012	Temperature difference	0° F.	3.6° F.	InstantMax	December 2008
SD012	Temperature difference	0° F.	0.5° F.	InstantMax	March 2009
SD012	Temperature difference	0° F.	4.1° F.	InstantMax	April 2009
SD012	Temperature difference	0° F.	8.1° F.	InstantMax	September 2009
SD012	Temperature difference	0° F.	3.4° F.	InstantMax	December 2009
SD012	Temperature difference	0°F.	1.4°F.	InstantMax	March 2010

14. The permit for the Hoyt Lakes Mine Area (NPDES/SDS Permit No. MN0042536) requires the Defendant to monitor and report specific information about its discharge. These reports are referred to as Discharge Monitoring Reports ("DMRs"). Chapter 2 Part 5.1 of NPDES/SDS Permit No. MN0042536 states: [For] SD008, SD009, SD010, SD011, SD012, SD013, SD026, SD030, SD033: Submit a monthly DMR monthly by 21 days after the end of each calendar month following issuance of major permit modification. Chapter 2, Part 6.2 of NPDES/SDS Permit No. 0042536 states, in part, that if there is no discharge from any of the

outfalls from a given mine pit for the entire calendar month, the Permittee shall sample the mine pit water itself for the same list of parameters as required for the outfalls. In this case the Permittee shall check the "No Discharge" box on the monthly Discharge Monitoring Report (DMR) for each of the outfalls originating from that mine pit and shall make a notation in the "comments" section of each DMR that a sample of the mine pit water was collected and analyzed. In addition, the Permittee shall provide the results of the mine pit water sampling as an attachment to the DMR.

15. The Defendant originally submitted timely DMRs for SD008, SD009, SD010, SD011, SD012 and SD013 for May, 2009 that indicated there were no discharges from these stations but did not include the required mine pit monitoring results for pits 2W, 2/2E, and 3. The Defendant subsequently submitted amended DMRs for these stations, received on July 2, 2009, that included the required mine pit monitoring results.

16. NPDES/SDS Permit No. MN0042356, Chapter 6, Part 1.1 states: For outfall SD030, the Permittee shall obtain discharge authorization or abandon discharge location by December 31, 2001. Discharge from mine pit 5S at outfall SD030 has occurred as seepage into an adjacent wetland since permit issuance. The Regulated Party neither obtained authorization to discharge at this location nor abandoned the discharge at this location by December 31, 2001.

COUNT III
VIOLATION OF DUNKA MINE AREA PERMIT

17. The Defendant owns and operates a facility known as the Dunka Mine Area. The Defendant operates the Dunka Mine Area pursuant to NPDES/SDS Permit No. MN0042579.

18. The permit for the Dunka Mine Area (NPDES/SDS Permit No. MN0042579) includes enforceable limits that govern how much of a specific pollutant the Defendant may legally discharge. The permit identifies seven surface discharge stations known as SD001, SD004,

SD005, SD006, SD007, SD008, and SD009. The permit requires the Defendant to monitor the discharge from those stations to verify that the discharge meets the applicable limits. The Defendant has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN 0042579 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when violations of those limits occurred, through the filing of this Complaint.

Monitoring Station	**Parameter**	**Limit (mg/l unless otherwise noted)**	**Reported Value (mg/l unless otherwise noted)**	**Limit Type**	**Reporting Period**
SD005	Dissolved Iron	1.0	1.2	CalMoAvg	March 2007
SD005	Dissolved Iron	1.0	1.8	CalMoAvg	March 2009
SD006	Dissolved Iron	1.0	1.4	CalMoAvg	January 2006
SD006	Dissolved Iron	1.0	1.4	CalMoAvg	December 2007
SD006	Dissolved Iron	1.0	1.1	CalMoAvg	April 2008
SD008	Dissolved Iron	1.0	2.0	CalMoAvg	December 2009
SD008	Toxicity Final Conc.	1.50 toxic units	4.25 toxic units	CalMoMax	September 2007
SD009	Toxicity, Final Conc.	1.00 toxic units	1.08 toxic units	CalMoMax	June 2008
SD009	Toxicity Final Conc.	1.00 toxic units	1.20 toxic units	CalMoMax	July 2008

RELIEF

WHEREFORE, Plaintiff prays that the Court issue its order and judgment as follows:

1. Declaring that Defendant has violated its permits;
2. Ordering Defendant to implement corrective actions as directed by the MPCA to remedy the Defendant's noncompliance; and

3. Ordering Defendant to pay an appropriate civil penalty as provided under law.

Dated: 3-25-10

Respectfully submitted,

LORI SWANSON
Attorney General
State of Minnesota

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Assistant Attorney General
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ATTORNEYS FOR PLAINTIFF
MINNESOTA POLLUTION CONTROL
AGENCY

MINN. STAT. § 549.211

ACKNOWLEDGMENT

The party or parties on whose behalf the attached document is served acknowledge through their undersigned counsel that sanctions may be imposed pursuant to Minn. Stat. § 549.211 (2010).

Dated: 2-25-10

ROBERT B. ROCHE
Assistant Attorney General
Atty. Reg. No. 0289589

ATTORNEY FOR STATE OF MINNESOTA

AG: #2606599-v1

STATE OF MINNESOTA | DISTRICT COURT

COUNTY OF RAMSEY | SECOND JUDICIAL DISTRICT

State of Minnesota, by its
Minnesota Pollution Control Agency,

Plaintiff,

vs.

Cliffs Erie L.L.C.,

Defendant.

Cast Type: Other Civil
(Environmental Enforcement)

Court File No. _____

CONSENT DECREE

Based on the information available to the parties on the effective date of this Consent Decree, without trial or adjudication of any issues of fact or law and upon consent of the parties hereto, it is ORDERED, ADJUDGED, AND DECREED, as follows:

I.

JURISDICTION AND VENUE

1. The Court has jurisdiction of the subject matter of this action pursuant to Minnesota Statutes Chapters 115 and 116 and jurisdiction over the parties herein. The Complaint filed by the State of Minnesota, by its Minnesota Pollution Control Agency, states a claim upon which relief can be granted pursuant to Minnesota Statutes § 115.071. The parties expressly consent to venue in Ramsey County.

II.

PARTIES

2. This Consent Decree applies to and is binding upon the Plaintiff, State of Minnesota, by the Minnesota Pollution Control Agency (MPCA) and the Defendant, Cliffs Erie L.L.C. and its successors (hereinafter Regulated Party).

III.

PURPOSE AND SCOPE OF CONSENT DECREE

3. The purpose of this Consent Decree is to resolve all alleged violations of National Pollutant Discharge Elimination System/State Disposal System Permit ("NPDES/SDS Permit") Nos. MN0054089, MN0042536, or MN0042579 that the MPCA alleged in its Complaint in this action and any alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 known by the MPCA based on information in the MPCA's records as of the date that the MPCA filed the Complaint, including but not limited to any allegedly unpermitted discharges. A summary of the discharge violations associated with NPDES/SDS Permit Nos. MN0054089, MN0042536, and MN0042579 and alleged in the Complaint is set forth in Part VII of this Consent Decree. This Consent Decree also specifies actions the Regulated Party agrees to take with respect to the Regulated Party's Facilities at the Hoyt Lakes Tailings Basin, Hoyt Lakes Mine Area, and Dunka Mine Area (collectively hereinafter Facilities).

4. By entering into this Consent Decree, the Regulated Party is settling a disputed matter between itself and the MPCA and does not admit to any alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579. Except for the purposes of implementing and enforcing this Consent Decree, nothing in this Consent Decree constitutes an admission by either party, or creates rights, substantive or procedural, that can be asserted or

enforced with respect to any claim of or legal action brought by a person who is not a party to this Consent Decree.

IV.

AUTHORITY

5. This Consent Decree is entered into under the authority vested in the MPCA by Minnesota Statutes Chapters 115 and 116, and the rules promulgated thereunder.

V.

DEFINITIONS

6. Unless otherwise explicitly stated, the definitions in Minnesota Statutes Chapters 115, 115B, 116, 116B and the rules promulgated thereunder apply, as appropriate, to the terms used in this Consent Decree.

VI.

FINDINGS OF FACT

7. Cliff Erie L.L.C. is a Delaware limited liability company and a subsidiary of Cliffs Mining Company, a Delaware corporation.

Background

8. The Regulated Party owns and operates a number of mining facilities in Minnesota. As part of its operations, the Regulated Party operates the three Facilities known as the Hoyt Lakes Tailings Basin, the Hoyt Lakes Mine Area, and the Dunka Mine Area (collectively hereinafter Facilities). Each of these three Facilities is subject to a MPCA-issued NPDES/SDS permit that regulates the discharge of wastewater from the Facilities. Prior to Cliffs Erie L.L.C. being issued NPDES/SDS Permit coverage for the three Facilities, the LTV Steel Mining Company (LTVSMC) was the previous Permittee. LTVSMC declared bankruptcy in

December 2000. The three NPDES/SDS permits for these Facilities, originally issued to LTVSMC, were transferred to Cliffs Erie L.L.C. on October 30, 2001, at which time Cliffs Erie L.L.C. became responsible for maintaining compliance with the permits at the three Facilities.

9. The following is a summary of the NPDES/SDS permits for the Facilities:

(a) Hoyt Lakes Tailings Basin

The Hoyt Lakes Tailings Basin facility includes the former LTVSMC taconite processing facility (crushers, concentrator, pellet plant and associated equipment shops, haul roads, and the tailings basin). The tailings basin perimeter dams are constructed of graded rock fill, till and clay starter dams, and consolidated lifts of taconite tailings with horizontal gravel filter drains at the base of the dams. The basin is divided into three cells and an emergency basin. Pumps from the processing facility pumped fine tailings slurry to the tailings basin.

The MPCA issued NPDES/SDS Permit No. MN0054089 to LTVSMC on May 4, 2001. After the LTVSMC bankruptcy, the MPCA modified the permit on October 30, 2001, to identify Cliffs Erie L.L.C. as the Permittee.

The permit regulates surface and groundwater discharges from this closed taconite tailings basin. The tailings basin consists of three main cells – 1E, 2E and 2W. Currently, Cells 1E and 2E contain stable ponds and Cell 2W contains a small pool of water only following snow melt. The permit requires monitoring of eight groundwater monitoring wells (GW001 – GW008), four of which are downgradient of the tailings basin (GW001, GW006 - GW008). Downgradient wells have instantaneous maximum limits for boron, fluoride, manganese and molybdenum. If these limits are exceeded the Permittee must notify the Agency, assess trends in concentration, indicate mitigation alternatives, and provide a report within 365 days after the date of exceedance. Although there were exceedances of limits for molybdenum and manganese at GW001, GW006, and GW008,

the exceedances are not considered violations because the Permittee is in compliance with submittal of the above-referenced report.

The permit identifies five surface discharge stations known as SD001, SD002, SD004, SD005, and SD006. Station SD005 has not discharged during the previous five years. Each station requires monitoring for, among other parameters, conductivity, hardness and bicarbonates. The Permittee was required to have submitted by January 1, 2003 a report for approval that addresses trends in concentrations of these three parameters, methods to achieve compliance at the discharge locations and associated costs, and a variance request. Although there have been exceedances of the limits for these three parameters at all surface discharge stations with the exception of SD005, the exceedances are not considered violations because the Permittee is in compliance with the requirement to submit a report by January 1, 2003.

Past alleged effluent limit violations for dissolved iron, turbidity, and boron have occurred at SD004.

(b) Hoyt Lakes Mine Area

The Hoyt Lakes Mine Area consists of the excavation areas, mining waste disposal sites, haul roads, railways and railroad yards, and material and equipment storage areas. The MPCA issued NPDES/SDS Permit No. MN0042536 to LTVSMC on May 4, 2001. After the LTVSMC bankruptcy, MPCA modified the permit on October 30, 2001, to identify Cliffs Erie L.L.C. as the Permittee.

The permit for the mine area has the following surface discharge stations:

- SD008, SD009 and SD013 discharge water from mine pit 2W. There have been no discharges from these stations during the past five years.

- SD010 and SD011 discharge water from mine pit 2/2E. There have been no discharges from these stations during the past five years.
- SD012 discharges water from mine pit 3. During the past five years there have been alleged effluent limit violations of pH and temperature at this station.
- SD026 is monitored at a culvert. The discharge at SD026 consists of seepage from the tailings basin as well as stormwater runoff. There are applicable effluent limits for pH, total suspended solids, and specific conductance at this station. Although there have been past exceedances of limits for specific conductance at SD026, the exceedances are not considered violations because the Permittee is in compliance with the requirement in NPDES/SDS Permit No. MN0042536 to submit a compliance report by the deadline set in the permit.
- SD030 is a monitoring station within mine pit 5S. Although a discharge of outflow water from mine pit 5S is not authorized by this permit, should one occur the discharge is to be monitored. If no discharge occurs then monitoring of pit water is to be completed for the same parameters and under the same monitoring schedule as indicated in the limits and monitoring requirements table in the permit. Since permit issuance, mine pit 5S has overflowed through dispersed seepage locations into an adjacent wetland on the south side of the pit. Monitoring for the required parameters and according to the required schedule has taken place adjacent to the area where pit water seeps into the wetland. There are no effluent limits associated with this monitoring station.
- SD033 discharges outflow water from mining area 5N. This discharge forms the headwaters for Spring Mine Creek which discharges to the Embarrass River.

Although monitoring is required, there are no applicable effluent limits for total hardness, total dissolved solids, specific conductivity and total sulfate, concentrations/measurements at this monitoring station.

(c) Dunka Mine Area

The Dunka mine opened in 1964 and ceased operation in 1994. During active mining surface and overburden rock was removed to expose underlying taconite ore. This material was stockpiled by type of rock adjacent to the open pit. During the 1970s it became apparent that stockpile seeps on the east side of the pit contained elevated concentrations of copper, nickel, cobalt, zinc and sulfate. Previous permits required installation of treatment systems capable of meeting effluent limitations for the seepages. Previous permits also required capping of stockpiles and construction of diversion ditches to reduce the volume and concentration of pollutants in the seeps. The result has been capping of six stockpiles with compacted glacial till or flexible membrane liners, or a combination, a lined equalization basin, a 350 gallons per minute lime precipitation treatment plant and construction of five wetland treatment systems at the base of stockpile seeps. The lime precipitation treatment system is to be used if effluent from the wetland treatment systems does not meet effluent limits, as required in NPDES/SDS Permit No. MN0042579.
MPCA issued NPDES/SDS Permit No. MN0042579 to LTVSMC on August 3, 2000. After the LTVSMC bankruptcy, MPCA modified the permit on October 30, 2001, to identify Cliffs Erie L.L.C. as the Permittee.

The facility has seven surface discharge stations which consist of one mine pit dewatering station to the Dunka River (SD001), one lime precipitation treatment system discharge (SD004) and five wetland treatment systems:

SD005 – wetland treatment system discharge (seep 051 treatment/WS005)

SD006 – wetland treatment system discharge (seep 061 treatment)

SD007 - wetland treatment system discharge (seep 041 treatment/WS001)

SD008 - wetland treatment system discharge (seep 043 treatment/WS003)

SD009 - wetland treatment system discharge (seep 044 treatment/WS004)

The treated effluent from these systems may be pumped to the lime precipitation system and discharged through outfall SD004. Such treatment is required if there are three exceedances of the additive acute toxicity effluent limit over a running two month period.

Compliance for total copper, nickel and zinc at each wetland treatment system outfall (SD005 – SD009) is determined by calculation of an Additive Toxicity Value (value). This value is a replacement for individual effluent limitations for these three total metals. The value is equal to the sum of the monitored concentration of each total metal divided by the Final Acute Value (FAV) of that metal at the monitored hardness. Since effluent hardness at all SD stations exceeds 400 mg/l, the FAV for each metal is based on hardness of 400 mg/l. Thus the formula becomes [total copper]/131 ug/l + [total nickel]/9164 ug/l + [total zinc]/758 ug/l.

The MPCA granted a variance from water quality standards for total copper/nickel/zinc at outfalls SD008 and SD009. The variance allows total metal concentrations to exceed the FAV value for that metal at the point of discharge during a defined portion of the year.

10. MPCA staff met with the Regulated Party beginning on June 17, 2009 to discuss mitigation at the tailings basin and mine areas. Meetings and telephone discussions continued with the Regulated Party through the summer and fall of 2009.

11. The Regulated Party submitted draft compliance plans (Plans) for the tailings basin and mine area on November 11, 2009. The Plans included Temporary Treatment Survey Outlines, Mitigation Plans and Field Study Plans for both locations. MPCA staff met with the

Regulated Party on November 16, 2009, to discuss the draft Plans. On December 11, 2009, the Regulated Party submitted revised Plans for the mine area and on December 18, 2009, the Regulated Party submitted a revised Plan for the Tailings Basin. MPCA staff provided a review of the revised Plans for the mine area and Tailings basin by letter to the Regulated Party, dated February 2, 2010. In response to the MPCA review the Regulated Party submitted further revised Plans on February 26, 2010.

12. Cliffs Erie L.L.C. has had alleged permit effluent limit violations at its three Facilities during the past five years.

13. Before MPCA re-issues the NPDES/SDS permits for these Facilities, the Regulated Party must develop plans for eliminating the alleged effluent limit violations and unpermitted discharges at the three Facilities and complete certain studies necessary to provide information to the MPCA.

VII.

ALLEGED VIOLATIONS

Tailings Basin

14. The NPDES/SDS Permit for the Tailings Basin (NPDES/SDS Permit No. MN0054089) includes enforceable limits that govern how much of a specific pollutant the Regulated Party may legally discharge. MPCA alleges the Regulated Party has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN 0054089 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when alleged violations of those limits occurred, through the date of filing of this Consent Decree.

Monitoring Station	Parameter	Limit (mg/l unless otherwise noted)	Reported Value (mg/l unless otherwise noted)	Limit Type	Reporting Period
SD001	Total Suspended Solids	20	24	CalMoAvg	February 2005
SD001	Total Suspended Solids	20	26	CalMoAvg	February 2007
SD001	Turbidity	25 NTU	28 NTU	CalMoAvg	March 2005
SD001	Turbidity	25 NTU	26 NTU	CalMoAvg	February 2007
SD001	Dissolved Iron	1.0	2.6	CalMoAvg	March 2005
SD001	Dissolved Iron	2.0	2.6	CalMoMax	March 2005
SD001	Dissolved Iron	1.0	1.3	CalMoAvg	December 2005
SD001	Dissolved Iron	1.0	1.5	CalMoAvg	March 2006
SD002	Total Boron	500 µg/l	502 µg/l	CalMoAvg	January 2009
SD002	Total Suspended Solids	20	22	CalMoAvg	January 2007
SD002	Total Suspended Solids	20	30	CalMoAvg	November 2007
SD004	Total Boron	500 µg/l	521 µg/l	CalMoAvg	June 2005
SD004	Total Boron	500 µg/l	520 µg/l	CalMoAvg	September 2005
SD004	Total Boron	500 µg/l	511 µg/l	CalMoAvg	December 2005
SD004	Total Boron	500 µg/l	547 µg/l	CalMoAvg	March 2006
SD004	Total Boron	500 µg/l	514 µg/l	CalMoAvg	December 2006
SD004	Total Boron	500 µg/l	503 µg/l	CalMoAvg	March 2007
SD004	Total Boron	500 µg/l	504 µg/l	CalMoAvg	December 2007
SD004	Total Boron	500 µg/l	526 µg/l	CalMoAvg	December 2008
SD004	Total Boron	500 µg/l	515 µg/l	CalMoAvg	March 2009
SD004	Total Boron	500 µg/l	518 µg/l	CalMoAvg	September 2009
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	June 2005
SD004	Dissolved Iron	2.0	2.8	CalMoMax	June 2005
SD004	Dissolved Iron	1.0	3.5	CalMoAvg	September 2005
SD004	Dissolved	2.0	3.5	CalMoMax	September 2005

	Iron				
SD004	Dissolved Iron	1.0	3.7	CalMoAvg	December 2005
SD004	Dissolved Iron	2.0	3.7	CalMoMax	December 2005
SD004	Dissolved Iron	1.0	2.9	CalMoAvg	March 2006
SD004	Dissolved Iron	2.0	2.9	CalMoMax	March 2006
SD004	Dissolved Iron	1.0	2.6	CalMoAvg	June 2006
SD004	Dissolved Iron	2.0	2.6	CalMoMax	June 2006
SD004	Dissolved Iron	1.0	2.5	CalMoAvg	September 2006
SD004	Dissolved Iron	2.0	2.5	CalMoMax	September 2006
SD004	Dissolved Iron	1.0	2.9	CalMoAvg	December 2006
SD004	Dissolved Iron	2.0	2.9	CalMoMax	December 2006
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	March 2007
SD004	Dissolved Iron	2.0	2.8	CalMoMax	March 2007
SD004	Dissolved Iron	1.0	2.5	CalMoAvg	June 2007
SD004	Dissolved Iron	2.0	2.5	CalMoMax	June 2007
SD004	Dissolved Iron	1.0	2.7	CalMoAvg	September 2007
SD004	Dissolved Iron	2.0	2.7	CalMoMax	September 2007
SD004	Dissolved Iron	1.0	2.8	CalMoAvg	December 2007
SD004	Dissolved Iron	2.0	2.8	CalMoMax	December 2007
SD004	Dissolved Iron	1.0	4.1	CalMoAvg	March 2008
SD004	Dissolved Iron	2.0	4.1	CalMoMax	March 2008
SD004	Dissolved Iron	1.0	4.6	CalMoAvg	June 2008
SD004	Dissolved	2.0	4.6	CalMoMax	June 2008

	Iron				
SD004	Dissolved Iron	1.0	5.5	CalMoAvg	September 2008
SD004	Dissolved Iron	2.0	5.5	CalMoMax	September 2008
SD004	Dissolved Iron	1.0	6.0	CalMoAvg	December 2008
SD004	Dissolved Iron	2.0	6.0	CalMoMax	December 2008
SD004	Dissolved Iron	1.0	6.4	CalMoAvg	March 2009
SD004	Dissolved Iron	2.0	6.4	CalMoMax	March 2009
SD004	Dissolved Iron	1.0	6.2	CalMoAvg	September 2009
SD004	Dissolved Iron	2.0	6.2	CalMoMax	September 2009
SD004	Dissolved Iron	1.0	6.9	CalMoAvg	December 2009
SD004	Dissolved Iron	2.0	6.9	CalMoMax	December 2009
SD004	Dissolved Iron	1.0	2.0	CalMoAvg	March 2010
SD004	Turbidity	25 NTU	80 NTU	CalMoAvg	March 2005
SD004	Turbidity	25 NTU	29 NTU	CalMoAvg	June 2005
SD004	Turbidity	25 NTU	33 NTU	CalMoAvg	September 2005
SD004	Turbidity	25 NTU	38 NTU	CalMoAvg	March 2006
SD004	Turbidity	25 NTU	56 NTU	CalMoAvg	December 2006
SD004	Turbidity	25 NTU	26 NTU	CalMoAvg	March 2007
SD004	Turbidity	25 NTU	40 NTU	CalMoAvg	December 2007
SD004	Turbidity	25 NTU	49 NTU	CalMoAvg	March 2008
SD004	Turbidity	25 NTU	65 NTU	CalMoAvg	June 2008
SD004	Turbidity	25 NTU	93 NTU	CalMoAvg	September 2008
SD004	Turbidity	25 NTU	99 NTU	CalMoAvg	December 2008
SD004	Turbidity	25 NTU	89 NTU	CalMoAvg	March 2009
SD004	Turbidity	25 NTU	89 NTU	CalMoAvg	September 2009
SD004	Turbidity	25 NTU	113 NTU	CalMoAvg	December 2009
SD004	Turbidity	25NTU	95NTU	CalMoAvg	March 2010
SD004	Total Suspended Solids	20	79	CalMoAvg	October 2006
SD004	Total Suspended Solids	20	21	CalMoAvg	October 2007

SD006	pH	8.5 s.u.	8.6 s.u.	InstantMax	October 2005

Mine Area

15. The NPDES/SDS Permit for the Mine Area (NPDES/SDS Permit No. MN0042536) includes enforceable limits that govern how much of a specific pollutant the Regulated Party may legally discharge. MPCA alleges the Regulated Party has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN 0042536 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when alleged violations of those limits occurred, through the date of filing of this Consent Decree. The temperature difference limit at SD012 is based on a comparison of temperature monitored at SD012 with the temperature of the receiving water (E. Branch Wyman Creek), downstream of where SD012 discharges to the receiving water.

Monitoring Station	Parameter	Limit	Reported Value	Limit Type	Reporting Period
SD012	pH	8.5 s.u.	8.8 s.u.	InstantMax	February 2005
SD012	pH	8.5 s.u.	8.8 s.u.	InstantMax	June 2005
SD012	pH	8.5 s.u.	8.7 s.u.	InstantMax	December 2005
SD012	pH	8.5 s.u.	8.7 s.u.	InstantMax	August 2006
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	September 2006
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	October 2008
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	November 2008
SD012	pH	8.5 s.u.	8.6 s.u.	InstantMax	December 2008

SD012	Temperature difference	0° C.	1.8° C.	InstantMax	February 2005
SD012	Temperature difference	0° C.	0.1° C.	InstantMax	March 2005
SD012	Temperature difference	0° C.	2.0° C.	InstantMax	April 2005
SD012	Temperature difference	0° C.	2.8° C.	InstantMax	September 2005
SD012	Temperature difference	0° C.	4.4° C.	InstantMax	October 2005
SD012	Temperature difference	0° C.	0.3° C.	InstantMax	December 2005
SD012	Temperature difference	0° C.	0.4° C.	InstantMax	March 2006
SD012	Temperature difference	0° C.	3.0° C.	InstantMax	April 2006
SD012	Temperature difference	0° C.	0.5° C.	InstantMax	August 2006
SD012	Temperature difference	0° C.	3.8° C.	InstantMax	October 2006
SD012	Temperature difference	0° C.	0.2° C.	InstantMax	December 2006
SD012	Temperature difference	0° C.	0.5° C.	InstantMax	March 2007
SD012	Temperature difference	0° C.	2.3° C.	InstantMax	April 2007
SD012	Temperature difference	0° C.	0.4° C.	InstantMax	June 2007
SD012	Temperature difference	0° C.	2.5° C.	InstantMax	August 2007
SD012	Temperature difference	0° C.	0.2° C.	InstantMax	September 2007
SD012	Temperature difference	0° F.	2.0° F.	InstantMax	December 2007
SD012	Temperature difference	0° F.	1.8° F.	InstantMax	January 2008
SD012	Temperature difference	0° F.	2.0° F.	InstantMax	February 2008
SD012	Temperature difference	0° F.	2.9° F.	InstantMax	March 2008
SD012	Temperature difference	0° F.	2.3° F.	InstantMax	April 2008
SD012	Temperature difference	0° F.	1.0° F.	InstantMax	June 2008

SD012	Temperature difference	0° F.	1.1° F.	InstantMax	July 2008
SD012	Temperature difference	0° F.	9.2° F.	InstantMax	September 2008
SD012	Temperature difference	0° F.	3.6° F.	InstantMax	December 2008
SD012	Temperature difference	0° F.	0.5° F.	InstantMax	March 2009
SD012	Temperature difference	0° F.	4.1° F.	InstantMax	April 2009
SD012	Temperature difference	0° F.	8.1° F.	InstantMax	September 2009
SD012	Temperature difference	0° F.	3.4° F.	InstantMax	December 2009
SD012	Temperature difference	0°F.	1.4°F.	InstantMax	March 2010

16. NPDES/SDS Permit No. MN0042536 Chapter 2 Part 5.1 states:

SD008, SD009, SD010, SD011, SD012, SD013, SD026, SD030, SD033: Submit a monthly DMR monthly by 21 days after the end of each calendar month following issuance of major permit modification.

NPDES/SDS Permit No. MN0042536, Chapter 2, Part 6.2 states in part that if there is no discharge from any of the outfalls from a given mine pit for the entire calendar month, the Permittee shall sample the mine pit water itself for the same list of parameters as required for the outfalls. In this case the Permittee shall check the "No Discharge" box on the monthly Discharge Monitoring Report (DMR) for each of the outfalls originating from that mine pit and shall make a notation in the "comments" section of each DMR that a sample of the mine pit water was collected and analyzed. In addition, the Permittee shall provide the results of the mine pit water sampling as an attachment to the DMR.

17. The Regulated Party originally submitted timely DMRs for SD008, SD009, SD010, SD011, SD012 and SD013 for May, 2009 that indicated there were no discharges from

these stations but did not include the required mine pit monitoring results for pits 2W, 2/2E, and 3. The Regulated Party subsequently submitted amended DMRs for these stations, received on July 2, 2009, that included the required mine pit monitoring results.

18. NPDES/SDS Permit No. MN0042536, Chapter 6, Part 1.1 states: For outfall SD030, the Permittee shall obtain discharge authorization or abandon discharge location by December 31, 2001. Discharge from mine pit 5S at outfall SD030 has occurred as seepage into an adjacent wetland since permit issuance. The Regulated Party neither obtained authorization to discharge at this location nor abandoned the discharge at this location by December 31, 2001.

Dunka

19. NPDES/SDS Permit No. MN0042579 Limits and Monitoring Requirements states that the Permittee shall comply with the limits and monitoring requirements specified. The NPDES/SDS Permit for the Dunka Pit (NPDES/SDS Permit No. MN00425799) includes enforceable limits that govern how much of a specific pollutant the Regulated Party may legally discharge. MPCA alleges the Regulated Party has exceeded the allowable discharge limits set forth in NPDES/SDS Permit No. MN 0042579 as identified in the table below. The following table identifies the applicable permit discharge limits and the reported values for those months when alleged violations of those limits occurred, through the date of filing of this Consent Decree.

Monitoring Station	Parameter	Limit (mg/l unless otherwise noted)	Reported Value (mg/l unless otherwise noted)	Limit Type	Reporting Period
SD005	Dissolved Iron	1.0	1.2	CalMoAvg	March 2007
SD005	Dissolved Iron	1.0	1.8	CalMoAvg	March 2009

SD006	Dissolved Iron	1.0	1.4	CalMoAvg	January 2006
SD006	Dissolved Iron	1.0	1.4	CalMoAvg	December 2007
SD006	Dissolved Iron	1.0	1.1	CalMoAvg	April 2008
SD008	Dissolved Iron	1.0	2.0	CalMoAvg	December 2009
SD008	Toxicity Final Conc.	1.50 toxic units	4.25 toxic units	CalMoMax	September 2007
SD009	Toxicity, Final Conc.	1.00 toxic units	1.08 toxic units	CalMoMax	June 2008
SD009	Toxicity Final Conc.	1.00 toxic units	1.20 toxic units	CalMoMax	July 2008

VIII.

STATE STATUTE OF LIMITATIONS WAIVER

20. The Regulated Party agrees to waive the three-year statute of limitations for MPCA enforcement actions set forth in Minn. Stat. § 541.075, to allow the MPCA to allege violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 going back to the year 2005.

IX.

CONSENT DECREE REQUIREMENTS

21. Based upon the foregoing Stipulated Findings of Fact, the Regulated Party and the MPCA agree that the Court may enter the following Consent Decree as an Order and Decree of the Court:

CORRECTIVE ACTIONS.

22. The Regulated Party must submit separate Short-Term Mitigation Evaluation Plans (Short-Term Plans) for the Tailings Basin, SD012 (Hoyt Lakes Mine Area), SD026 (Hoyt Lakes Mine Area), SD033 (Hoyt Lakes Mine Area) and the Dunka Mine Area. The Short-Term

Plans must comply with the respective detailed Short-Term Mitigation Plan Outline for each area, approved by the MPCA on March 24, 2010. The detailed outlines are Attachments A, B, C, D, and E to this Consent Decree. The Short-Term Plans must be submitted to the MPCA for review and approval within sixty (60) days of entry of this Consent Decree as an order of the Court (entry). Upon MPCA approval of the Short-Term Plans, the schedules and deadlines contained within the Short-Term Plans shall be incorporated into and become an enforceable part of this Consent Decree, subject to penalties described in Part XIV.

23. The Regulated Party must submit separate, detailed Field Studies Plan Outlines for the Tailings Basin, Outfall SD026, and Outfall SD033 for MPCA review and approval within thirty (30) days of entry of this Consent Decree. Upon MPCA approval of the Field Studies Plan Outlines, the schedules and deadlines contained within the Field Studies Plan Outlines shall be incorporated into and become an enforceable part of this Consent Decree, subject to penalties described in Part XIV.

24. The Regulated Party shall implement the MPCA-approved Field Studies Plan Outlines according to the schedules within the Field Studies Plan Outlines. The Regulated Party must complete the respective Field Studies Plans within twelve (12) months of MPCA approval of the Field Studies Plan Outlines and must submit a separate Field Studies Plan with the findings and recommendations of the separate implemented Field Studies Plans within fifteen (15) months of MPCA approval of the Field Studies Plan Outlines. Each Field Study Plan shall compile the results of the implemented, approved Field Studies Plan Outlines and shall provide recommendations for either development of mitigation alternatives or development of site specific approaches that will address sulfate and all parameters of concern.

25. The purpose of the Field Studies Plan for the Tailings Basin is to develop an understanding of the sources and potential impacts of the elevated concentrations of sulfate and parameters of concern, as defined in the approved Short-Term Mitigation Plan Outline for the Tailings Basin, in the surface seeps and in the groundwater and to collect adequate data to support either the need for development of recommendations for long-term mitigation alternatives or the development of site specific approaches. The Field Studies Plan will collect data to assess the impact of the elevated sulfate in surface discharges and groundwater on waters that support the production of wild rice and methylmercury concentrations in receiving waters as well as the impact of elevated parameters of concern in surface discharges and groundwater on the water quality and aquatic life (fish and macroinvertebrates) of receiving waters.

26. The purpose of the Field Studies Plan for SD026 is to develop an understanding of the sources and potential impacts of the elevated concentrations of sulfate and parameters of concern, as defined in the approved Short-Term Mitigation Plan Outline for SD026, in the surface seep and to collect adequate data to support either the need for development of recommendations for long-term mitigation alternatives or the development of site specific approaches. The Field Studies Plan will collect data to assess the impact of the elevated sulfate in surface discharges on waters supporting the production of wild rice and methyl mercury concentrations in receiving waters as well as the impact of elevated parameters of concern in surface discharges on the water quality and aquatic life (fish and macroinvertebrates) of receiving waters.

27. The purpose of the Field Studies Plan for Outfall SD033 is to collect data to assess surface and groundwater flow patterns in the Area 5NE and 5NW Pits and adjacent stockpiles as well as the likely source or sources of elevated sulfate in SD033 and to assess the

impact of the elevated sulfate in SD033 on waters supporting the production of wild rice and methylmercury concentrations in receiving waters and the impact of elevated parameters of concern, as defined in the approved Short-Term Mitigation Plan Outline for SD033, on the water quality and aquatic life (fish and macroinvertebrates) of receiving waters. The Field Studies Plan shall collect adequate data to support either the need for development of recommendations for long-term mitigation alternatives or the development of site specific approaches.

28. If the Field Studies Plans recommend that site specific approaches be used to address elevated sulfate and parameters of concern but the MPCA rejects the recommendations or if the Field Study Plans recommend development of mitigation alternatives, the Regulated Party must submit for MPCA review and approval a separate Long-Term Mitigation Evaluation Plan (Long-Term Plan) for each of the relevant locations identified in the Field Study Plans. Long-Term Plans must be submitted to the MPCA within three (3) months of submittal of Field Study Plans that recommend mitigation or within three (3) months of receipt of notification from the MPCA that the MPCA has rejected the Regulated Party's recommendation for site specific approaches.

29. Long-Term Plans shall identify mitigation strategies to address elevated concentrations of sulfates and parameters of concern and shall include schedules for bench and pilot scale testing of identified technologies. Upon MPCA approval of the Long-Term Plans the schedules and deadlines contained within the Long Term Plans shall become an integral and enforceable part of this Consent Decree, subject to penalties described in Part XIV.

30. If the Regulated Party intends to pursue MPCA authorization to discharge from outfall SD030, the Regulated Party must submit, within 90 days of entry of this Consent Decree an evaluation report of the mine pit 5S overflow (SD030 of the Hoyt Lakes Mine Area) that

provides a compilation and summary of all existing monitoring data obtained relative to mine pit 5S, an estimate of the flow rate of the mine pit overflow including any seasonal component based on existing data, a preliminary evaluation of the impact of the mine pit overflow on downstream receiving waters Wyman Creek and Colby Lake, and any recommendations for additional monitoring required to prepare a final evaluation of downstream water quality impacts.

X.

CIVIL PENALTY

31. Within thirty (30) days of entry of this Consent Decree, the Regulated Party agrees to pay $58,000 to the MPCA for all alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 that the MPCA alleged in its Complaint in this action and any alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 known by the MPCA based on information in the MPCA's records as of the date that the MPCA filed the Complaint, including but not limited to any allegedly unpermitted discharges. Payment of the penalty shall be by check or money order payable to the Minnesota Pollution Control Agency. The check or money order must be mailed to: Enforcement Penalty Coordinator, Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, Minnesota 55155-4194. For purposes of this Consent Decree, the payment is deemed timely if the Regulated Party mails the check or money order within thirty (30) days of entry of this Consent Decree.

XI.

COVENANT NOT TO SUE AND RESERVATION OF REMEDIES

32. With respect to the Regulated Party, the MPCA agrees not to exercise any administrative, legal, or equitable remedies available to the MPCA to address alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 that the MPCA alleged in its Complaint in this action or any alleged violations of NPDES/SDS Permit Nos. MN0054089, MN0042536, or MN0042579 known by the MPCA based on information in the MPCA's records as of the date that the MPCA filed the Complaint, including but not limited to any allegedly unpermitted discharges. Future exceedances of NPDES discharge standards, water quality standards, or both for the parameters and outfalls listed in Part VII or that are the subject of the corrective actions that the Regulated Party will undertake under Part IX will not be considered to be violations so long as the Regulated Party is in compliance with the requirements set forth in this Consent Decree.

33. The MPCA reserves the right to enforce this Consent Decree or take any action authorized by law if the Regulated Party fails to comply with the terms and conditions of this Consent Decree. Further, the MPCA reserves the right to seek to enjoin violations of this Consent Decree and to exercise its emergency powers pursuant to Minn. Stat. § 116.11 in the event conditions or the Regulated Party's conduct warrant such action. Nothing in this Consent Decree shall prevent the MPCA from exercising these rights and nothing in this Consent Decree constitutes a waiver of these rights.

34. The Regulated Party agrees to waive all claims it may now have, as of the effective date of this Consent Decree, under Minn. Stat. § 15.472 for fees and expenses arising out of matters leading up to and addressed in this Consent Decree.

XII.

CONFESSION OF JUDGMENT

35. The Regulated Party shall have thirty (30) days from the date of entry of this Consent Decree to pay the full amount of the Civil Penalty required by Part X. If the Regulated Party does not mail the scheduled payment within that period, the Regulated Party agrees to pay a late payment charge in an amount equal to 10 percent of the unpaid civil penalty. If any part of the Civil Penalty remains unpaid sixty days after the entry of this Consent Decree, the Regulated Party agrees to pay an additional late charge in an amount equal to 20 percent of the unpaid civil penalty. If the payment, including late charges, is not received by the MPCA within 90 days after the entry of this Consent Decree, the MPCA may immediately exercise any and all administrative and judicial remedies available to it to collect the amount due. The Regulated Party agrees to pay and shall also be indebted to the MPCA for its attorneys' fees and cost incurred by the MPCA in connection with its collection of the amounts owed pursuant to this Consent Decree.

XIII.

REPEAT VIOLATIONS

36. In a proceeding to resolve alleged violations by the Regulated Party, if any, occurring after the date the Complaint in this action is filed, the Regulated Party may argue about the extent to which the violations alleged in the Complaint in this action should affect the penalty amount for the later alleged violations but waives the right: (1) to contend that the violations alleged in the Complaint in this action did not occur as alleged and (2) to require the MPCA to prove the violations alleged in the Complaint in this action.

XIV.

PENALTIES FOR VIOLATONS OF THIS CONSENT DECREE

37. If the Regulated Party fails to comply with any of the requirements of Part IX of this Consent Decree, the Regulated Party shall pay to the MPCA a penalty in the amount of $500 per requirement for each day that the Regulated Party fails to complete or perform a required action.

38. Penalties for failure to comply with requirements of Part IX of this Consent Decree shall accrue from the date that the Regulated Party failed to fulfill the requirement until the Regulated Party fulfills the requirement. Penalties shall not accrue while the MPCA considers a timely extension request under Part XV.

XV.

EXTENSION OF SCHEDULES AND DEADLINES

39. If the Regulated Party seeks an extension of any deadline in this Consent Decree or in a Short-Term Report or a Long-Term Report submitted under Part IX, the Regulated Party must request the extension in writing at least ten (10) days before the scheduled deadline, or as soon as possible before that date if the reason for the extension request arises less than ten (10) days before the deadline. Each extension request shall separately specify the reason why the extension is needed. No requested extension shall be effective until approved in writing by MPCA staff. The MPCA shall grant an extension only for that period the MPCA determines is reasonable under the circumstances. The written approval or denial of an extension shall be considered an enforceable part of this Consent Decree.

40. The Regulated Party has the burden of demonstrating to the satisfaction of the MPCA that the request for extension is timely, and that good cause exists for granting the

extension. Good cause may include, but is not limited to, the following:

a. Circumstances entirely beyond the reasonable control of the Regulated Party; and

b. Delays caused by the MPCA in reviewing timely submittals required by this Consent Decree, that the Regulated Party submitted in complete and approvable form as determined by the MPCA.

41. Good cause does not include unanticipated costs, increases in the cost of control equipment, or delays in the MPCA's review of submittals when the submittals are not in complete and approvable form.

42. Any decision by the MPCA to deny a request for an extension under this Part is subject to dispute resolution under Part XVI.

XVI.

DISPUTE RESOLUTION

43. The parties to this Consent Decree Agreement shall resolve all disputes that arise as to any part of the Consent Decree as follows:

a. Either party, acting through its Case Contact (as named in Part XVII below), may initiate dispute resolution by providing to the Case Contact of the other party an initial written statement setting forth the matter in dispute, the position of the party, and the information the party is relying upon to support its position. The other party, acting through its Case Contact, shall provide a written statement of its position and supporting information to the Case Contact of the initiating party within fourteen (14) calendar days after receipt of the initial written statement.

b. If the parties, acting through their Case Contacts, do not reach a resolution of the dispute and reduce such resolution to writing in a form agreed upon by the parties within

twenty-one (21) calendar days after the initiating party receives the statement of position from the responding party, the Commissioner shall issue a written decision resolving the dispute. The written decision may address stipulated penalties, if any, assessed pursuant to Part XIV.

c. The Commissioner's decision shall become an integral and enforceable part of this Consent Decree unless the Regulated Party, with thirty (30) days of the decision, challenges the decision in Ramsey County District Court. Failure to file a timely challenge means the Regulated Party agrees to comply with the MPCA Commissioner's decision on the matter in dispute and to pay any penalties that accrue pursuant to Part XIV for failure to fulfill requirements of this Consent Decree that are the subject of the dispute resolution. Further, if the Commissioner's decision assesses penalties pursuant to Part XIV of this Consent Decree, the Regulated Party agrees to and shall pay the amount of penalty determined by the Commissioner within sixty (60) days after receiving the Commissioner's decision.

d. If either Party chooses to invoke dispute resolution, any Consent Decree requirement or requirement to pay any penalties assessed under Part XIV that is the subject of dispute resolution is stayed until the Commissioner issues a written decision resolving the dispute. If, following the Commissioner's decision, the Regulated Party files a timely challenge in Ramsey County District Court, then the Regulated Party has the right to petition the Ramsey County District Court to extend the stay of Consent Decree requirements, the stay of the requirement to pay any penalties assessed under Part XIV of this Consent Decree, or both, during the litigation. The burden shall be on the Regulated Party to demonstrate why a stay should be extended during litigation.

e. Throughout any dispute resolution, the Regulated Party shall comply with all portions of the Consent Decree that the MPCA determines are not in dispute.

XVII.

CASE CONTACTS

44. The Case Contract for Cliffs Erie L.L.C. is Craig L. Hartmann, Senior Staff Engineer—Mine, P.O. Box 207, Babbitt, Minnesota, 55706, 218-827-2101, craig.hartmann@cliffsnr.com. The Case Contact for the MPCA is John Thomas, MPCA, 525 S. Lake Avenue, Suite 400, Duluth, Minnesota 58802, (218) 302-6616.

XVIII.

ACCESS

45. During the term of this Consent Decree, the Regulated Party agrees to provide the MPCA and its agents and representatives with access to the Facility, its records, and its documents relating to the implementation of this Consent Decree to the extent provided under Minn. Stat. § 116.091 (2008) or any other applicable law, conditioned only upon the presentation of credentials.

XIX.

RETENTION OF RECORDS

46. The Regulated Party shall retain in its possession all records and documents related to this Consent Decree. The Regulated Party shall preserve these records, documents, reports and data for three years after the termination of this Consent Decree despite any document retention policy of the Regulated Party to the contrary, and shall promptly make all such documentation available for review upon request by the MPCA as provided under the access provision in Part XVIII above.

XX.

APPLICABLE LAWS AND PERMITS

47. All actions required to be taken pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable state and federal laws and regulations. Nothing in this Consent Decree exempts or relieves the Regulated Party of its obligation to comply with local governmental requirements.

XXI.

OTHER CLAIMS

48. Nothing herein shall release any claims, causes of action, or demands in law or equity against any person, firm partnership or corporation not a signatory to this Consent Decree for any liability it may have arising out of or relating to the release of any pollutant or contaminant from its operations or from its Facility. Neither the Regulated Party nor the MPCA shall be held as a party to any contract entered into by the other party to implement the requirements of this Consent Decree.

XXII.

RESERVATION OF REMEDIES

49. Nothing in this Consent Decree shall preclude the MPCA from seeking additional remedies from the Court to prevent an imminent threat to human health or the environment during the terms of this Consent Decree. Subject to Paragraph 32 of this Consent Decree, this Consent Decree does not resolve alleged violations of Minnesota or federal statutes and rules occurring after the date of entry of this Consent Decree. In addition, this Consent Decree does not resolve any alleged violations that do not fall within the scope of this Consent Decree as set out at Paragraphs 3 and 32 of this Consent Decree. The MPCA reserves the right to exercise

any administrative, legal or equitable remedies available to it for such noncompliance.

50. The Regulated Party agrees to waive all claims it may now have, as of the effective date of this Consent Decree, under Minn. Stat. § 15.472 for fees and expenses arising out of matters addressed in this Consent Decree.

XXIII.

HOLD HARMLESS AGREEMENT

51. The Regulated Party agrees to indemnify, save and hold the MPCA, its agents and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of the Regulated Party, its officers, employees, agents, or contractors in implementing the activities conducted pursuant to this Consent Decree; provided, however, that the Regulated Party shall not indemnify the MPCA or save or hold its employees and agents harmless from any claims or causes of action arising out of the acts or omissions of the MPCA, or its employees and agents. When the Regulated Party is required to hold the MPCA harmless, the Regulated Party shall be given notice by the MPCA of any claims or cause of action subject to this Part and have the right to participate in the defense against any claim or cause of action, and no settlement shall be effective against the Regulated Party unless the Regulated Party agrees to the settlement.

XXIV.

SUCCESSORS

52. This Consent Decree shall be binding upon the Regulated Party and its successors and assigns and upon the MPCA, its successors and assigns. If the Regulated Party sells or otherwise conveys or assigns any of its right, title, or interest in the Facility, the conveyance shall not release the Regulated Party from any obligation imposed by this Consent Decree, unless the

party to whom the right, title, or interest has been transferred or assigned agrees in writing to fulfill the obligations of this Consent Decree and the MPCA approves the transfer or assignment.

XXV.

EFFECTIVE DATE AND CONTINUING JURISDICTION

53. This Consent Decree shall be effective on the date on which it is entered by the Clerk of Court. The Court shall retain jurisdiction of this matter until termination of this Consent Decree, in order to enforce or modify the Consent Decree and to interpret the rights and obligations of the parties to the Consent Decree.

54. This Consent Decree shall not be modified by any prior oral or written agreement, representation, or understanding. This Consent Decree may be modified with the written consent of the parties and approval of the Court. Any agreed-upon modification to this Consent Decree shall be filed with the Court. During the pendency of the Consent Decree, any party may apply to the Court to modify this Consent Decree or for any relief necessary to implement the Consent Decree. The party making the application has the burden of justifying the requested modification.

XXVI.

TERMINATION

55. Unless the term of this Consent Decree is extended by mutual written consent of the parties, the Consent Decree shall terminate and be of no further force or effect upon the MPCA's issuance or reissuance of NPDES/SDS Permit Nos. MN0054089, MN0042536, and MN0042579. The Regulated Party may also request that the MPCA terminate the Consent Decree before the issuance or reissuance of NPDES/SDS Permit Nos. MN0054089, MN0042536, and MN0042579. Any decision by the MPCA to deny a request for termination of

the Consent Decree under this Part is subject to dispute resolution under Part XV.

XXVII.

SURVIVAL

56. The provisions of Parts III, XI, XIII, XIX, XX, XXI, XXII, XXIII, XXIV, and XXVII of this Consent Decree and the rights, duties and obligations of the MPCA and the Regulated Party created in those provisions shall survive termination of this Consent Decree.

XXVIII.

EXECUTION OF SIGNATURE PAGES

57. The respective signatories may execute this Consent Decree in separate counterparts. Executed counterparts communicated by facsimile transmission shall be as fully effective as an original executed counterpart.

THE PARTIES ENTER INTO AND APPROVE THIS CONSENT DECREE AND SUBMIT IT TO THE COURT SO THAT IT MAY BE APPROVED AND ENTERED, AND BY THEIR SIGNATURES, THE UNDERSIGNED REPRESENT THAT THEY HAVE AUTHORITY TO BIND THE PARTIES THEY REPRESENT.

As to the State of Minnesota, by its
MINNESOTA POLLUTION CONTROL AGENCY

By: Paul Eger
Paul Eger, Commissioner
520 Lafayette Road North
St. Paul, MN 55155-4194

Dated: 3/25/10

LORI SWANSON
Attorney General
State of Minnesota

By: [signature]
Robert Roche
Assistant Attorney General
Atty. Reg. No. 0289589

445 Minnesota Street, Suite 900
St. Paul, MN 55101-2127
(651) 296-7344 (Voice)
(651) 296-1410 (TTY)

Dated: 3-25-10

ATTORNEYS FOR PLAINTIFF

CONSENT DECREE SIGNATURE PAGE
MINNESOTA POLLUTION CONTROL AGENCY v. CLIFFS ERIE L.L.C.
RAMSEY COUNTY DISTRICT COURT

THE PARTIES ENTER INTO AND APPROVE THIS CONSENT DECREE AND SUBMIT IT TO THE COURT SO THAT IT MAY BE APPROVED AND ENTERED, AND BY THEIR SIGNATURES, THE UNDERSIGNED REPRESENT THAT THEY HAVE AUTHORITY TO BIND THE PARTIES THEY REPRESENT.

CLIFFS ERIE L.L.C.

By: _____
Donald J. Gallagher
President and Chief Executive Officer

Cliffs Erie L.L.C.

Dated: March 24, 2010

ORDER

Based upon the foregoing,

IT IS HEREBY ORDERED THAT:

1. The foregoing Stipulated Findings of Fact and Consent Decree are hereby accepted and adopted as an Order and Order of the Court.

2. Defendant Cliffs Erie L.L.C. is ordered to pay $58,000 to the MPCA according to the schedule in Paragraph 35 of this Consent Decree.

IT IS SO DECREED AND ORDERED. LET JUDGMENT BE ENTERED ACCORDINGLY.

_____ , _____

Date [Judge's Name]

Judge of _____ District Court

AG: #2296735-v1

CONSENT DECREE ATTACHMENTS
MINNESOTA POLLUTION CONTROL AGENCY v. CLIFFS ERIE L.L.C.
RAMSEY COUNTY DISTRICT COURT

Attachment A	Short Term Mitigation Evaluation Plan Outline for Tailings Basin, NPDES/SDS Permit No. MN0054089
Attachment B	Short Term Mitigation Evaluation Plan Outline for SD012, NPDES/SDS Permit No. MN0042536
Attachment C	Short Term Mitigation Evaluation Plan Outline for SD026, NPDES/SDS Permit No. MN0042536
Attachment D	Short Term Mitigation Evaluation Plan Outline for SD033, NPDES/SDS Permit No. MN0042536
Attachment E	Short Term Mitigation Evaluation Plan Outline for Dunka Mine, NPDES/SDS Permit No. 0042579

Short Term Mitigation Evaluation Plan Outline for Tailings Basin

NPDES/SDS Permit No. MN0054089

Prepared for

Cliffs Erie L.L.C. and
PolyMet Mining Inc

Approved by MPCA on March 24, 2010

ATTACHMENT A

Short Term Mitigation Evaluation Plan Outline for Tailings Basin
March 24, 2010

Overall Approach / Objectives

The objectives of the Short Term Mitigation Evaluation Plan (Plan) are to investigate existing methods and technologies to partially or completely mitigate the elevated sulfate and elevated parameters of concern in surface discharges and in groundwater at the property boundary. Sulfate concentrations are elevated at all monitoring locations (SD001, SD002, SD004, SD006, GW001, GW006, GW007 and GW008).

In this document, 'parameters of concern' vary depending upon the monitoring location, as follows:

SD001/SD002/SD006: bicarbonates, specific conductance
SD004: bicarbonates, total boron, total hardness (Ca + Mg as CaCO3), dissolved iron, specific conductance, turbidity
GW001: dissolved manganese, TDS
GW006/GW007: dissolved manganese, dissolved molybdenum, TDS

The Plan is intended to address and mitigate the existing elevated concentrations of sulfate and the parameters of concern during the period that field studies are being conducted to determine an appropriate long-term mitigation strategy. Depending on the outcome of the field studies and the associated development of a long-term mitigation strategy that adequately addresses water quality concerns, the ongoing need for short-term mitigation/treatment may be re-evaluated in the future. In addition, the short-term mitigation/treatment may be incorporated, in whole or in part, into the long-term mitigation strategy as necessary or appropriate.

Factors that will be considered in determining appropriate mitigation/treatment alternatives to be implemented will include the effectiveness of the alternative in reducing/eliminating concentrations of sulfate and parameters of concern, the time required to implement the alternative and the cost of implementing the alternative, especially when compared to the effectiveness of the alternative.

For surface discharges, components of the Plan will include:

1. A literature search of mitigation/treatment technologies for sulfate and parameters of concern and integration of the results of the search into a usable format.

2. Conceptual designs for existing applicable mitigation/treatment systems for sulfate and parameters of concern in surface seepage from the tailings basin. Year round collection of seepage water and pump back to the tailings basin will be among the designs proposed and evaluated at SD004 and SD006.

   For SD001 and SD002, justification for why these stations should not be considered surface discharge stations in subsequent permit reissuance will be provided. Justification will include an analysis of the water being discharged with estimates of the proportion that is seepage versus wetland in origin. If the MPCA determines that justification for elimination of one or both of these outfalls is insufficient, then conceptual designs will be

provided to the MPCA for mitigation/treatment systems at the relevant location(s) via a Plan consolidating the above information.

3. An assessment of any emerging or non-proven sulfate mitigation/treatment that could be developed through a program of bench, pilot and field testing if collection of seepage water and pump back to the tailings basin is not determined to be the sole short-term mitigation strategy for eliminating the discharge of elevated concentrations of sulfate. The assessment will include, at minimum precipitation, ion exchange, membrane technologies and biological treatment. A schedule for bench and pilot scale testing of potentially feasible technologies of water from the relevant surface discharge locations shall be included.

4. An evaluation of the technical and economic feasibility of the mitigation/treatment technologies evaluated in (2 & 3) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation/treatment options presented in the Plan. The cost estimates will be conceptual level costs or Class 5 estimates, as defined by the Association for the Advancement of Cost Engineering International.

5. An assessment of the ability of evaluated mitigation/treatment technologies in (2 & 3) above to address potential permit effluent limits for sulfate and the parameters of concern.

6. A proposed short-term mitigation/treatment action, with implementation schedule. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

For groundwater, components of the Plan will include:

1. A literature search of mitigation/treatment technologies for sulfate and parameters of concern in groundwater and integration of the results of the search into a usable format or, for molybdenum and manganese provision of documentation (groundwater pollutant transport modeling, etc) from groundwater studies done at the site indicating that molybdenum and manganese shall not exceed current drinking water standards at the property boundary.

2. Conceptual designs for existing applicable mitigation/treatment systems for sulfate, and parameters of concern in groundwater at the property boundary that could be applied unless, for molybdenum and manganese there is documentation that molybdenum and manganese shall not exceed current drinking water standards at the property boundary.

3. An evaluation of the technical and economic feasibility of the mitigation/treatment technologies evaluated in (2) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation/treatment options presented in the Plan. The cost estimates will be conceptual level costs or Class 5

estimates, as defined by the Association for the Advancement of Cost Engineering International.

4. An assessment of the ability of evaluated mitigation/treatment technologies in (2) above to address elevated sulfate and parameters of concern at the property boundary.

5. A proposed short-term mitigation/treatment action, with implementation schedule. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

Requirements

Collection of seepage water and pump back to the tailings basin at SD004 and SD006 shall be installed by no later than December 31, 2010 unless another mitigation/treatment option is identified that will eliminate effluent limit violations, the discharge of elevated concentrations of sulfate and the discharge of concentrations of parameters of concern that are above in-stream water quality standards. If a mitigation/treatment option other than seepage collection and pump back is proposed with an implementation schedule that extends beyond December 31, 2011 then a seepage collection and pump back system will be installed at SD004 and/or SD006 in the interim, by no later than December 31, 2010.

If seepage water collection and pump back is not the sole short-term strategy for eliminating elevated concentrations of sulfate at SD004 and/or SD006, bench scale testing of at least one technology shall be initiated, using water from SD004 and SD006 (as applicable) by December 31, 2010.

Within 60 days following entry of the Consent Decree, a Plan consolidating the above information will be submitted to the MPCA for SD004, SD006 and groundwater monitoring stations. For SD001 and SD002, provide justification for elimination of these discharge locations in future permit re-issuances, for MPCA approval. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

If applicable, within 60 days following MPCA notification of rejection of the justification for elimination of SD001 and/or SD002 from future permitting, a Plan consolidating the above information will be submitted to the MPCA. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Short Term Mitigation Evaluation Plan Outline for Tailings Basin
March 24, 2010

Plan Format / Outline

The Short Term Mitigation Evaluation Plan will contain the following sections (subject to change during the course of the initial literature review and data compilation):

Executive Summary

1. Introduction
2. Water Quality and Mitigation/Treatment Objectives
   2.1. Current Water Quality/Quantity and Mitigation/Treatment Objectives
   2.2. Basis of Preliminary Cost Estimates
3. Results of Literature Review
   3.1. List of literature reviewed
   3.2. Technologies that can meet objectives
4. Mitigation Options (at a minimum, the following will be considered: Year round collection of seepage water and pump back to tailings basin)
   4.1. Mitigation Alternative (format for each Mitigation alternative evaluated)
   4.2. Description
   4.3. Implementation Considerations
   4.4. Preliminary Cost Estimates
   4.5. Expected Outcome
5. Treatment Options (at a minimum, the following will be considered: Lime Softening Plant, Membrane Filtration Plant, Ion Exchange Plant, In-Pond Biological/Chemical Treatment, Biological Treatment of Discharge)
   5.1. Treatment Alternative (format for each Mitigation alternative evaluated)
   5.2. Description
   5.3. Implementation Considerations
   5.4. Preliminary Cost Estimates
   5.5. Expected Outcome
6. Technical and Economic Evaluation Summary
7. Conclusions
   7.1. Short-Term Mitigation/Treatment Alternatives Considered but Eliminated with Reason for Elimination
   7.2. Implementable Short-Term Mitigation/Treatment Alternatives with Expected Outcomes
8. Recommended Short-Term Implementation Action
   8.1. Description and conceptual design
   8.2. Assessment of ability to address effluent limit violations and/or elevated concentrations of sulfate and parameters of concern.
   8.3. Schedule
9. References

Short Term Mitigation Evaluation Plan Outline for Tailings Basin
March 24, 2010

- Tables – Water quality summary table, cost estimate tables
- Figures & Site Map(s) - process flow diagrams for mitigation/treatment options

Short Term Mitigation Evaluation Plan Outline for SD012

NPDES/SDS Permit No. MN0042536

Cliffs Erie L.L.C.

Approved by MPCA on March 24, 2010

ATTACHMENT B

Short Term Mitigation Evaluation Plan Outline for SD012
March 24, 2010

Overall Approach / Objectives

A Wild Rice Field Study shall be conducted to determine whether or not wild rice is present downstream of SD012. Results of the Wild Rice Field Study shall be incorporated into a Short Term Mitigation Evaluation Plan (Plan). The objectives of the Plan are: (1) to determine if a reduction in sulfate concentrations at outfall SD012 is warranted based on findings of the Wild Rice Study, and (2) to investigate existing methods and technologies to partially or completely mitigate the parameter(s) of concern for outfall SD012. The only current parameter of concern for outfall SD012 is the temperature differential, a physical parameter, between Pit 3 overflow waters and the receiving stream. As set forth below, the Pit 3 Field Study will investigate water temperature and chemistry to determine what feasible actions, if any, the Regulated Party may undertake to partially or completely mitigate the temperature differential in discharges from outfall SD012. Arsenic or sulfate, or both, may become parameters of concern depending upon findings of the Wild Rice Field Survey and the Pit 3 Field Study.

A Wild Rice Field Study will be completed to determine if wild rice is present downstream of SD012 in Wyman Creek and, if wild rice is present, a determination of sulfate concentrations at the location of the wild rice. The Wild Rice Field Study report will be submitted to MPCA by December 31, 2010 and will document the findings of the study indicating where wild rice is present, (if applicable) the relative density and area where it was found, the concentration of total sulfate in the water at that location and conclusions as to whether mitigation of sulfate concentration from SD012 is justified.

Factors that will be considered in determining appropriate mitigation/treatment alternatives to be implemented will include the effectiveness of the alternative in reducing/eliminating concentrations of sulfate and the parameter of concern, the time required to implement the alternative and the cost of implementing the alternative, especially when compared to the effectiveness of the alternative.

The Plan components include:

1. A summary of results of the Wild Rice Study.

2. A Pit 3 Field Study to investigate water temperature and chemistry at different depths in Pit 3 over a 12 month period, and a discussion of how a discharge of Pit 3 'at-depth' water to Wyman Creek may affect the temperature and chemistry of Wyman Creek and include an assessment of whether arsenic concentrations in the SD012 discharge could cause exceedance of the Class 2Bd water quality standard for arsenic in Colby Lake.

3. Conceptual designs for options to discharge potentially cooler water from greater depths within the mine pit. If the conclusion of the MPCA approved Wild Rice Study is that sulfate mitigation at SD012 is required, conceptual designs for existing applicable mitigation/treatment systems for sulfate will be included. If the conclusion of the MPCA approved Pit 3 Field Study is that discharges from Pit 3 are likely to cause exceedences of

the arsenic water quality standard at Colby Lake, conceptual designs for existing applicable mitigation/treatment systems for arsenic removal shall be included.

4. Following completion of field studies, an assessment of the ability of evaluated mitigation technologies in (3) above to address the parameter of concern, sulfate and/or arsenic, if applicable. The assessment of sulfate mitigation technologies will include, at minimum precipitation, ion exchange, membrane technologies and biological treatment. A schedule for bench and pilot scale testing of potentially feasible technologies shall be included.

5. An evaluation of the technical and economic feasibility of the mitigation technologies evaluated in (3) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation options presented in the Plan. The cost estimates will be conceptual level costs or Class 5 estimates, as defined by the Association for the Advancement of Cost Engineering International.

   If it is determined that meeting water quality standards for the parameter of concern is not feasible or that discharging water from the desired pit depth would result in the discharge of elevated concentrations of other pollutants, provide an alternative approach for compliance with water quality rules, which may include a request for a variance from water quality standards or a permit modification for appropriate requirements.

6. Proposed mitigation actions with implementation schedules to address the parameter of concern, sulfate and/or arsenic, if applicable. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

The Plan will incorporate findings of the Wild Rice Study, evaluate the potential to mitigate the existing parameter of concern, sulfate and/or arsenic, if applicable at SD012 during the period that studies are being conducted and determine an appropriate long-term mitigation strategy.

Requirements

Within 60 days of entry of the Consent Decree, detailed descriptions of the Wild Rice Field Study proposal and the Pit 3 Field Study proposal shall be submitted to the MPCA for review and approval. Immediately upon MPCA approval of the proposals, implementation of the proposals shall begin according to the schedule contained in the approved proposals.

A Wild Rice Field Study report shall be submitted to the MPCA, for review and approval, by December 31, 2010.

The Pit 3 Field Study shall be completed within 12 months following notification of MPCA approval of the Pit 3 Field Study proposal.

Short Term Mitigation Evaluation Plan Outline for SD012
March 24, 2010

Within 30 days following completion of the Pit 3 Field Study proposal, a Plan consolidating the information gathered from the studies noted above will be submitted to the MPCA. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Short Term Mitigation Evaluation Plan Outline for SD012
March 24, 2010

Plan Format / Outline

The Short Term Mitigation Evaluation Plan will contain the following sections (subject to change during the course of the initial literature review and data compilation):

Executive Summary

1. Introduction
2. Water Quality and Mitigation Objectives
   2.1. Current Water Quality/Quantity and Mitigation Objectives
   2.2. Basis of Preliminary Cost Estimates
3. Field Studies Results
   3.1. Wild Rice and Sulfate Study
   3.2. Pit 3 Temperature and Chemistry Profiles During All Seasons
4. Mitigation Alternatives for Parameter of Concern
   4.1. Mitigation Alternative 1 – Discharge of Deeper, Potentially Cooler Waters from Pit 3
      4.1.1. Description
      4.1.2. Implementation Considerations
      4.1.3. Preliminary Cost Estimates
      4.1.4. Expected Outcome

   4.2. Mitigation Alternative X (continued as needed for additional options)
      4.2.1. Description
      4.2.2. Implementation Considerations
      4.2.3. Preliminary Cost Estimates
      4.2.4. Expected Outcome

   4.3. Mitigation Alternative Y – Sulfate mitigation/treatment (if necessary)
      4.3.1. Description
      4.3.2. Implementation Considerations
      4.3.3. Preliminary Cost Estimates
      4.3.4. Expected Outcome

   4.4. Mitigation Alternative Z – Arsenic mitigation/treatment (if necessary)
      4.4.1. Description
      4.4.2. Implementation Considerations
      4.4.3. Preliminary Cost Estimates
      4.4.4. Expected Outcome

5. Technical and Economic Evaluation Summary
6. Conclusions
7. Recommended Mitigation Implementation Plan

Short Term Mitigation Evaluation Plan Outline for SD012
March 24, 2010

7.1. Description

7.2. Schedule

8. References

8.1. -Tables – Water quality summary table, cost estimate tables

8.2. -Figures – Site Map(s), process flow diagrams for mitigation options

Short Term Mitigation Evaluation Plan Outline for SD026

NPDES/SDS Permit No. MN0042536

Prepared for

Cliffs Erie L.L.C. and
PolyMet Mining Inc

Approved by MPCA on March 24, 2010

Short Term Mitigation Evaluation Plan Outline for SD026
March 24, 2010

Overall Approach / Objectives

The objectives of the Short Term Mitigation Evaluation Plan (Plan) are to investigate existing methods and technologies to partially or completely mitigate the elevated sulfate and parameters of concern. In this document, 'parameters of concern' are total dissolved solids, bicarbonates total hardness (Ca + Mg as CaCO3) and specific conductivity in SD026 of NPDES/SDS permit MN0042536.

The Plan is intended to address and mitigate the existing elevated concentrations of sulfate and the parameters of concern in SD026 during the period that field studies are being conducted to determine an appropriate long-term mitigation strategy. Depending on the outcome of the field studies and the associated development of a long-term mitigation strategy that adequately addresses water quality concerns at SD026, the ongoing need for short-term mitigation/treatment may be re-evaluated in the future. In addition, the short-term mitigation/treatment may be incorporated, in whole or in part, into the long-term mitigation strategy as necessary or appropriate.

Factors that will be considered in determining appropriate mitigation/treatment alternatives to be implemented will include the effectiveness of the alternative in reducing/eliminating concentrations of sulfate and parameters of concern, the time required to implement the alternative and the cost of implementing the alternative, especially when compared to the effectiveness of the alternative.

Components of the Plan will include:

1. A literature search of mitigation/treatment technologies for sulfate and parameters of concern and integration of the results of the search into a usable format.

2. Conceptual designs for existing applicable mitigation/treatment systems for sulfate and parameters of concern that could be applied to the discharge at SD026. Year round collection of seepage water and pump back to the tailings basin will be among the designs proposed and evaluated.

3. An assessment of any emerging or non-proven sulfate mitigation/treatment that could be developed through a program of bench, pilot and field testing if collection of seepage water and pump back to the tailings basin is not determined to be the sole short term mitigation strategy for eliminating the discharge of elevated concentrations of sulfate. The assessment will include, at minimum precipitation, ion exchange, membrane technologies and biological treatment. A schedule for bench and pilot scale testing of potentially feasible technologies shall be included.

4. An evaluation of the technical and economic feasibility of the mitigation/treatment technologies evaluated in (2 & 3) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation/treatment options presented in the Plan. The cost estimates will be conceptual level costs or Class 5

estimates, as defined by the Association for the Advancement of Cost Engineering International.

5. An assessment of the ability of evaluated mitigation/treatment technologies in (2 & 3) above to address potential future permit effluent limits for sulfate and the parameters of concern.

6. A proposed short-term mitigation/treatment action with implementation schedule. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

Requirements

Collection of seepage water and pump back to the tailings basin at SD026 shall be installed by no later than December 31, 2010 unless another mitigation/treatment option is identified that will eliminate effluent limit violations and the discharge of concentrations of parameters of concern that are above in stream water quality standards. If a mitigation/treatment option other than seepage collection and pump back is proposed with an implementation schedule that extends beyond December 31, 2011 then a seepage collection and pump back system will be installed at SD026 in the interim, by no later than December 31, 2010.

If collection of seepage water and pump back to the tailings basin is not determined to be the sole short term mitigation strategy for eliminating the discharge of elevated concentrations of sulfate, bench scale testing of at least one sulfate removal technology using water from SD026 shall be initiated by December 31, 2010.

Within 60 days following entry of the Consent Decree, a Plan consolidating the above information will be submitted to the MPCA. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Short Term Mitigation Evaluation Plan Outline for SD026
March 24, 2010

Plan Format / Outline

The Short Term Mitigation Evaluation Plan will contain the following sections (subject to change during the course of the initial literature review and data compilation):

Executive Summary

1. Introduction
2. Water Quality and Mitigation/Treatment Objectives
   2.1. Current Water Quality/Quantity and Mitigation/Treatment Objectives
   2.2. Basis of Preliminary Cost Estimates
3. Results of Literature Review
   3.1. List of literature reviewed
   3.2. Technologies that can meet objectives
4. Mitigation Options (at a minimum, the following will be considered: Year round collection of seepage water and pump back to tailings basin)
   4.1. Mitigation Alternative (format for each Mitigation alternative evaluated)
      4.1.1. Description
      4.1.2. Implementation Considerations
      4.1.3. Preliminary Cost Estimates
      4.1.4. Expected Outcome
5. Treatment Options (at a minimum, the following will be considered: Lime Softening Plant, Membrane Filtration Plant, Ion Exchange Plant, In-Pond Biological/Chemical Treatment, Biological Treatment of Discharge)
   5.1. Treatment Alternative (format for each Treatment alternative evaluated)
      5.1.1. Description
      5.1.2. Implementation Considerations
      5.1.3. Preliminary Cost Estimates
      5.1.4. Expected Outcome
6. Technical and Economic Evaluation Summary
7. Conclusions
   7.1. Short-Term Mitigation/Treatment Alternatives Considered but Eliminated with Reason for Elimination
   7.2. Implementable Short-Term Mitigation/Treatment Alternatives with Expected Outcomes
8. Recommended Short-Term Action Plan
   8.1. Description and conceptual design
   8.2. Assessment of ability to address elevated concentrations of sulfate and parameters of concern.
   8.3. Schedule
9. References

Short Term Mitigation Evaluation Plan Outline for SD026
March 24, 2010

- Tables – Water quality summary table, cost estimate tables
- Figures – Site Map(s), process flow diagrams for mitigation/treatment options

Short Term Mitigation Evaluation Plan Outline for SD033

NPDES/SDS Permit No. MN0042536

Prepared for

Cliffs Erie L.L.C. and
PolyMet Mining Inc

Approved by MPCA on March 24, 2010

Short Term Mitigation Evaluation Plan Outline for SD033
March 24, 2010

Overall Approach / Objectives

The objectives of the Short Term Mitigation Evaluation Plan (Plan) are to investigate existing methods and technologies to partially or completely mitigate the elevated sulfate and parameters of concern. In this document, 'parameters of concern' are total dissolved solids, bicarbonates, total hardness (Ca + Mg as CaCO3) and specific conductivity in SD033. Emerging or unproven technologies for sulfate mitigation/treatment will also be studied.

The Plan is intended to address and mitigate the existing elevated concentrations of sulfates and the parameters of concern in SD033 during the period that field studies are being conducted to determine an appropriate long-term mitigation strategy. Depending on the outcome of the field studies and the associated development of a long-term mitigation strategy that adequately addresses water quality concerns at SD033, the ongoing need for short-term mitigation/treatment may be re-evaluated in the future. In addition, the short-term mitigation/treatment may be incorporated, in whole or in part, into the long-term mitigation strategy as necessary or appropriate.

Factors that will be considered in determining appropriate mitigation/treatment alternatives to be implemented will include the effectiveness of the alternative in reducing/eliminating concentrations of sulfate and parameters of concern, the time required to implement the alternative and the cost of implementing the alternative, especially when compared to the effectiveness of the alternative.

Components of the Plan will include:

1. A literature search of mitigation/treatment technologies for sulfate and parameters of concern and integration of the results of the search into a usable format.

2. Conceptual designs for existing applicable mitigation/treatment systems for sulfate and parameters of concern that could be applied to discharge at SD033.

3. Assessment of any emerging or non-proven sulfate mitigation/treatment that could be developed through a program of bench, pilot and field testing. The assessment will include, at minimum precipitation, ion exchange, membrane technologies and biological treatment. A schedule for bench and pilot scale testing of potentially feasible technologies shall be included.

4. An evaluation of the technical and economic feasibility of the mitigation/treatment technologies evaluated in (2 & 3) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation/treatment options presented in the Plan. The cost estimates will be conceptual level costs or Class 5 estimates, as defined by the Association for the Advancement of Cost Engineering International

5. An assessment of the ability of evaluated mitigation/treatment technologies in (2 & 3) above to address potential future permit effluent limits for sulfate and the parameters of concern.

Short Term Mitigation Evaluation Plan Outline for SD033
March 24, 2010

6. A proposed short-term mitigation/treatment action with implementation schedule. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

Requirements

Bench scale testing of at least one sulfate removal technology shall be initiated by December 31, 2010.

Within 60 days following entry of the Consent Decree, a Plan consolidating the above information will be submitted to the MPCA. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Short Term Mitigation Evaluation Plan Outline for SD033
March 24, 2010

Plan Format / Outline

The Short Term Mitigation Evaluation Plan will contain the following sections (subject to change during the course of the initial literature review and data compilation):

Executive Summary

1. Introduction
2. Water Quality and Mitigation/Treatment Objectives
   2.1. Current Water Quality/Quantity and Mitigation/Treatment Objectives
   2.2. Basis of Preliminary Cost Estimates
3. Results of Literature Review
   3.1. List of literature reviewed
   3.2. Technologies that can meet treatment objectives
4. Non-Treatment Mitigation Alternatives
   4.1. Mitigation Alternative (format for each Mitigation alternative evaluated)
      4.1.1. Description
      4.1.2. Implementation Considerations
      4.1.3. Preliminary Cost Estimates
      4.1.4. Expected Outcome
5. Treatment Alternatives (at a minimum, the following will be considered: Lime Softening Plant, Membrane Filtration Plant, Ion Exchange Plant, In-Pit Biological/Chemical Treatment, Biological Treatment of Discharge)
   5.1. Treatment Alternative (format for each Treatment alternative evaluated)
      5.1.1. Description
      5.1.2. Implementation Considerations
      5.1.3. Preliminary Cost Estimates
      5.1.4. Expected Outcome
6. Technical and Economic Evaluation Summary
7. Conclusions
   7.1. Short-Term Mitigation/Treatment Alternatives Considered but Eliminated with Reason for Elimination
   7.2. Implementable Short-Term Mitigation/Treatment Alternatives with Expected Outcomes
8. Proposed Short-Term Action Plan
   8.1. Description and conceptual design
   8.2. Assessment of ability to address elevated sulfate and parameters of concern.
   8.3. Schedule
9. References
   - Tables – Water quality summary table, cost estimate tables
   - Figures – Site Map(s), process flow diagrams for mitigation/treatment options

Short Term Mitigation Evaluation Plan Outline for Dunka Mine

NPDES /SDS Permit No. MN0042579

Cliffs Erie L.L.C.

Approved by MPCA on March 24, 2010

Short Term Mitigation Evaluation Plan Outline for Dunka Mine
March 24, 2010

Overall Approach / Objectives

The objective of the Short Term Mitigation Evaluation Plan (Plan) is to investigate methods and technologies to partially or completely mitigate: 1) the dissolved iron effluent limit violations at SD005, SD006 and SD008, 2) the toxicity final concentration effluent limit violations at SD008 and SD009 and 3) elevated sulfate and parameters of concern (total hardness [Ca + Mg as $CaCO_3$] and conductivity) at SD005- SD009.

Factors that will be considered in determining appropriate mitigation/treatment alternatives to be implemented will include the effectiveness of the alternative in reducing/eliminating the above described pollutants, the time required to implement the alternative and the cost of implementing the alternative, especially when compared to the effectiveness of the alternative.

Components of the Plan shall address/include:

1. A literature search of mitigation/treatment technologies for dissolved iron, sulfate and parameters of concern and integration of the results of the search into a usable format.

2. Conceptual designs for existing applicable mitigation/treatment systems for sulfate, dissolved iron and parameters of concern that could be applied at the relevant outfalls.

3. Assessment of any emerging or non-proven sulfate mitigation/treatment that could be developed through a program of bench, pilot and field testing. The assessment will include, at minimum, precipitation, ion exchange, membrane technologies and biological treatment. A schedule for bench and pilot scale testing of potentially feasible technologies shall be included.

4. An evaluation of the technical and economic feasibility of the mitigation/treatment technologies evaluated in (2 & 3) above. Capital costs, annual operation and annual maintenance costs will be developed for each of the mitigation/treatment options presented in the Plan. The cost estimates will be conceptual level costs or Class 5 estimates, as defined by the Association for the Advancement of Cost Engineering International. If it is determined that meeting water quality standards for the parameters of concern is not feasible, provide an alternative approach for compliance with water quality rules, which may include a request for variances from water quality standards.

5. An assessment of the ability of evaluated mitigation/treatment technologies in (2 & 3) above to address dissolved iron effluent limit violations and elevated concentrations of sulfate and parameters of concern.

6. Proposed short term mitigation actions with implementation schedules to address dissolved iron effluent limit violations, elevated sulfate and parameters of concern. An implementation plan with detailed description and rationale sufficient for MPCA approval to proceed and a schedule with milestone dates will be prepared.

Short Term Mitigation Evaluation Plan Outline for Dunka Mine
March 24, 2010

7. Submission of as-built plans for, or other detailed descriptions of recent improvements completed at the wetland treatment systems within 10 days of entry of the Consent Decree to address toxicity final concentration effluent limit violations. In addition, a plan for compliance with toxicity final concentration limits at SD008 and SD009 without a variance (CalMoAvg 1.00 toxunit) will be submitted within 60 days of Consent Decree entry, for MPCA review and approval. The plan will include a schedule for implementation that indicates construction shall be completed by December 31, 2010. If the plan includes upgrades to piping and pumping systems as well as further limestone and peat enhancements, details of those upgrades should be included. The schedule shall include a wetland treatment system operation plan that describes operational procedures that will be implemented when it is determined that effluent limit violations of the toxicity final concentration effluent limits may occur at wetland treatment system outfalls.

8. Within 60 days of entry of the Consent Decree, a Plan will be submitted to the MPCA consolidating the above information. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Requirements

Within 10 days of entry of the Consent Decree, submittal of as-built or other detailed descriptions of recent improvements at wetland treatment systems.

Completion of improvements to SD008 and SD009 by December 31, 2010 to achieve toxicity final concentration limits without a variance.

Bench scale testing of at least one sulfate reducing technology shall be initiated by December 31, 2010.

Within 60 days following entry of the Consent Decree, a Plan consolidating the above information will be submitted to the MPCA. Immediately upon MPCA approval of the Plan, implementation of the Plan shall begin according to the schedule contained in the approved Plan.

Short Term Mitigation Evaluation Plan Outline for Dunka Mine
March 24, 2010

Plan Format / Outline

The Short Term Mitigation Evaluation Plan will contain the following sections (subject to change during the course of the initial literature review and data compilation):

Executive Summary

1. Introduction
2. Water Quality and Mitigation/Treatment Objectives
   2.1. Current Water Quality/Quantity and Mitigation/Treatment Objectives
   2.2. Basis of Preliminary Cost Estimates
3. Results of Literature Review
   3.1. List of literature reviewed
   3.2. Technologies that can meet treatment objectives
4. Non-Treatment Mitigation Alternatives

   4.1. Mitigation Alternative 1 – Wetland Water Rerouting (Pumping and Piping) System
   4.2. Description
   4.3. Implementation Considerations
   4.4. Preliminary Cost Estimates
   4.5. Expected Outcome

   4.6. Mitigation Alternative Y (continued as needed for additional options)
   4.7. Description
   4.8. Implementation Considerations
   4.9. Preliminary Cost Estimates
   4.10. Expected Outcome
5. Treatment Alternatives
   5.1. Treatment Alternative 1 – Wetland Cell Enhancements
   5.2. Description
   5.3. Implementation Considerations
   5.4. Preliminary Cost Estimates
   5.5. Expected Outcome

   5.6. Treatment Alternative Y (continued as needed for additional options)
   5.7. Description
   5.8. Implementation Considerations
   5.9. Preliminary Cost Estimates
   5.10. Expected Outcome
6. Technical and Economic Evaluation Summary
7. Conclusions

7.1. Short-Term Mitigation/Treatment Alternatives Considered but Eliminated with Reason for Elimination

7.2. Implementable Short-Term Mitigation/Treatment Alternatives with Expected Outcomes

8. Recommended Short-Term Implementation Plan

8.1. Description and conceptual design

8.2. Assessment of ability to address effluent limit violations and elevated concentrations of sulfate, dissolved iron and parameters of concern.

8.3. Schedule

9. References

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DEC 19 2014

REPLY TO THE ATTENTION OF:
WN-16J

Ann Foss
Metallic Mining Director
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

Re: Pre-Public Notice Draft NPDES/SDS Permit, U.S. Corp. – Minntac Tailings Basin Area St. Louis Country, MN, Permit No. MN0057207

Dear Ms. Foss:

Thank you for providing the pre-Public Notice draft permit and related documents on December 5, 2014 for the referenced facility. We are pleased that the Minnesota Pollution Control Agency (MPCA) is taking action on this permit, which expired in 1992. Because this is an early draft and has not gone to public notice, the U.S. Environmental Protection Agency is providing only preliminary feedback at this time.

We are concerned that this draft permit as written does not address, under MPCA's approved National Pollutant Discharge Elimination System (NPDES) program and in accordance with the Clean Water Act (CWA), all discharges to surface waters from this tailings basin. MPCA acknowledges in the fact sheet that discharges from this 8,000 acre tailings basin are causing exceedances of surface water quality standards. Based on this and facts supporting this conclusion, the CWA requires an NPDES permit for all such discharges to surface waters from the tailings basin. The original NPDES permit, which was issued in 1987, did not contemplate the full extent of the discharges to surface water from this facility. In the years between expiration of that permit and today the discharges to surface waters have continued and are better understood. As a result, there is a need for an NPDES permit that includes extensive and specific actions, and definitive timeframes for these actions. MPCA's proposed approach would establish a compliance schedule that does not set a date by which compliance with surface water quality standards will be achieved nor does it describe the steps necessary to achieve compliance with these standards. In addition, we are concerned that some of the statements in MPCA's draft fact sheet regarding EPA's interpretation of the scope of the NPDES program are incorrect and should be corrected prior to public notice of this draft permit.

We look forward to working with you as we conduct a formal review of the permit consistent with Section II. of our Memorandum of Agreement. If you have any questions regarding these

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comments, please contact me or Krista McKim of my staff at 312-353-8270 or by e-mail at McKim.Krista@epa.gov.

Sincerely,

for Kevin M. Pierard, Chief
NPDES Programs Branch

cc: Erik Smith, MPCA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 13 2011

REPLY TO THE ATTENTION OF:
W-15J

The Honorable Thomas M. Bakk
Minnesota Senate
147 State Office Building
100 Rev. Dr. Martin Luther King, Jr. Blvd.
St. Paul, Minnesota 55155-1606

The Honorable David Dill
Minnesota House of Representatives
147 State Office Building
100 Rev. Dr. Martin Luther King, Jr. Blvd.
St. Paul, Minnesota 55155-1606

Dear Mr. Bakk and Mr. Dill:

I am writing in response to your May 9, 2011 letter, in which you requested that the U.S. Environmental Protection Agency provide its views of two draft bills, which would alter the Minnesota Pollution Control Agency's (MPCA) implementation of the current, federally-approved water quality standard of 10 mg/L sulfate for wild rice waters. Because you requested a prompt response, we are able to offer only general comments that focus on two aspects of the bills.

As you know, H.F.1010 and S.F. 1029 propose to modify or suspend the current, federally-approved water quality standard for wild rice waters of 10 mg/L, and H.F. 1010-3 (sec. 19, lines 41.15-41.20), specifically sets 50 mg/L as the numeric criterion for sulfate in wild rice waters until a new standard is developed. To the extent that any legislation changes the EPA-approved water quality standards for Minnesota, such revised water quality standards must be submitted to EPA for review and approval pursuant to 33 U.S.C. §1313(c)(2)(A), Clean Water Act (CWA) §303(c)(2)(A), and are not effective for CWA purposes, including National Pollutant Discharge Elimination System (NPDES) permits, unless and until approved by EPA (see 40 C.F.R. §131.21). Should Minnesota wish to submit these to EPA as changes to Minnesota's water quality standards, the federal regulations at 40 C.F.R. §131.6 provide the submittal requirements. These include, among other things, the methods and analyses conducted to support the water quality standards revisions, including how the revised water quality criteria are sufficient to protect the designated uses (see generally 40 C.F.R. §131 Subpart B, and 40 C.F.R. §§ 131.11 and 131.20). Federal regulations require that criteria be protective of a state's designated uses and EPA's approval is based, among other factors, on determining that there is a scientifically

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defensible basis for finding that the criteria are sufficient to protect designated uses (see generally 40 C.F.R. §§ 131.5, 131.11, and 131.21). Absent such a showing, EPA would be unable to approve a revised criterion (see generally 40 C.F.R. §131.6(b)). An EPA decision to approve water quality standards would be available for judicial review.

With respect to S.F. 1029, Sec. 62(f), lines 58.4 - 58.12 and H.F.1010-3, lines 40.34-41.13, Sec. 18(e) (both of which generally prevent MPCA from including sulfate limitations in permits until a new standard is developed), EPA believes that the effect of these respective provisions will be to prevent MPCA from including water quality based effluent limitations (WQBELs) based on the federally approved criterion in permits issued under the state's authorized NPDES program. A state with a federally authorized NPDES program is required to issue permits that ensure the protection of federally approved water quality standards. See 33 U.S.C. §1311(b)(1)(C), CWA §301(b)(1)(C); and generally, 40 C.F.R. Part 123 (see especially 40 C.F.R. §123.25(a)(1)); and 40 C.F.R. §§122.4 and 122.44(d)(1). Where a state proposes to issue a permit that fails to apply, or to ensure compliance with, any applicable requirement, including WQBELs, EPA has the authority to review and to object to such permit issuance pursuant to its authority under 40 C.F.R. §123.44. Should EPA object to a state-proposed permit, the state or any interested person would be provided 90 days (from the date on which EPA makes a specific objection) to request a public hearing on the objection, consistent with 40 C.F.R. §123.44(e). EPA would hold such a hearing, pursuant to the procedures outlined in 40 C.F.R. §§123.44(e)-(f). Pursuant to 40 C.F.R. §122.4(c), the state may not issue a permit over EPA's objection. Where EPA has provided notice of an objection, and where the state has failed to revise the permit to meet EPA's objection, EPA has the authority to issue a federal permit for a potential discharger, pursuant to the authority in 40 C.F.R. §123.44(e). Additionally, should EPA determine that a state is not administering its federally approved NPDES program in accordance with requirements of the CWA, EPA has the authority to require the state to take corrective action, and if necessary, to withdraw authorization of the program, pursuant to 33 U.S.C. §§1342(c)(2)-(3).

I hope you find this information helpful.

Sincerely,

for Tinka G. Hyde
Director, Water Division

Anita-
Please make copies for:
- Chris
- Robie
- Tom.
L.

MINNESOTA SLIP LAWS
ENACTED AT THE 2011 FIRST SPECIAL SESSION (2011-2012)

2011 MINNESOTA CHAPTER LAW 2

2011 MINNESOTA SENATE FILE NUMBER 3

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

. . .

ARTICLE 4

. . .

Section 32. WILD RICE RULEMAKING AND RESEARCH.

(a) Upon completion of the research referenced in paragraph (d), the commissioner of the Pollution Control Agency shall initiate a process to amend Minnesota Rules, chapter 7050. The amended rule shall:

(1) address water quality standards for waters containing natural beds of wild rice, as well as for irrigation waters used for the production of wild rice;

(2) designate each body of water, or specific portion thereof, to which wild rice water quality standards apply; and

(3) designate the specific times of year during which the standard applies.

Nothing in this paragraph shall prevent the Pollution Control Agency from applying the narrative standard for all class 2 waters established in Minnesota Rules, part 7050.0150, subpart 3.

(b) "Waters containing natural beds of wild rice" means waters where wild rice occurs naturally. Before designating waters containing natural beds of wild rice as waters subject to a standard, the commissioner of the Pollution Control Agency shall establish criteria for the waters after consultation with the Department of Natural Resources, Minnesota Indian tribes, and other interested parties and after public notice and comment. The criteria shall include, but not be limited to, history of wild rice harvests, minimum acreage, and wild rice density.

(c) Within 30 days of the effective date of this section, the commissioner of the Pollution Control Agency must create an advisory group to provide input to the commissioner on a protocol for scientific research to assess the impacts of sulfates and other substances on the growth of wild rice, review research results, and provide other advice on the development of future rule amendments to protect wild rice. The group must include representatives of tribal governments, municipal wastewater treatment facilities, industrial dischargers, wild rice harvesters, wild rice research experts, and citizen organizations.

(d) After receiving the advice of the advisory group under paragraph (c), consultation with the commissioner of natural resources, and review of all reasonably available and applicable scientific research on water quality and other environmental impacts on the growth of wild rice, the commissioner of the Pollution Control Agency shall adopt and implement a wild rice research plan using the money appropriated to contract with appropriate scientific experts. The commissioner shall periodically review the results of the research with the commissioner of natural resources and the advisory group.

(e) From the date of enactment until the rule amendment under paragraph (a) is finally adopted, to the extent allowable under the federal Clean Water Act or other federal laws, the Pollution Control Agency shall exercise its authority under federal and state laws and regulations to ensure, to the fullest extent possible, that no permittee is required to expend funds for design and implementation of sulfate treatment technologies. Nothing shall prevent the Pollution Control Agency from including in a schedule of compliance a requirement to monitor sulfate concentrations in discharges and, if appropriate, based on site-specific conditions, a requirement to implement a sulfate minimization plan to avoid or minimize sulfate concentrations during periods when wild rice may be susceptible to damage.

(f) If the commissioner of the Pollution Control Agency determines that amendments to Minnesota Rules are necessary to ensure that no permittee is required to expend funds for design and implementation of sulfate treatment technologies until after the rule amendment described in paragraph (a) is complete, the commissioner may use the good cause exemption under Minnesota Statutes, section 14.388, subdivision 1, clause (3), to adopt rules necessary to implement this section, and Minnesota Statutes, section 14.386, does not apply, except as provided in Minnesota Statutes, section 14.388.

(g) Upon completion of the rule amendment described in paragraph (a), the Pollution Control Agency shall, if necessary, modify the discharge limits in the affected wastewater discharge permits to reflect the new standards in accordance with state and federal regulations and shall exercise its powers to enter into schedules of compliance in the permits.

(h) By December 15, 2011, the commissioner of the Pollution Control Agency shall submit a report to the chairs and ranking minority members of the environment and natural resources committees of the house of representatives and senate on the status of implementation of this section. The report must include an estimated timeline for completion of the wild rice research plan and initiation and completion of the formal rulemaking process under Minnesota Statutes, chapter 14.

Note: Session law was presented to the Governor on July 19, 2011 and signed by the Governor on July 20,2011

STATE OF MINNESOTA 1st SPECIAL SESSION 2015
Chapter 4 -- S.F. No. 5

Third Reading Repassed
Presentment date 06/13/15
Governor's action Approval 06/13/15

EFFECTIVE DATE.
This section is effective the day following final enactment.

Article 4 Sec. 136. **WILD RICE WATER QUALITY STANDARDS.**

(a) Until the commissioner of the Pollution Control Agency amends rules refining the wild rice water quality standard in Minnesota Rules, part 7050.0224, subpart 2, to consider all independent research and publicly funded research and to include criteria for identifying waters and a list of waters subject to the standard, implementation of the wild rice water quality standard in Minnesota Rules, part 7050.0224, subpart 2, shall be limited to the following, unless the permittee requests additional conditions:

(1) when issuing, modifying, or renewing national pollutant discharge elimination system (NPDES) or state disposal system (SDS) permits, the agency shall endeavor to protect wild rice, and in doing so shall be limited by the following conditions:

(i) the agency shall not require permittees to expend money for design or implementation of sulfate treatment technologies or other forms of sulfate mitigation; and

(ii) the agency may require sulfate minimization plans in permits; and

(2) the agency shall not list waters containing natural beds of wild rice as impaired for sulfate under section 303(d) of the federal Clean Water Act, United States Code, title 33, section 1313, until the rulemaking described in this paragraph takes effect.

(b) Upon the rule described in paragraph (a) taking effect, the agency may reopen permits issued or reissued after the effective date of this section as needed to include numeric permit limits based on the wild rice water quality standard.

(c) The commissioner shall complete the rulemaking described in paragraph (a) by January 15, 2018.

AUID	NAME	DESCRIPTION	MEDIAN SULFATE CONC	PRELIM WATER QUALITY ASSESS	WATER QUALITY ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTION WATER COMMENTS	WILD RICE DATA SOURCE
04010201-577	Embarrass River	Embarrass Lk to St Louis R	27	Impaired	Recommend split below Esquagama Lake. Stations on lower and upper portions of AUID separated by multiple lakes. Median calculated based on station S005-751.	IF	Determination of a split will be made dependent upon finding wild rice between lakes along upstream portion of reach. No indication of wild rice along suggested new downstream AUID (outlet of Esquagama to St. Louis River) that would result from splitting. 1854 data indicate rice presence along northern portion of reach. Need to contact Darren Vogt for additional WR information on northern portion of reach. From mining information, northern portion includes sparse stands indicated with low density locations. Based solely on this, determined not to be wild rice production water.	Mining company surveys, 1854 Treaty Authority
04010201-552	Partridge River	Headwaters to St Louis R	48	Impaired	High variability in sample measurements within close proximity, geographic and temporal. Flows through Colby Lake (69-0249-00), which has wild rice and 2 high sulfate measurements.			Mining company surveys, 1854 Treaty Authority, UMN study
09030002-501	Sandy River	Headwaters (Sandy Lk 69-0730-00) to Pike R	85	Impaired	One discrepant data point.			Mining company surveys, 1854 Treaty Authority, UMN study
04010201-533	St Louis River	Oliver Bridge to Pokegama River	39	Impaired	Wild rice data (actual point locations) are constrained to river AUID, but are associated in database with St Louis Estuary (69-1292-00), which is broader than river AUID. (Measurements collected further downstream at Blatnik Bridge (downstream from WLSSD discharge) have lower concentrations.)			Data linked to Estuary polygon: Perleberg list, MCBS, DNR call for data submittal, Ann Geissen shapefile, 1854 Treaty Authority, mining company surveys
04010201-532	St Louis River	Mission Creek to Oliver Bridge	15	Impaired	Only 2 data points on AUID, but concentrations immediately upstream (S000-021) and downstream (S007-512, S007-515) (12 out of 15 measurements above 10) indicate impairment.			Data linked to Estuary polygon: Perleberg list, MCBS, DNR call for data submittal, Ann Geissen shapefile, 1854 Treaty Authority, mining company surveys. DNR 2008 study point alongside AUID
09030009-537	Bostick Creek	Headwaters to Lake of the Woods	33	Impaired	Data is from 4 months of 1 year, but consistently shows high sulfate concentrations.			DNR 2008 study point shapefile
07020004-551	County Ditch 12	Headwaters to T113 R36W S8, north line	113	Impaired	DNR 2008 study point indicates rice somewhere on County Ditch 12 (Rice Creek), which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.			DNR 2008 study point shapefile
07010203-512	Rice Creek	Rice Lk to Elk R	18	Impaired	DNR 2008 study point indicates rice somewhere on Rice Creek, which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.			DNR 2008 study point shapefile
07010108-501	Long Prairie River	Fish Trap Creek to Crow Wing R	13	Impaired	DNR 2008 study point indicates rice somewhere on Long Prairie River, which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.			2006 Harvester's report, DNR 2008 study point shapefile
07020011-531	Rice Creek	Headwaters to Maple R	28	Impaired	Consistently high sulfate concentrations at all 4 stations along entire AUID.			DNR 2008 study point shapefile
07020005-501	Chippewa River	Watson Sag to Minnesota R	139	Impaired	DNR 2008 study point indicates rice somewhere on Chippewa River, which is more extensive than the AUIDs with sulfate data. Wherever sampled, the Chippewa River has high sulfate concentrations. Listing individual AUIDs is dependent upon location of wild rice.	No	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-505	Chippewa River	Unnamed cr to E Br Chippewa R	88	Impaired	See above comment regarding Chippewa River.	No	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-506	Chippewa River	E Br Chippewa R to Shakopee Cr	70	Impaired	See above comment regarding Chippewa River.	No	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-508	Chippewa River	Cottonwood Cr to Dry Weather Cr	90	Impaired	See above comment regarding Chippewa River.	No	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-503	Chippewa River	Stowe Lk to Little Chippewa R	39	Impaired	See above comment regarding Chippewa River.	No	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07040002-502	Cannon River	Pine Cr to Belle Cr	33	Impaired	DNR 2008 study point indicates rice somewhere on Cannon River, which is more extensive than the AUIDs with sulfate data. Wherever sampled, the Cannon River has high sulfate concentrations. Listing individual AUIDs is dependent upon location of wild rice.			DNR 2008 study point shapefile
07040002-542	Cannon River	Headwaters to Cannon Lk	17	Impaired	See above comment regarding Cannon River.			DNR 2008 study point shapefile
07040002-539	Cannon River	Byllesby Dam to Little Cannon R	27	Impaired	See above comment regarding Cannon River.			DNR 2008 study point shapefile
07040002-501	Cannon River	Belle Cr to split near mouth	31	Impaired	See above comment regarding Cannon River.			DNR 2008 study point shapefile

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NAME	MEDIAN SULFATE CONC	PRELIM WATER QUALITY ASSESS	WATER-QUALITY ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTOIN WATER COMMENTS	WILD RICE ACRES	WILD RICE DATA SOURCE
Cedar Island (N portion)	21	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10. Evaluate together with S. Portion, Fourth, and Esquagama, all connected via Embarrass R.	Yes	Mining company survey shows low to moderate density of rice throughout perimeter of lake. DNR lake survey jul 12, 1990 noted abundant wild rice, especially along west shore. Sulfate sampling locations are near wild rice observation sites.		Mining Companies, 1854 Treaty Authority
Cedar Island (S portion)	20	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Yes	Mining company survey shows moderate density of rice throughout perimeter of lake. DNR lake survey jul 12, 1990 noted abundant wild rice, especially along west shore. Sulfate sampling locations are near wild rice observation sites.		Mining Companies, 1854 Treaty Authority
Fourth	20	Impaired	Only 1 measurement on lake itself, but concentrations on (connected) Esquagama (69-0565-00-203) and Cedar Island S. Portion (69-0568-02-204,69-0568-02-207) are also high.	IF	Need to contact Darren Vogt for additional WR information. From mining information, sparse stands indicated with single low density location. Based on this, determined not to be wild rice production water.		Mining Companies, 1854 Treaty Authority, Ann Geissen shapefile, 2008 Study shapefile
Esquagama	26	Impaired	Only 3 measurements on lake itself, but concentrations on (connected) Fourth Lake (69-0573-00-201) and downstream (S005-751) are also high.	IF	Need to contact Darren Vogt for additional WR information. From mining information, a single stand with low density. Based on this, determined not to be wild rice production water.		Mining Companies, 1854 Treaty Authority
East Vermilion	14	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Yes	Significant acreage of rice in Big Bay. Assumed to be at least 70 acres in Big bay based on estimated size of Rice Bay at 180 acres, and total wild rice area of 250 acres. Rice Bay is also indicated for wild rice, but no sulfate data have been collected there.	250	1854 Treaty Authority, Ann Geissen shapefile, 2008 Study shapefile
Trout	42	Impaired		No	insufficient information to determine that this is a production water.		DNR call for data submittal, U of MN study sites
Elizabeth (main basin)	30	Impaired		No	Insufficient information to determine that this is a production water. DNR lake survey reports dates 6/2006, 5/1997 no wild rice noted.		DNR call for data submittal
Swan (W bay)	tbd	TBD	Impaired, subject to verification of location of station 31-0067-01-204. If judged strictly on station 01-205, sulfate not significantly above 10.	Yes	Staff recommendation for the ESSAR water permit is that this is a production water. Check with Stephanie for recommendation date.	50 (00)	2006 Harvest Survey (00 polygon), Ann Geissen shapefile, Perleberg list, 2008 Study shapefile. Rice data tied to underlying lake (-00)
Swan (main basin)	tbd	Impaired	Median dependent upon station 31-0067-01-204 being included in main basin. Regardless, median is significantly above 10.	Yes	* The outlet bay upstream of the dam is a wild rice production water, based on mining company survey from 2011 has densities of 4 and 5.	50 (00)	2006 Harvest Survey (00 polygon), Ann Geissen shapefile, Perleberg list, 2008 Study shapefile. All tied to underlying lake (-00). UMN study data tied to Main Basin polygon (-02).
Preston	45	Impaired		No	insufficient information to determine that this is a production water. Lake Survey reports from 3/29/1995, 2/21/2006 noted no wild rice.		DNR call for data submittal
Embarrass	21	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Yes	Upper portion of Embarrass shows numerous low to moderate density observations around entire perimeter in mining surveys from 2009 and 2010. However, Lower Embarrass had few observations of low density. *Only Upper Embarrass is considered a wild rice production water.		1854 Treaty Authority, mining company data, Perleberg list, UMN Study
Lady Slipper	314	Impaired	Multiple sites; station 203 has single observation, still above 10, but well below other observations.	No	1997 fisheries transect from 1997 indicated small area of rice. 2011 and 2012 UMN study found no wild rice.		Perleberg list, UMN study
Monongalia (main basin)	31	Impaired		IF	Photo from 2012 exists of high density wild rice. Mark Gernes has harvested rice on the lake for several recent years. U of MN study showed 3 pct coverage at study site. Contact Ed Swain and Mark Gernes for details on location of harvestable rice. Contact Donna Perleberg for more information on inclusion in her list.		UMN study (tied to main basin -01). MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile on underlying waterbody (-00)
Monongalia - Middle Fk Crow	29	Impaired	One questionable sample with very low concentration, turned out to be pore water, sample was excluded and median recalculated.	Yes	Photo from 2012 exists of high density wild rice. Mark Gernes has harvested rice on the lake for several recent years. U of MN study showed 38.75 pct coverage at study site.		UMN study (tied to polygon -02). MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile on underlying waterbody (-00)
Crow River Mill Pond (East)	26	Impaired		IF	Contact Donna Perleberg for more information on Mill Pond observation from MCBS survey 8/6/2002. Contact Mark Gernes for local knowledge.		MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile, all on underlying waterbody (-00)

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NAME	MEDIAN SULFATE CONC	PRELIM WATER QUALITY ASSESS	WATER-QUALITY ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTOIN WATER COMMENTS	WILD RICE ACRES	WILD RICE DATA SOURCE
Hay	52	Impaired		Yes	Staff recommendation for Keetac permit in 2011 was that this is a wild rice production water. Check with Brandon Smith on the date of the Perry Pit dewatering permit.		Ann Geissen shapefile, UMN study, 2008 DNR study
Big Stone	404	Impaired		No	insufficient information to determine that this is a production water. DNR lake survey from 3/17/2004 noted no wild rice.		DNR call for data submittal
Lac Qui Parle (NW bay)	293	Impaired		No	3/23/2000 DNR lake survey - no wild rice noted.		DNR call for data submittal - on underlying waterbody (-00)
Lac Qui Parle (SE bay)	270	Impaired	Only 1 data point on this bay, but concentrations on upstream portion of lake (37-0046-02) and downstream river (07020004-688) are also high.	No	3/23/2000 DNR lake survey - no wild rice noted.		DNR call for data submittal - on underlying waterbody (-00)
Mina	25	Impaired		IF	DNR Lake Surveys from 8/4/1949, 1/2/1998 indicated wild rice presence. 1949 comment indicates sparse presence. 1998 survey was a fisheries transect. Contact Ann Geisen for further detail on why this waterbody was included in call for data submission.		DNR call for data submittal
Pearl	21	Impaired		IF	DNR lake survey indicates wild rice was rare August 24 - 28, 1987. Contact Ann Geisen for further detail on why this waterbody was included in call for data submission.		DNR call for data submittal
Sandy	135	Impaired		Yes	Locate draft staff recommendation for production water status. Wild rice acreage from 2008 report.	121	1854 Treaty Authority, UMN study, Ann Geissen List, 2008 study shapefile
Little Sandy	145	Impaired		Yes	Locate draft staff recommendation for production water status. Wild rice acreage from 2008 report.	89	1854 Treaty Authority, Ann Geissen List, 2008 study shapefile
Marsh	379	Impaired		No	DNR lake survey reports from 3/9/2004, 3/28/2001 noted no wild rice, 4/14/1954 waterfowl/muskrat habitat survey comment says "wild rice would not do well in this lake". 8/1962 map showed no wild rice. 7/1968 game and fish map showed no wild rice.		DNR call for data submittal
Lillian	151	Impaired		No	5/13/1997 lake survey report noted no wild rice.		DNR call for data submittal
Lobster	22	Impaired	Only 1 measurement on lake itself, but concentrations on lakes immediately adjacent (21-0108-00, 21-0180-00, 21-0150-00) are also high.	No	2/5/1997 lake survey report no rice noted. 1949 report did not note any rice and "wild rice would not do well in this lake". Follow up with 1997 fisheries report.		Perieberg list
Sturgeon	58	Impaired	All data collected on Mississippi (MissR 796.9, MissR 805.0), but direct hydrologic connection with Sturgeon.	No	insufficient information to determine that this is a production water.		Ann Geissen shapefile, DNR 2008 study
Long	33	Impaired	Only 1 measurement on lake, but concentrations (5 miles) downstream (S005-630) are also high.	No	insufficient information to determine that this is a production water. DNR Lake Survey report from 2/5/1997 did not note any wild rice.		DNR call for data submittal
Red Lake River Reservoir	tbd	Insufficient Information	Drinking water intake near dam may yield additional sulfate data. Downstream sulfate concentrations high (S002-324), but only 2 measurements recorded. Wild rice location unknown; will determine whether it is necessary to seek additional sulfate data, leading to possible judgment of impairment.	IF	Need to consult fisheries area surveys from 7/2/2009 and 8/1/1994 to determine wild rice location.		DNR call for data submittal, Perieberg list
Rice	tbd	Insufficient Information	Outflow stream has high sulfate. Main inflow is close to outlet, large distance from lake sampling locations. Wild rice location within lake unknown, but will determine whether outflow sulfate concentrations are sufficient for judgment of impairment.	No	Insufficient information to determine that this is a production water. UMN study did not observe any rice in 2012.		Ann Geissen shapefile, DNR 2008 study, UMN study

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RECEIVED
AUG 15 2013
BY:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 12, 2013

Ms. Stephanie Handeland
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155

Re: Draft Staff Recommendation for 'Waters Used for Production of Wild Rice' Downstream of the U. S. Steel Minntac Tailings Basin

Dear Ms. Handeland:

This letter is transmitted as U. S. Steel's response to your request for feedback on the "Draft Staff Recommendation for 'waters used for production of wild rice' downstream of the US Steel Minntac tailings basin" ("Draft Recommendation"). U. S. Steel appreciates the opportunity to comment on the staff recommendation.

U. S. Steel has worked cooperatively with the MPCA and other regulatory agencies and interested parties for several years on matters related to reducing sulfate discharges from its operations and the protection of wild rice. That work has included installation of a seep collection and return system on the Sand River side of the basin, monitoring of the Twin Lakes since 2010, and groundwater modeling. In addition permitting has been ongoing for installation of dry controls on Agglomerator Line 6, research continues on the Line 3 scrubber blowdown system and engineering is ongoing for the #6 sump alternate make up water project. U.S. Steel recognizes the importance of this work and is committed to continuing it.

Regarding the Draft Recommendation, it is premature for the MPCA to determine that Little Sandy Lake and Sandy Lake (the "Twin Lakes") are "waters used for the production of wild rice." U. S. Steel agrees with the statement in the Draft Recommendation that to effectively apply the 10 mg/L sulfate standard contained in Minnesota Rule 7050.0224, subpart 2, the MPCA needs to determine whether a particular water is a "water used for production of wild rice." The process for making that determination was established in law in 2011. The MPCA has not yet completed the required steps contained in that law to determine which bodies of water are subject to water quality standards applicable to wild rice.

The MPCA and other interested groups worked with legislators in 2011 to establish a process to designate bodies of water to which wild rice water quality standards apply. That legislative

activity arose from uncertainty regarding whether the sulfate standard in Minnesota Rule 7050.0224, subpart 2 applies to natural stands of wild rice (there is little disagreement over its applicability to cultivated wild rice). The final legislative language, which was negotiated and agreed to by the MPCA, was passed by the legislature and signed into law by the Governor. It is contained in MN Session Laws 2011, First Special Session, Chapter 2, Article 4 ("2011 Law").

The Minnesota Court of Appeals has recognized the MPCA's duty under the 2011 law to confirm in rule the applicability of the sulfate standard to natural stands of wild rice. When the Minnesota Chamber of Commerce challenged the MPCA application of the sulfate standard, the court refused to review the MPCA's application of the standard due to the 2011 law. The court said:

> We decline to review any proposed interpretation or application of the Wild Rice Rule because the Chamber's claims as to the agency's application of the rule and its scope are essentially moot. *The 2011 legislation directs the agency to amend the Wild Rice Rule to confirm that it applies to both natural and commercial stands of wild rice and to specify the bodies of water to which the rule applies and the specific time period during which it applies. 2011 Minn. Laws 1st Spec. Sess. ch. 2, art. 4, § 32, at 71–73. We decline to consider the rule's application when the legislature has already addressed the issue.*[1]

The 2011 law directs the MPCA to take several steps to determine whether any body of water, including any body of water near the Minntac facility, is subject to a water quality standard to protect wild rice. First, the MPCA is required to "adopt and implement a wild rice research plan using the money appropriated to contract with appropriate scientific experts." That research is ongoing. The law directs the MPCA to take several steps when the wild rice research is complete:

> Sec. 32. WILD RICE RULEMAKING AND RESEARCH.
>
> (a) Upon completion of the research referenced in paragraph (d), the commissioner of the Pollution Control Agency shall initiate a process to amend Minnesota Rules, chapter 7050. The amended rule shall:
>
> (1) address water quality standards for waters containing natural beds of wild rice, as well as for irrigation waters used for the production of wild rice;
>
> (2) designate each body of water, or specific portion thereof, to which wild rice water quality standards apply; and
>
> (3) designate the specific times of year during which the standard applies.

[1] Emphasis added. Minnesota Chamber of Commerce v. Minnesota Pollution Control Agency, File No. 62-CV-10-11824 (Minnesota Court of Appeals unpublished)

In addition, the law clearly describes the process the MPCA must use to establish criteria for identifying waters containing natural beds of wild rice as waters subject to a wild rice standard. According to the 2011 Law:

> (b) "Waters containing natural beds of wild rice" means waters where wild rice occurs naturally. Before designating waters containing natural beds of wild rice as waters subject to a standard, the commissioner of the Pollution Control Agency shall establish criteria for the waters after consultation with the Department of Natural Resources, Minnesota Indian tribes, and other interested parties and after public notice and comment. The criteria shall include, but not be limited to, history of wild rice harvests, minimum acreage, and wild rice density.

The MPCA has not yet completed the wild rice research plan, much less the subsequent rulemakings to address wild rice water quality standards and designate each body of water to which wild rice water quality standards apply. The Draft recommendation is therefore premature.

We understand that the MPCA has taken some preliminary steps to prepare criteria to designate waters subject to water quality standards to protect wild rice but it is not clear how those criteria might have been applied to produce the Draft Recommendation. For example, we understand that the MPCA and USEPA Region V have proposed a joint priority for 2013 regarding the state sulfate water quality standard. That joint priority statement included "a commitment from MPCA to develop methodology to assess whether surface waters meet the State's sulfate water quality standards applicable to wild rice production waters, and for designating waters as wild rice production waters." The document goes on to state that "MPCA has communicated its intention to develop a sulfate water quality assessment methodology for use in the assessment of state waters for the 2014 303(d) list. This methodology would answer questions including where and when the sulfate standard applies, and the minimum number of measurements needed for an assessment decision. Making this a joint priority would formalize that commitment."

The Draft Recommendation does not provide any detail on whether the MPCA has finalized a draft methodology. And neither the Draft Recommendation nor any other information available to U. S. Steel indicates how the processes required in the 2011 law will be followed in producing the methodology as a "joint priority" with USEPA Region V.

The MPCA has discussed criteria for designating waters used for the production of wild rice with the Wild Rice Standards Study Advisory Committee, which includes a representative of U. S. Steel. The Minnesota Chamber Wild Rice Task Force submitted comments on those criteria on January 17, 2013. The Draft Recommendation does not include any information regarding whether the MPCA's criteria have been finalized and whether those criteria include any revisions based on the Minnesota Chamber of Commerce comments.

In addition, U. S. Steel has in the past respectfully suggested that the MPCA must carefully consider the applicability of the its water quality standards regarding discharge limits for sulfates as they related to wild rice and we renew that suggestion. Minnesota has two water quality standards applicable to wild rice. The first, contained in Minnesota Rules 7050.0224 subpt. 1, provides a narrative standard that is applicable to waters that have been specifically identified

[WR] and listed in Minnesota Rules 7050.0470. The second, contained in Minnesota Rules 7050.0224 subpt. 2, provides the standard for Class 4A waters of the state, stating that the quality of those waters "shall be such as to permit their use for irrigation."

Those two standards clearly establish standards for discharges to receiving waters that meet one of two criteria: specific designation as WR in Minnesota rules or use of the receiving water for irrigation. None of downstream receiving waters of Minntac are designated as WR in the Minnesota Rules. In addition, the term "irrigation" is not clearly defined within Minnesota Rules but there is no suggestion that any waters near Minntac are used for irrigation of wild rice. The MPCA must carefully assess its authority to apply those standards to discharges to receiving waters that are neither designated as WR nor used for irrigation.

Where the standards in Minnesota Rules 7050.0224 subpt. 2 properly apply to a discharge, the MPCA must complete its work to establish clearer standards for permittees and the public regarding establishment of a discharge limit for sulfates. The MPCA must, as required in the 2011 Law, establish criteria to be used to identify when water is "used for production of wild rice" and a scientifically justified definition of the periods when wild rice may be affected by certain variables that may include elevated sulfate levels. Today permittees and the public cannot predict how those terms will be applied by the MPCA. This uncertainty is magnified by the nearly complete lack of application of the standard in water quality permits since the standard was adopted in 1973.

In conclusion, it is clear that the preparation of the Draft Recommendation is not consistent with the 2011 Law and must be withdrawn by the MPCA. U.S. Steel has committed significant staff and financial resources to working the MPCA and others on important issues regarding sulfates in the environment and wild rice protection and will continue that work. We look forward to working with the MPCA on its ongoing wild rice research plan and the subsequent rulemakings to modernize the Minnesota water quality standards to protect wild rice. Once those steps have been completed we will be prepared to discuss the applicability of those standards to waters near U.S. Steel facilities.

Sincerely,

David L. Smiga

DLS/nms
cc: Chrissy L. Bartovich
Tishie Woodwell

(456492)

DRAFT

AUID	NAME	DESCRIPTION	MEDIAN SULFATE CONC	SULFATE WATER QUALITY ASSESS	SULFATE ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTioN WATER COMMENTS	WILD RICE DATA SOURCE
04010201-577	Embarrass River	Embarrass Lk to St Louis R	27	Impaired	Recommend split below Esquagama Lake. Stations on lower and upper portions of AUID separated by multiple lakes. Median calculated based on station S005-751.	Decisions to be made once WURPOWR criteria have been developed	Determination of a split will be made dependent upon finding wild rice between lakes along upstream portion of reach. No indication of wild rice along suggested new downstream AUID (outlet of Esquagama to St. Louis River) that would result from splitting. 1854 data indicate rice presence along northern portion of reach. Need to contact Darren Vogt for additional WR information on northern portion of reach. From mining information, northern portion includes sparse stands indicated with low density locations.	Mining company surveys, 1854 Treaty Authority
04010201-552	Partridge River	Headwaters to St Louis R	48	Impaired	High variability in sample measurements within close proximity, geographic and temporal. Flows through Colby Lake (69-0249-00), which has wild rice and 2 high sulfate measurements.	Decisions to be made once WURPOWR criteria have been developed		Mining company surveys, 1854 Treaty Authority, UMN study
09030002-501	Sandy River	Headwaters (Sandy Lk 69-0730-00) to Pike R	85	Impaired	One discrepant data point.	Decisions to be made once WURPOWR criteria have been developed		Mining company surveys, 1854 Treaty Authority, UMN study
04010201-533	St Louis River	Oliver Bridge to Pokegama River	39	Impaired	Wild rice data (actual point locations) are constrained to river AUID, but are associated in database with St Louis Estuary (69-1292-00), which is broader than river AUID. (Measurements collected further downstream at Blatnik Bridge (downstream from WLSSD discharge) have lower concentrations.)	Decisions to be made once WURPOWR criteria have been developed		Data linked to Estuary polygon: Perleberg list, MCBS, DNR call for data submittal, Ann Geissen shapefile, 1854 Treaty Authority, mining company surveys
04010201-532	St Louis River	Mission Creek to Oliver Bridge	15	Impaired	Only 2 data points on AUID, but concentrations immediately upstream (S000-021) and downstream (S007-512, S007-515) (12 out of 15 measurements above 10) indicate impairment.	Decisions to be made once WURPOWR criteria have been developed		Data linked to Estuary polygon: Perleberg list, MCBS, DNR call for data submittal, Ann Geissen shapefile, 1854 Treaty Authority, mining company surveys. DNR 2008 study point alongside AUID
09030009-537	Bostick Creek	Headwaters to Lake of the Woods	33	Impaired	Data is from 4 months of 1 year, but consistently shows high sulfate concentrations.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07020004-551	County Ditch 12	Headwaters to T113 R36W S8, north line	113	Impaired	DNR 2008 study point indicates rice somewhere on County Ditch 12 (Rice Creek), which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07010203-512	Rice Creek	Rice Lk to Elk R	18	Impaired	DNR 2008 study point indicates rice somewhere on Rice Creek, which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07010108-501	Long Prairie River	Fish Trap Creek to Crow Wing R	13	Impaired	DNR 2008 study point indicates rice somewhere on Long Prairie River, which is more extensive than the AUID with sulfate data. AUID is impaired if wild rice is present in close proximity to sampling station.	Decisions to be made once WURPOWR criteria have been developed		2006 Harvester's report, DNR 2008 study point shapefile

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07020011-531	Rice Creek	Headwaters to Maple R	28	Impaired	Consistently high sulfate concentrations at all 4 stations along entire AUID.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07020005-501	Chippewa River	Watson Sag to Minnesota R	139	Impaired	DNR 2008 study point indicates rice somewhere on Chippewa River, which is more extensive than the AUIDs with sulfate data. Wherever sampled, the Chippewa River has high sulfate concentrations. Listing individual AUIDs is dependent upon location of wild rice.	Decisions to be made once WURPOWR criteria have been developed	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-505	Chippewa River	Unnamed cr to E Br Chippewa R	88	Impaired	See above comment regarding Chippewa River.	Decisions to be made once WURPOWR criteria have been developed	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-506	Chippewa River	E Br Chippewa R to Shakopee Cr	70	Impaired	See above comment regarding Chippewa River.	Decisions to be made once WURPOWR criteria have been developed	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-508	Chippewa River	Cottonwood Cr to Dry Weather Cr	90	Impaired	See above comment regarding Chippewa River.	Decisions to be made once WURPOWR criteria have been developed	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07020005-503	Chippewa River	Stowe Lk to Little Chippewa R	39	Impaired	See above comment regarding Chippewa River.	Decisions to be made once WURPOWR criteria have been developed	DNR 2008 report indicates wild rice somewhere along the Chippewa River. Only documentation of wild rice was on a tributary (Danvers Ditch). There is insufficient information about rice in the ditch.	DNR 2008 study point shapefile
07040002-502	Cannon River	Pine Cr to Belle Cr	33	Impaired	DNR 2008 study point indicates rice somewhere on Cannon River, which is more extensive than the AUIDs with sulfate data. Wherever sampled, the Cannon River has high sulfate concentrations. Listing individual AUIDs is dependent upon location of wild rice.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07040002-542	Cannon River	Headwaters to Cannon Lk	17	Impaired	See above comment regarding Cannon River.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07040002-539	Cannon River	Byllesby Dam to Little Cannon R	27	Impaired	See above comment regarding Cannon River.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile
07040002-501	Cannon River	Belle Cr to split near mouth	31	Impaired	See above comment regarding Cannon River.	Decisions to be made once WURPOWR criteria have been developed		DNR 2008 study point shapefile

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NAME	MEDIAN SULFATE CONC	SULFATE WATER QUALITY ASSESS	SULFATE ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTOIN WATER COMMENTS	WILD RICE ACRES	WILD RICE DATA SOURCE
Cedar Island (N portion)	21	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10. Evaluate together with S. Portion, Fourth, and Esquagama, all connected via Embarrass R.	Decisions to be made once WURPOWR criteria have been developed	Mining company survey shows low to moderate density of rice throughout perimeter of lake. DNR lake survey jul 12, 1990 noted abundant wild rice, especially along west shore. Sulfate sampling locations are near wild rice observation sites.		Mining Companies, 1854 Treaty Authority
Cedar Island (S portion)	20	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Decisions to be made once WURPOWR criteria have been developed	Mining company survey shows moderate density of rice throughout perimeter of lake. DNR lake survey jul 12, 1990 noted abundant wild rice, especially along west shore. Sulfate sampling locations are near wild rice observation sites.		Mining Companies, 1854 Treaty Authority
Fourth	20	Impaired	Only 1 measurement on lake itself, but concentrations on (connected) Esquagama (69-0565-00-203) and Cedar Island S. Portion (69-0568-02-204,69-0568-02-207) are also high.	Decisions to be made once WURPOWR criteria have been developed	Need to contact Darren Vogt for additional WR information. From mining information, sparse stands indicated with single low density location.		Mining Companies, 1854 Treaty Authority, Ann Geissen shapefile, 2008 Study shapefile
Esquagama	26	Impaired	Only 3 measurements on lake itself, but concentrations on (connected) Fourth Lake (69-0573-00-201) and downstream (S005-751) are also high.	Decisions to be made once WURPOWR criteria have been developed	Need to contact Darren Vogt for additional WR information. From mining information, a single stand with low density.		Mining Companies, 1854 Treaty Authority
East Vermilion	14	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Decisions to be made once WURPOWR criteria have been developed	Significant acreage of rice in Big Bay. Assumed to be at least 70 acres in Big bay based on estimated size of Rice Bay at 180 acres, and total wild rice area of 250 acres. Rice Bay is also indicated for wild rice, but no sulfate data have been collected there.	250	1854 Treaty Authority, Ann Geissen shapefile, 2008 Study shapefile
Trout	42	Impaired		Decisions to be made once WURPOWR criteria have been developed	insufficient information		DNR call for data submittal, U of MN study sites
Elizabeth (main basin)	30	Impaired		Decisions to be made once WURPOWR criteria have been developed	Insufficient information. DNR lake survey reports dates 6/2006, 5/1997 no wild rice noted.		DNR call for data submittal
Swan (W bay)	tbd	TBD	Impaired, subject to verification of location of station 31-0067-01-204. If judged strictly on station 01-205, sulfate not significantly above 10.	Decisions to be made once WURPOWR criteria have been developed	Draft staff recommendation for the ESSAR water permit is that this is a production water. Check with Stephanie for recommendation date.	50 (00)	2006 Harvest Survey (00 polygon), Ann Geissen shapefile, Perleberg list, 2008 Study shapefile. Rice data tied to underlying lake (-00)
Swan (main basin)	tbd	Impaired	Median dependent upon station 31-0067-01-204 being included in main basin. Regardless, median is significantly above 10.	Decisions to be made once WURPOWR criteria have been developed	* The outlet bay upstream of the dam included in mining company survey from 2011 has densities of 4 and 5.	50 (00)	2006 Harvest Survey (00 polygon), Ann Geissen shapefile, Perleberg list, 2008 Study shapefile. All tied to underlying lake (-00). UMN study data tied to Main Basin polygon (-02).
Preston	45	Impaired		Decisions to be made once WURPOWR criteria have been developed	insufficient information. Lake Survey reports from 3/29/1995, 2/21/2006 noted no wild rice.		DNR call for data submittal

Footnotes:

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2. Nothing in this spreadsheet represents a final agency decision
3. "Impaired" is staff indication that the median sulfate concentration exceeded 10 mg/L
4. Notations about wild rice do not represent an agency decision on the applicability of the Class 4A 10 mg/L standard rather that there are data documenting some history of wild rice

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NAME	MEDIAN SULFATE CONC	SULFATE WATER QUALITY ASSESS	SULFATE ASSESSMENT COMMENTS	WILD RICE PRODUCTION WATER DECISION	WILD RICE PRODUCTOIN WATER COMMENTS	WILD RICE ACRES	WILD RICE DATA SOURCE
Embarrass	21	Impaired	Multiple sites with data collected same date, but concentrations consistent across sites, median still significantly above 10.	Decisions to be made once WURPOWR criteria have been developed	Upper portion of Embarrass shows numerous low to moderate density observations around entire perimeter in mining surveys from 2009 and 2010. However, Lower Embarrass had few observations of low density. *Only Upper Embarrass is considered a wild rice production water per draft staff recommendation.		1854 Treaty Authority, mining company data, Perleberg list, UMN Study
Lady Slipper	314	Impaired	Multiple sites; station 203 has single observation, still above 10, but well below other observations.	Decisions to be made once WURPOWR criteria have been developed	1997 fisheries transect from 1997 indicated small area of rice. 2011 and 2012 UMN study found no wild rice.		Perleberg list, UMN study
Monongalia (main basin)	31	Impaired		Decisions to be made once WURPOWR criteria have been developed	Photo from 2012 exists of high density wild rice. Mark Gernes has harvested rice on the lake for several recent years. U of MN study showed 3 pct coverage at study site. Contact Ed Swain and Mark Gernes for details on location of harvestable rice. Contact Donna Perleberg for more information on inclusion in her list.		UMN study (tied to main basin -01). MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile on underlying waterbody (-00)
Monongalia - Middle Fk Crow	29	Impaired	One questionable sample with very low concentration, turned out to be pore water, sample was excluded and median recalculated.	Decisions to be made once WURPOWR criteria have been developed	Photo from 2012 exists of high density wild rice. Mark Gernes has harvested rice on the lake for several recent years. U of MN study showed 38.75 pct coverage at study site.		UMN study (tied to polygon -02). MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile on underlying waterbody (-00)
Crow River Mill Pond (East)	26	Impaired		Decisions to be made once WURPOWR criteria have been developed	Contact Donna Perleberg for more information on Mill Pond observation from MCBS survey 8/6/2002. Contact Mark Gernes for local knowledge.		MCBS, Perleberg list, Ann Geissen shapefile, 2008 study shapefile, all on underlying waterbody (-00)
Hay	52	Impaired		Decisions to be made once WURPOWR criteria have been developed	Staff recommendation for Keetac permit in 2011 was that this is a wild rice production water. Check with Brandon Smith on the date of the Perry Pit dewatering permit.		Ann Geissen shapefile, UMN study, 2008 DNR study
Big Stone	404	Impaired		Decisions to be made once WURPOWR criteria have been developed	insufficient information. DNR lake survey from 3/17/2004 noted no wild rice.		DNR call for data submittal
Lac Qui Parle (NW bay)	293	Impaired		Decisions to be made once WURPOWR criteria have been developed	3/23/2000 DNR lake survey - no wild rice noted.		DNR call for data submittal - on underlying waterbody (-00)
Lac Qui Parle (SE bay)	270	Impaired	Only 1 data point on this bay, but concentrations on upstream portion of lake (37-0046-02) and downstream river (07020004-688) are also high.	Decisions to be made once WURPOWR criteria have been developed	3/23/2000 DNR lake survey - no wild rice noted.		DNR call for data submittal - on underlying waterbody (-00)
Mina	25	Impaired		Decisions to be made once WURPOWR criteria have been developed	DNR Lake Surveys from 8/4/1949, 1/2/1998 indicated wild rice presence. 1949 comment indicates sparse presence. 1998 survey was a fisheries transect. Contact Ann Geisen for further detail on why this waterbody was included in call for data submission.		DNR call for data submittal
Pearl	21	Impaired		Decisions to be made once WURPOWR criteria have been developed	DNR lake survey indicates wild rice was rare August 24 - 28, 1987. Contact Ann Geisen for further detail on why this waterbody was included in call for data submission.		DNR call for data submittal
Sandy	135	Impaired		Decisions to be made once WURPOWR criteria have been developed	Locate draft staff recommendation for production water status. Wild rice acreage from 2008 report.	121	1854 Treaty Authority, UMN study, Ann Geissen List, 2008 study shapefile

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Little Sandy	145	Impaired		Decisions to be made once WURPOWR criteria have been developed	Locate draft staff recommendation for production water status. Wild rice acreage from 2008 report.	89	1854 Treaty Authority, Ann Geissen List, 2008 study shapefile
Marsh	379	Impaired		Decisions to be made once WURPOWR criteria have been developed	DNR lake survey reports from 3/9/2004, 3/28/2001 noted no wild rice, 4/14/1954 waterfowl/muskrat habitat survey comment says "wild rice would not do well in this lake". 8/1962 map showed no wild rice. 7/1968 game and fish map showed no wild rice.		DNR call for data submittal
Lillian	151	Impaired		Decisions to be made once WURPOWR criteria have been developed	5/13/1997 lake survey report noted no wild rice.		DNR call for data submittal
Lobster	22	Impaired	Only 1 measurement on lake itself, but concentrations on lakes immediately adjacent (21-0108-00, 21-0180-00, 21-0150-00) are also high.	Decisions to be made once WURPOWR criteria have been developed	2/5/1997 lake survey report no rice noted. 1949 report did not note any rice and "wild rice would not do well in this lake". Follow up with 1997 fisheries report.		Perleberg list
Sturgeon	58	Impaired	All data collected on Mississippi (MissR 796.9, MissR 805.0), but direct hydrologic connection with Sturgeon.	Decisions to be made once WURPOWR criteria have been developed	insufficient information.		Ann Geissen shapefile, DNR 2008 study
Long	33	Impaired	Only 1 measurement on lake, but concentrations (5 miles) downstream (S005-630) are also high.	Decisions to be made once WURPOWR criteria have been developed	insufficient information. DNR Lake Survey report from 2/5/1997 did not note any wild rice.		DNR call for data submittal
Red Lake River Reservoir	tbd	Insufficient Information	Drinking water intake near dam may yield additional sulfate data. Downstream sulfate concentrations high (S002-324), but only 2 measurements recorded. Wild rice location unknown; will determine whether it is necessary to seek additional sulfate data, leading to possible judgment of impairment.	Decisions to be made once WURPOWR criteria have been developed	Need to consult fisheries area surveys from 7/2/2009 and 8/1/1994 to determine wild rice location.		DNR call for data submittal, Perleberg list
Rice	tbd	Insufficient Information	Outflow stream has high sulfate. Main inflow is close to outlet, large distance from lake sampling locations. Wild rice location within lake unknown, but will determine whether outflow sulfate concentrations are sufficient for judgment of impairment.	Decisions to be made once WURPOWR criteria have been developed	Insufficient information. UMN study did not observe any rice in 2012.		Ann Geissen shapefile, DNR 2008 study, UMN study

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Minnesota Pollution Control Agency

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November 8, 2013

Mr. Larry Sutherland
General Manager – Minnesota Ore Operations
United States Steel Corporation
P.O. Box 417
Mountain Iron, MN 55768

RE: United States Steel Corporation Correspondence Related to the Designation of a "Water Used for Production of Wild Rice"

Dear Mr. Sutherland:

The Minnesota Pollution Control Agency (MPCA) has received two letters from United States Steel Corporation (USS) related to the MPCA's process for designation of a "water used for production of wild rice" (WUFPOWR). The first was an August 12, 2013, letter from David Smiga responding to a MPCA document called "Draft Staff Recommendation for 'waters used for production of wild rice' downstream of the US Steel Minntac tailings basin." The second was a September 27, 2013, letter from you responding to MPCA comments on a June 27, 2013, Sulfate Reduction Plan revision required by the reissued water permits for the Keetac operation. In both letters, USS cites Minnesota Session Laws 2011, First Special Session, Chapter 2, Article 4 (2011 Law) asserting it is premature for the MPCA to determine that waters, other than those specifically listed in Minnesota rules, qualify as "waters used for the production of wild rice."

Though those two letters may raise other issues, this letter will respond to that specific assertion.

The MPCA has carefully considered USS' assertion. The MPCA believes that it is authorized to determine whether a particular water is a WUFPOWR on the basis of information developed about the particular water. The MPCA will continue to apply the current draft staff recommendations related to WUFPOWR subject to possible future modification after the criteria development process is completed.

However, because the MPCA continues to receive questions from all stakeholders about how such a determination is made, and specifically a number of requests to review the criteria the MPCA is using for such determinations, the MPCA has concluded that it is appropriate to provide opportunity for input on the criteria following the process laid out in Section 32 (b) of the 2011 Law. The MPCA plans to begin to develop criteria by meeting with the Minnesota Department of Natural Resources and Indian Tribes in late 2013 and anticipates taking public comment from other interested parties through public notice and comment sometime in early 2014.

The draft MPCA staff recommendations mentioned by USS include the following language: "This draft MPCA staff recommendation for ... is based on information currently available. MPCA staff will consider additional information that may become available in the future, whether from project proposers or from other interested/affected parties, and reserves the right to modify the draft staff recommendation accordingly." Once the MPCA has completed the criteria development process, the MPCA will consider those criteria as additional information and will reconsider the current draft MPCA staff recommendations for the waters mentioned in the two USS letters. MPCA staff will share the resulting draft staff recommendation (related to whether those waters are WUFPOWR and subject to the existing standard) with USS and the Tribes as is the current practice. The resulting draft staff recommendation will include any revisions as appropriate based on the additional information.

During the public comment period for any related permit or following issuance of such permit, USS may challenge the application of the criteria in the permitting process. As it did in the litigation initiated by the Minnesota Chamber of Commerce, the MPCA continues to reject any suggestion that WUFPOWR are limited to waters used for the irrigation of paddy rice, and not waters used for support of wildlife and other purposes. See Minn. R. 7050.0224, subp. 4.

Regarding the criteria development processes, the MPCA notes that the 2011 legislation has two distinct parts, rulemaking and criteria development. The 2011 legislation provides:

> *Sec. 32. WILD RICE RULEMAKING AND RESEARCH.*
>
> *(a) Upon completion of the research referenced in paragraph (d), the commissioner of the Pollution Control Agency shall initiate a process to amend Minnesota Rules, chapter 7050. The amended rule shall:*
>
> *(1) address water quality standards for waters containing natural beds of wild rice, as well as for irrigation waters used for the production of wild rice;*
>
> *(2) designate each body of water, or specific portion thereof, to which wild rice water quality standards apply; and*
>
> *(3) designate the specific times of year during which the standard applies.*

Nothing in this paragraph shall prevent the Pollution Control Agency from applying the narrative standard for all class 2 waters established in Minn. R. ch. 7050.0150, subp. 3.

> (b) "Waters containing natural beds of wild rice" means waters where wild rice occurs naturally. *Before designating waters containing natural beds of wild rice as waters subject to a standard, the commissioner of the Pollution Control Agency shall establish criteria for the waters after consultation with the Department of Natural Resources, Minnesota Indian tribes, and other interested parties and after public notice and comment. The criteria shall include, but not be limited to, history of wild rice harvests, minimum acreage, and wild rice density.*

2011 First Special Session, ch. 2, Art. 4 (emphasis added). The legislature has required that Minn. R. ch. 7050 be amended to designate each body of water, or specific portion thereof, to which wild rice water quality standards apply." Rulemaking has a long established formal process that the MPCA follows and will follow in designating waters. Referring to the italicized language, the legislature established a separate criteria development process for the MPCA to follow and specified that the process is to include a consultation component and a public notice and comment component separate from the public notice and comment process that will occur during the rulemaking called for by the legislation. The legislature has required the MPCA to complete the criteria development process prior to rulemaking for designating waters. While the criteria are to be used in the designation process, the legislation imposes no restrictions upon the MPCA's permitting authorities, its obligations to protect impaired waters or its use of the criteria on a case-by-case basis to identify impaired waters and when effluent limitations are necessary in permits.

Based on the foregoing, the MPCA has concluded that it is appropriate to move forward with the process to establish criteria for designating "waters containing natural beds of wild rice," prior to the rulemaking.

The MPCA will use the criteria that emerge from this process for three purposes: to inform the process of "designating" waters subject to the standard in the wild rice standards rulemaking, to apply on a case-by-case basis to identify when effluent limitations are necessary in permits, and to aid the MPCA when listing impaired waters. Attached is a proposed timeline for activities related for the wild rice sulfate standard.

Please feel free to contact me with questions at 651-757-2366.

Sincerely,

for Ann M. Foss
Director
Metallic Mining Sector
Industrial Division

AMF/SB:rm

Attachment

Wild Rice Sulfate Standard -- Proposed Timeline of Related Activities

Last Revised: 11/8/13

(Note: Green shading identifies public notice and dialogue opportunities)

		November-13	December-13	January-14	February-14	March-14	April-14	May-14 =>
Wild Rice Sulfate Standards Study[1]			Receive preliminary study results by December 31, 2013.	MPCA evaluate study data and develop wild rice sulfate standard rulemaking recommendations.		Share and discuss recommendations; begin to develop technical support details.	Begin rulemaking process to designate waters subject to standard and address any recommended changes to the standard.	
"Water Used for Production of Wild Rice" (WUFPOWR) Criteria Development[2]		MPCA meet with tribes, DNR and wild rice advisory committee to discuss WUFPOWR criteria development.		Public notice draft WUFPOWR criteria.	Review comments and revise WUFPOWR criteria as appropriate.	Use WUFPOWR criteria to inform process of "designating" waters subject to the sulfate wild rice standard; apply criteria for rulemaking, assessment, impaired waters list development and permitting.		
303 (d) Impaired Waters List[3]	**Wild rice sulfate assess-ments**	Wait to identify and assess WUFPOWR for the wild rice sulfate standard until WUFPOWR criteria are available.				Identify and assess WUFPOWR for the wild rice sulfate standard, consistent with WUFPOWR criteria. Public notice draft sulfate-impaired WUFPOWR. Submit WUFPOWR sulfate assessments to EPA when complete.[4]		
	All other assess-ments	Draft 2014 impaired waters list (minus WUFPOWR assessments) on MPCA website.	Hold public meetings on draft 2014 impaired waters list.	Public notice draft 2014 impaired waters list.	Review and respond to comments and revise draft 2014 impaired waters list as appropriate.		Draft 2014 impaired waters list due to EPA April 1, 2014.[4]	
NPDES Permit Development[5]		Continue to develop permits using draft staff recommendations related to identifying water used for production of wild rice.[6]				Re-evaluate draft staff recommendations using WUFPOWR criteria.		Any permit will be put on public notice prior to issuance.[6]

1. MN Session Laws 2011, First Special Session, Chapter 2, Article 4, Section 32 (d).
2. MN Session Laws 2011, First Special Session, Chapter 2, Article 4, Section 32 (b).
3. Federal Clean Water Act, 1972, Section 303 (d); MN Statutes 114D.25, subd. 1.
4. Depending on timing, the wild rice sulfate assessments may be submitted to EPA with the other assessments, or more likely as a separate package.
5. Federal Clean Water Act, 1972, Section 402; MN Statutes 115.03 , subd. 5
6. Permits will be put on public notice prior to issuance; a permit could go on notice at any point in the timeline.

Wild Rice Sulfate Standard – Summary of Findings and Preliminary Recommendations
Legislative Briefing Document; February, 2014

Background:
In 2011, the Minnesota Legislature appropriated funding and directed the Minnesota Pollution Control Agency (MPCA) to conduct research on the effects of sulfate and other substances on the growth of wild rice. This research was intended to inform an evaluation of the existing wild rice sulfate standard. In 1973, the MPCA adopted and the U.S. Environmental Protection Agency (USEPA) approved that standard to protect the beneficial use of "water used for production of wild rice" during periods when the rice "may be susceptible to damage by high sulfate levels." (Minn. R. 7050.0224, subpart 2).

Following the development of a detailed research protocol in 2011, in 2012 the MPCA contracted with groups of scientists at the University of Minnesota Duluth and Twin Cities to undertake a Wild Rice Sulfate Standards Study. The Study's main hypothesis is that wild rice is impacted by sulfate via the conversion of sulfate to sulfide in the rooting zone of the plants. Data collection was completed in December 2013 and is documented in individual reports from the researchers (see Table 1 for a summary of Study components).

During January and February 2014, MPCA staff integrated the study results; analyzed the data as a whole; gained input from the Wild Rice Standards Study Advisory Committee; and reviewed existing monitoring data, other relevant scientific studies/information, and the original basis for the wild rice sulfate standard to develop findings and preliminary recommendations regarding the standard. In evaluating the existing sulfate standard, the MPCA has the responsibility of demonstrating that any recommended changes to the standard have a scientific basis and would protect the beneficial use of "water used for production of wild rice."

Findings and Preliminary Recommendations Regarding the Wild Rice Sulfate Standard

Key Findings:

1. **Sulfate is not directly toxic to wild rice**. Both the MPCA Study and the research commissioned by the Minnesota Chamber of Commerce support this conclusion. However, sulfate in the surface water can be converted by bacteria to sulfide in the rooting zone of wild rice (see Figure 1).
2. **Sulfide is toxic to wild rice.** The MPCA Study demonstrated that elevated sulfide concentrations were toxic to wild rice seedlings. Hydroponic experiment data showed deleterious effects of sulfide on seedling plant growth when sulfide exceeded the range of 150 to 300 µg/L.
3. **Sulfide in the sediment is affected by the amount of sulfate in the water column, and the amount of iron in the sediment**. Data from a majority of the field sampling sites show that the range of 150 to 300 µg/L sulfide in the sediment relates to a water column concentration of sulfate between 4.3 and 16.2 mg/L. This range illustrates that conditions at some of the field sites are more effective than others at converting sulfate to sulfide, in part due to the availability of iron in the sediment (see Figure 1).

Preliminary Conclusions and Recommendations:

1. **The 10 mg/L sulfate standard is needed and reasonable to protect wild rice production from sulfate-driven sulfide toxicity.** The MPCA will also consider including a sediment sulfide concentration as a component of this water quality standard, in the range of 150 to 300 µg/L sulfide.
2. **The 10 mg/L wild rice sulfate standard should continue to apply to both lakes and streams**. Analysis of the field data does not support placing lakes and streams into separate subclasses. Iron availability, not water body type, appears to be a key controlling factor in the concentration of sulfide.
3. **Site-specific standards are expected for some waters**. Considerable data suggest that in some cases the development of a site-specific standard would be protective of wild rice production. This is most likely to

occur in waters where the sediment iron is elevated and therefore a higher sulfate water column concentration may not result in a sulfide sediment concentration above 150 to 300 µg/L. There are also data to suggest that a site-specific standard lower than 10 mg/L may be needed for waters where sulfate is more efficiently converted to sulfide.

4. **MPCA will continue to explore if the sulfate standard is needed to protect paddy-grown wild rice production.** The Study data do not suggest that paddy-grown wild rice is less susceptible to impacts from elevated sulfide. However, the land- and water-management activities associated with paddy wild rice production likely reduce the potential for sulfide production in the sediment.
5. **MPCA does not currently have a recommendation regarding the "period of susceptibility" of wild rice to sulfate effects, but will continue to analyze data to further explore this question.** The sediment incubation experiment data show that sulfate can be converted to sulfide in both warm and cold conditions, and that sediment sulfide concentrations decrease once sulfate concentrations in the overlying water decrease. This is a complex interaction and more data analysis is needed before recommendations can be developed about this important question; any recommendation may also need to consider site-specific factors that affect this question.
6. **Consideration should be given to changing the use class of the wild rice sulfate standard:** The MPCA is considering moving the wild rice sulfate standard from Class 4 where it currently resides to Class 2 and creating a new subclass to clarify that the wild rice sulfate standard is designed to protect the growth of wild rice grains for consumption by humans and wildlife. The MPCA is also considering revising the term "water used for production of wild rice." The MPCA has received comments asserting this wording is not the best descriptor for natural stands of wild rice that provide benefits to humans and wildlife.

Next Steps

- In late March, MPCA will meet with the Wild Rice Sulfate Standards Advisory Committee and Minnesota Tribes in separate meetings to get their feedback on the MPCA's Findings and Preliminary Recommendations. MPCA will also continue to seek feedback from USEPA and the Study researchers.
- MPCA technical staff will continue to develop and assemble material for a technical support document that will be used in wild rice rulemaking. Further analysis of results and data from the outdoor container experiments and sediment incubation study will also continue. MPCA will, as appropriate, refine the recommendations based on the input received and this continued analysis.
- The MPCA is also contracting for expert scientific review of the wild rice study reports and specific aspects of the MPCA's preliminary recommendations and rationale about whether a change to the current 10 mg/L wild rice sulfate standard is warranted, and the nature of the change. The expert review panel will likely be convened in late spring 2014, and will include the opportunity for interested stakeholders/members of the public to address the panel.
- In a parallel effort MPCA is working to develop factors that will help identify specific waterbodies as "water used for production of wild rice." These factors will be used in case-by-case determinations and to inform rulemaking to identify specific waterbodies as "water used for production of wild rice" in Minnesota Rules Chapter 7050. The goal is to put these factors on public notice for a 30-day public comment period in March 2014. Comments received will be used to help refine the factors.
- Any proposed change to the wild rice standard would be adopted into Minnesota's water quality standard rule (Minnesota Rules Chapter 7050) in accordance with the requirements of the Minnesota Administrative Procedures Act and would require the approval of the USEPA. MPCA is targeting fall 2014 for having the rule package ready for public notice and comment.

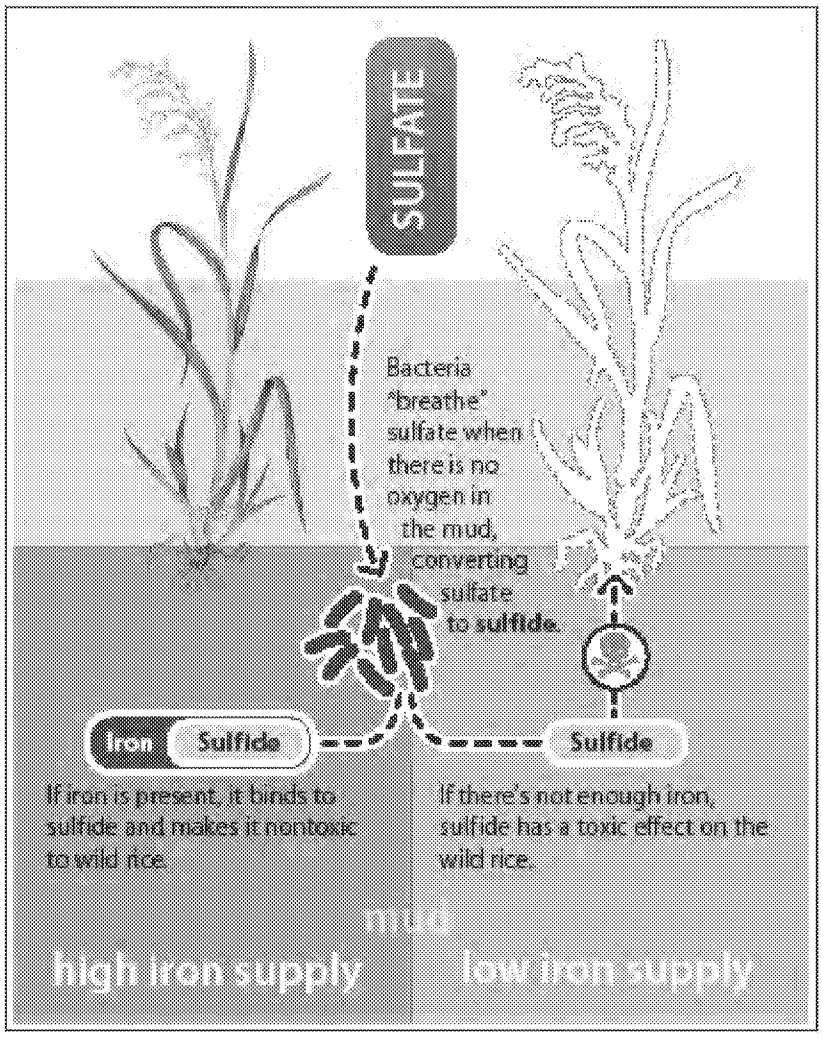
Considerations

- As a result of the Wild Rice Sulfate Standard Study and other data collection efforts, MPCA now has a much better understanding of the relationship between wild rice presence and absence, sulfate in the water column, and sulfide and iron in sediment porewater. This includes a reinforcement of the hypothesis that sulfate is not directly toxic to wild rice, but is converted to sulfide, which is toxic to wild rice (this is supported by the hydroponics and field data).
    - This enhanced understanding is very important because it helps explain why a subset of waterbodies have elevated sulfate concentrations and apparently healthy wild rice stands, when most waterbodies that have successful wild rice beds have relatively low sulfate concentrations.
    - This enhanced understanding – which MPCA did not have prior to the study – will be invaluable in implementing the wild rice sulfate standard. This will be particularly valuable in evaluating the need for site-specific standards and developing such standards.
- Any changes to the current wild rice sulfate standard will take some time to implement. The Clean Water Act requires implementation of the existing standard while any proposed changes are going through the administrative process and USEPA approval.
- The MPCA wastewater permitting approach for the current wild rice sulfate standard is as follows:
    - Where elevated discharge sulfate levels are suspected but no sulfate data are available, discharge monitoring requirements are being added to NPDES permits as they come up for reissuance every five years.
    - If discharge data collected during the five year permit cycle indicate a potential to violate the sulfate standard for wild rice, and it is determined that a water used for production of wild rice may be affected by the discharge, a discharge limit will be added to the permit upon reissuance.
    - If discharge limits cannot be met immediately a schedule of compliance will be included in the permit to allow for steps such as evaluation of treatment technologies, design, procurement of funds, and construction.
    - The compliance schedule will contain a requirement that the facility either demonstrate compliance with the limit as soon as possible or submit a variance request with the application for permit reissuance.
        - It is important to note that the sulfate discharge limit included in a permit may not be identical to the wild rice sulfate standard. When setting discharge limits, MPCA factors in variables such as dilution in the receiving water and distance between the discharge point and the water used for production of wild rice. The discharge limit is set such that the standard is achieved at the water used for production.
    - Note that in accordance with federal law, compliance schedules and variances are typically not allowed for new dischargers, which must meet the effluent limit upon commencement of operations.
- Implementation of the existing standard does not preclude permitted facilities from requesting a site specific wild rice sulfate standard. The MPCA can employ the knowledge gained about site-specific standards immediately, where conditions indicate that such a standard likely is needed. MPCA is exploring options for addressing site-specific standards requests efficiently.

Table 1. Purpose, strengths, and limitations of Study components.

	Field Survey	Laboratory Hydroponic Experiments		Outdoor Container Experiments	Collection and Analysis of Rooting Zone Depth Profiles	Sediment Incubation Laboratory Experiments
		Sulfate (SO_4)	Sulfide (H_2S)			
Main Purpose	Expand understanding of environmental conditions correlated with presence/ absence of wild rice.	Evaluate effects of sulfate on wild rice seed germination and growth of sprouts.	Evaluate effects of sulfide on wild rice seed germination and growth of sprouts.	Evaluate effects of sulfate on wild rice plants over full life cycle, and multiple years.	Characterize sulfate, sulfide, and iron in the rooting zone of wild rice container experiments and field sites.	Evaluate effect of temperature on movement of sulfate into and out of underlying sediment.
Endpoints	Concentrations of chemicals in surface water & rooting zone (e.g. SO_4 & H_2S vs. wild rice occurrence).	Growth of wild rice sprouts (biomass, root & shoot elongation). Germination rate of seeds.	Growth of wild rice sprouts (biomass, root & shoot elongation). Germination rate of seeds.	Growth of wild rice (biomass, plus number & weight of seeds). Sulfide concentrations in rooting zone.	Concentrations of sulfate, sulfide and iron in porewater.	Sulfate concentrations in overlying water over time; SO_4, iron, H_2S, & anion tracers in sediment porewater. Simple model.
Key Strengths	Most reflective of actual environmental conditions. Multiple wild rice stands and breadth of characteristics sampled.	Controlled dose-response experiment. Controlled exposure to known concentrations of SO_4.	Controlled dose-response experiment. Controlled exposure to known concentrations of H_2S.	Controlled dose-response experiment. Includes natural sediment matrix as rooting environment. Involves entire growth cycle, multiple years.	Provides additional data to understand and interpret container experiments and field sites.	Controlled experiment with natural sediment and water.
Key Limitations	Least controlled. Annual visit for most sites, 3x/year for a subset. Not definitive on cause and effect.	Only evaluates early growth stages. Leading hypothesis is that sulfate is converted to sulfide, which is directly toxic.	Only evaluates early growth stages. Unable to simultaneously keep roots anaerobic & shoots aerobic.	Full effect of sulfate may take longer than several years to realize. No groundwater movement.	Utility lies in the integration of this data with the other Study components, not in this data set alone.	Provides preliminary assessment of sediment from two sites that may inform but is not fully transferrable to other sites. No groundwater movement. No wild rice plants grown.

Figure 1. The relationship of sulfate, sulfide and iron in surface water and sediment.



The iron-sulfide battle
The amount of iron and sulfide are dynamic and one affects the other. If enough new iron is flowing into the mud (e.g. via groundwater), then even a lake or stream with high sulfate levels can support wild rice. On the other hand, enough sulfate can overwhelm the supply of iron and make sulfide levels toxic.

Subject: Re: Sulfate standard

Date: Wednesday, February 26, 2014 at 11:26:30 AM Central Standard Time

From: Tincher, Jaime (GOV), GOV1636E957-9746-40EB-B36D-B062C63D50>

To: Stine, John (MPCA), MPCA John 19235ee4-32f5-43d4-af10-c2faf5183a6c>

Thank you. I talked to Thissen. Told him you have a job to do and this is just a hard issue and they need to let us talk and get back to them.

Sent from my iPhone

On Feb 26, 2014, at 10:25 AM, "Stine, John (MPCA)" <john.stine@state.mn.us> wrote:

> Talking with my staff in 5 minutes.
> John Linc Stine
> Commissioner
> MN Pollution Control Agency
>
> ----- Original Message -----
> From: Tincher, Jaime (GOV)
> Sent: Wednesday, February 26, 2014 10:24 AM
> To: Stine, John (MPCA)
> Cc: Bailey, Dana (GOV); Zakula, Linden (GOV); O'Rourke, Jennifer (GOV); Sertich, Tony (IRR)
> Subject: Re: Sulfate standard
>
> I heard. We need to put together a plan.
>
> Sent from my iPhone
>
> On Feb 26, 2014, at 10:24 AM, "Stine, John (MPCA)" <john.stine@state.mn.us> wrote:
>
>> Agree - the meeting with range legislators went poorly.
>>
>> -----Original Message-----
>> From: Tincher, Jaime (GOV)
>> Sent: Wednesday, February 26, 2014 10:22 AM
>> To: Bailey, Dana (GOV); Zakula, Linden (GOV); O'Rourke, Jennifer (GOV)
>> Cc: Sertich, Tony (IRR); Stine, John (MPCA)
>> Subject: Sulfate standard
>>
>> This is a big deal and it is blowing up this morning. I am at the residence and think the Gov, Tony and Stine need to meet/talk on the phone.
>>
>> http://m.startribune.com/lifestyle/?id=247183881&c=y
>>
>>
>> Sent from my iPhone

Subject: FW: Postpone MPCA Legislative Briefing on Wild Rice Sulfate Study

Date: Wednesday, February 26, 2014 at 7:25:27 PM Central Standard Time

From: Koudelka, Kirk (MPCA), MPC363B3C11-1A3F-42F6-AFAF-451B7D0DF44D>

To: Stine, John (MPCA), MPCA John 19235ee4-32f5-43d4-af10-c2faf5183a6c>, Verhasselt, Dave (MPCA), M477e69e2-c5bd-4306-bd1b-7bfd951e54dd556>, Flood, Rebecca (MPCA), MPCba4414de-4cfb-4215-8ba0-b78d9d9a957c>, Koudelka, Kirk (MPCA), MPC363b3c11-1a3f-42f6-afaf-451b7d0df44d>

CC: Ahlers-Nelson, Courtney (MPCA), M1fb08a78-f870-411f-bd0c-55fc4047c590>

FYI

From: Koudelka, Kirk (MPCA)
Sent: Wednesday, February 26, 2014 6:25 PM
To: rep.david.dill@house.mn; rep.tom.hackbarth@house.mn; Representative Jean Wagenius (rep.jean.wagenius@house.mn); Denny McNamara (rep.denny.mcnamara@house.mn); Phyllis Kahn (Rep.Phyllis.Kahn@house.mn); 'rep.dean.urdahl@house.mn'; Barbara.Jacobs@senate.mn; 'sen.david.brown@senate.mn'; sen.david.tomassoni@senate.mn; sen.bill.ingebrigtsen@senate.mn; rep.tom.anzelc@house.mn
Cc: Joan Harrison (Joan.Harrison@house.mn); Peter.Strohmeier@house.mn; 'melissa.hackenmueller@house.mn'; Nanette Moloney (Nanette.Moloney@house.mn); Mike Molzahn (Mike.Molzahn@house.mn); 'david.anderson@house.mn'; Amy Zipko (amy.zipko@house.mn); Krysta Niedernhofer (Krysta.Niedernhofer@house.mn); 'leah.patton@house.mn'; Austin Kerrigan (Austin.Kerrigan@senate.mn); laura.bakk@senate.mn; 'scott.sande@senate.mn'; 'john.halverson@senate.mn' (john.halverson@senate.mn); dallas.fischer@senate.mn; 'sue.scott@house.mn'
Subject: Postpone MPCA Legislative Briefing on Wild Rice Sulfate Study

Hi everyone,

We thought we would be ready to release preliminary findings on the wild rice sulfate standard on Thursday, but we are not. As a result we need to postpone the meeting.

We will update you when we can in the coming weeks.

Thanks,

Kirk

From: Koudelka, Kirk (MPCA)
Sent: Friday, February 21, 2014 3:26 PM
To: rep.david.dill@house.mn; rep.tom.hackbarth@house.mn; Representative Jean Wagenius (rep.jean.wagenius@house.mn); Denny McNamara (rep.denny.mcnamara@house.mn); Phyllis Kahn (Rep.Phyllis.Kahn@house.mn); 'rep.dean.urdahl@house.mn'; Barbara.Jacobs@senate.mn; 'sen.david.brown@senate.mn'; sen.david.tomassoni@senate.mn; sen.bill.ingebrigtsen@senate.mn; rep.tom.anzelc@house.mn
Cc: Joan Harrison (Joan.Harrison@house.mn); Peter.Strohmeier@house.mn; 'melissa.hackenmueller@house.mn'; Nanette Moloney (Nanette.Moloney@house.mn); Mike Molzahn (Mike.Molzahn@house.mn); 'david.anderson@house.mn'; Amy Zipko (amy.zipko@house.mn); Krysta Niedernhofer (Krysta.Niedernhofer@house.mn); 'leah.patton@house.mn'; Austin Kerrigan (Austin.Kerrigan@senate.mn); laura.bakk@senate.mn; 'scott.sande@senate.mn'; 'john.halverson@senate.mn' (john.halverson@senate.mn); dallas.fischer@senate.mn; sue.scott@house.mn
Subject: MPCA Legislative Briefing on Wild Rice Sulfate Study

Hi Committee Chairs, Leads, and Chair of the Iron Range Delegation:

The wild rice sulfate study was completed at the end of December 2013. The data is documented in five reports from the researchers, which is available on the MPCA 's website.

http://www.pca.state.mn.us/index.php/water/water-permits-and-rules/water-rulemaking/minnesotas-sulfate-standard-to-protect-wild-rice.html

Over the last two months MPCA has systematically analyzed the research and data. We are on target to release our preliminary recommendations about the wild rice sulfate standard at the end of February.

On Thursday, February 27th at 10:30AM we have reserved 125 in the Capitol to brief interested legislators on the preliminary recommendations. I understand there is no perfect time during the day, but hope this work for a majority of folks.

If you have any questions, please let me know.

Thanks,

Kirk

Kirk Koudelka

Assistant Commissioner

Legislative and Land Policy

Office # 651-757-2241 | Cell # 651-276-0498

kirk.koudelka@state.mn.us

Minnesota Pollution Control Agency

Our mission is to protect and improve the environment and enhance human health

Subject: Postpone of release of preliminary findings on wild rice sulfate standard

Date: Wednesday, February 26, 2014 at 10:42:27 PM Central Standard Time

From: Lotthammer, Shannon (MPCA), SHANNON1835B629-B400-428A-A65E-945195224C52>

To: John Pastor (jpastor@d.umn.edu), Nathan Johnson, Daniel Engstrom, Amy Myrbo

CC: Swain, Ed (MPCA), MPCA Ed df5a38e7-d527-432e-ae58-d0c51f03e974>, Engelking, Pat (MPCA), MPC64508eb0-42c1-46b0-962c-20f9a4185184>, Tomasek, Mark (MPCA), MPCA66b36e08-e4d0-4359-bd13-d19c5f95250b>, Kessler, Katrina (MPCA), M6dfc3592-698f-42aa-920a-77ad31ece81c>, Streets, Summer (MPCA), MPfe70fbc1-b766-4512-961a-570c9bc668d1>, Monson, Phil (MPCA), MPCA Phil 8638e178-4b5c-4b1a-a168-66ea6c1e0acc>, Alms, Eric (MPCA), Mdb1846ab-33c4-4f5e-9afe-fbccce9e6744318>, Blaha, Gerald (MPCA), MPCA51ea750d-038b-45f0-b4e0-4d6669a8fd63>

Hi all --

Just a quick note to let you know we thought we would be ready to release preliminary findings on the wild rice sulfate standard on Thursday, but we are not. We will update you when we can in the coming weeks. In the meantime, if you have any questions or receive any questions about the MPCA's preliminary findings regarding the standard, please feel free to give me a call or refer them to me.

Many thanks!
Shannon

Shannon Lotthammer

Director, Environmental Analysis and Outcomes Division

Minnesota Pollution Control Agency

Shannon.lotthammer@state.mn.us

651/757-2537

www.pca.state.mn.us

Our mission is to protect and improve the environment and enhance human health.

Subject: FW: Postpone of MPCA release of preliminary findings

Date: Wednesday, February 26, 2014 at 7:18:14 PM Central Standard Time

From: Lotthammer, Shannon (MPCA), SHANNON1835B629-B400-428A-A65E-945195224C52>

To: Stine, John (MPCA), MPCA John 19235ee4-32f5-43d4-af10-c2faf5183a6c>, Verhasselt, Dave (MPCA), M477e69e2-c5bd-4306-bd1b-7bfd951e54dd556>, Flood, Rebecca (MPCA), MPCba4414de-4cfb-4215-8ba0-b78d9d9a957c>, Koudelka, Kirk (MPCA), MPC363b3c11-1a3f-42f6-afaf-451b7d0df44d>

Sent to Advisory Committee.

From: Lotthammer, Shannon (MPCA)
Sent: Wednesday, February 26, 2014 6:17 PM
To: Engelking, Pat (MPCA); Anne Nelson; Beth Nelson; Craig Johnson ; Darren Vogt; David D. Biesboer (biesboer@umn.edu); David Hatchett ; David Skolasinski; David Smiga (dlsmiga@uss.com); Engstrom, Jennifer N (DNR); Frank Ongaro; Geisen, Ann (DNR); Joe Mayasich; John Lenczewski (jlenczewski@comcast.net); Jon Schneider (jschneider@ducks.org); Kathryn Hoffman; Kurt Anderson; Lea Foushee; Leonard Anderson; Lloyd Grooms; Mike Appelwick (MAppelwick@netechnical.com); Mike Robertson; Mike Robertson 2; Mike Schmidt; Nancy Schuldt; Paula Maccabee (pmaccabee@visi.com); Peter Lee; Rachel Walker; Raymie Porter (raporter@umn.edu); Rob Beranek; Robert Pillsbury; Robert Shimek; Robin Richards; Rod Ustipak (rodustipak@charter.net); Sara Barsel (sara.barsel@q.com); Scott Gischia; Shane Bowe; Stephen R. Grattan; Steve Nyhus; Tim Tuominen; Tracy Ekola
Cc: Andrew Chelseth; Annette Drewes; Bill Latady; Dave Schimpf; Jeff Hanson; Joe Legarde; Kristen; Larry Baker; Lori Andresen; Michael Price; mjh@barr.com; Peder Larson; Wagener.Christine@epamail.epa.gov; William Brice; Alms, Eric (MPCA); Blaha, Gerald (MPCA); Kessler, Katrina (MPCA); Monson, Phil (MPCA); Streets, Summer (MPCA); Swain, Ed (MPCA); Tomasek, Mark (MPCA)
Subject: RE: Postpone of MPCA release of preliminary findings

Hi all,

We thought we would be ready to release preliminary findings on the wild rice sulfate standard on Thursday, but we are not.

We will update you when we can in the coming weeks.

Thank you,

Shannon

Shannon Lotthammer
Director, Environmental Analysis and Outcomes Division
Minnesota Pollution Control Agency
Shannon.lotthammer@state.mn.us
651/757-2537
www.pca.state.mn.us

Our mission is to protect and improve the environment and enhance human health.

From: Engelking, Pat (MPCA)
Sent: Tuesday, February 25, 2014 2:35 PM
To: Anne Nelson; Beth Nelson; Craig Johnson ; Darren Vogt; David D. Biesboer (biesboer@umn.edu); David Hatchett ; David Skolasinski; David Smiga (dlsmiga@uss.com); Engstrom, Jennifer N (DNR); Frank Ongaro; Geisen, Ann (DNR); Joe Mayasich; John Lenczewski (jlenczewski@comcast.net); Jon Schneider (jschneider@ducks.org); Kathryn Hoffman; Kurt Anderson; Lea Foushee; Leonard Anderson; Lloyd Grooms; Mike Appelwick (MAppelwick@netechnical.com); Mike Robertson; Mike Robertson 2; Mike Schmidt; Nancy Schuldt; Paula Maccabee (pmaccabee@visi.com); Peter Lee; Rachel Walker; Raymie Porter (raporter@umn.edu); Rob Beranek; Robert Pillsbury; Robert Shimek; Robin Richards; Rod Ustipak (rodustipak@charter.net); Sara Barsel (sara.barsel@q.com); Scott Gischia; Shane Bowe; Stephen R. Grattan; Steve Nyhus; Tim Tuominen; Tracy Ekola
Cc: Andrew Chelseth; Annette Drewes; Bill Latady; Dave Schimpf; Jeff Hanson; Joe Legarde; Kristen; Larry Baker; Lori Andresen; Michael Price; mjh@barr.com; Peder Larson; Wagener.Christine@epamail.epa.gov; William Brice; Alms, Eric (MPCA); Blaha, Gerald (MPCA); Engelking, Pat (MPCA); Kessler, Katrina (MPCA); Lotthammer, Shannon (MPCA); Monson, Phil (MPCA); Streets, Summer (MPCA); Swain, Ed (MPCA); Tomasek, Mark (MPCA)
Subject: MPCA release of preliminary recommendations and response to advisory e-mail

Good afternoon,

We wanted to provide more detail about the planned release of the wild rice sulfate standard preliminary recommendations later this week, as well as next steps beyond that:

We will be sharing our preliminary recommendations with the Advisory Committee late morning on Thursday.

We will also be sharing our recommendations with the public/interested stakeholders and the media on Thursday.

In late March, MPCA will meet with the Wild Rice Sulfate Standards Advisory Committee and Minnesota Tribes in separate meetings to get feedback on the MPCA's Findings and Preliminary Recommendations. MPCA will also continue to seek feedback from USEPA and the Study researchers.

MPCA technical staff will continue to develop and assemble material for a technical support document. Further analysis of results and data from the Study will also continue. MPCA will, as appropriate, refine the recommendations based on the input received and this continued analysis.

The MPCA is also contracting for expert scientific review of the wild rice study reports and specific aspects of the MPCA's preliminary recommendations and rationale about whether a change to the current 10 mg/L wild rice sulfate standard is warranted, and the nature of the change. The expert review panel will likely be convened in late spring 2014, and will include the opportunity for interested stakeholders/members of the public to address the panel.

Any proposed change to the wild rice standard would be adopted into Minnesota's water quality standard rule (Minnesota Rules Chapter 7050) in accordance with the requirements of the Minnesota Administrative Procedures Act and would require the approval of the USEPA.

Please also see our response to an e-mail from an advisory committee member that is attached to this message. Thanks.

Pat

Patricia Engelking

Environmental Analysis and Outcomes

Minnesota Pollution Control Agency

651-757-2340

pat.engelking@state.mn.us

TRANSCRIPTION

Governor Mark Dayton interview with Minnesota Public Radio, March 24, 2015.
"Dayton's full comments on wild rice and U.S. Steel"
Transcribed by Judith Niemi on March 29, 2015 from MPR website at
http://www.mprnews.org/story/2015/03/24/dayton-water-standard

INTERVIEWER (Tom Scheck) How are you managing this [inaudible] with U.S. Steel and with the Range and MPCA?

DAYTON: The unfortunate facts are that the steel industry is in a very, very precarious position here in Minnesota and nationally, with huge imports of foreign steel and ore and a lack of willingness of our government— it's been this way for thirty years, or longer—to really stand up and protect our jobs and protect our interests.

Senator Franken . . . I convened a call last week with Senator Franken and Senator Klobuchar and Representative Nolan of the Range delegation, and others who, all of whom are alarmed at this and trying to meet with either the president or the trade ambassador or both to really highlight how urgent this situation is. But U.S. Steel has made it very clear they're not going to — and they closed down the Keewatin plant, they're still operating the Minntac plant — but they made it very clear they're not going to agree to a permit that has the standard of 10 [10 milligrams per liter] which was set in, by science — was posted in 1940, and established in the 1960s and 70s as the standard, which is not applied to most other projects in Minnesota or anywhere else in the country.

So MPCA is going to be coming out shortly with a way of taking the updated scientific information and applying that to protecting the wild rice in the waters, which we certainly want to do, but it's got to be done in a way that is based on current science and current information, and not something's that's antiquated. We could talk with the EPA about collaborating with us and doing that, and going through a public process to work that out, and some people will say, "Well, you know you're going to abandon this standard," but if the standard is obsolete, and is not validated by current science and information, then to stick with it and close down an industry is really ill-advised.

INTERVIEWER: Do the scientists at MPCA agree with that?

DAYTON: Well, I'm waiting for them to come out with their analysis and what their views are, but the most recent reports that come out—I'm not an expert on this, but—we have a standard for sulf*ate* of 10. Well, the science, as I understand it, says that it's not sul*fate* that is harmful to wild rice or to humans, the limit for human consumption of sul*fate* is 2500, so clearly we're in a different universe in that regard, but sul*fide*, which is—some of the sulfate is converted into sulfide, if I

remember my college chemistry—that's where there's, you know, deleterious effects. But there are other factors.

Sulfate does not correlate directly to sulfide, there are other factors and the like and the fact is we've got a lot of wild rice in Minnesota that is reasonably healthy. We have some areas that have, the production is less than it was before, and you could argue that's caused by some environmental factor, but it's like everything else, it's complicated and complex, and so we need to take what the current understanding is of the factors that are involved in creating the current situation applied that modern science and modern understanding to a situation where you get—If you have an impossibly low standard that doesn't correlate with the problem you're trying to solve anyway, then you've put a whole industry out of business.

We don't even know if that's going to improve wild rice conditions. And certainly it's going to be catastrophic for life up in northeastern Minnesota. We're trying to find a balance. And people are going to be on the side of, "You don't do everything we want you to do, and do it exactly the way we want you to do it, so you're trying to destroy the planet." Well, tee-off on this. But hopefully wisdom and common sense will prevail.

INTERVIEWER: You're ready for the criticism of environmentalists that say you're just kowtowing to the industry, right?

DAYTON: I'm not kowtowing to anybody. I'm standing up for what, again, I think is best for Minnesota, and to have a standard this antiquated, that is not even based on current science or directly related to the conditions that we're trying to deal with, to me doesn't make any sense. But again, people who have a rigid ideology and don't accept anything that deviates from that, are going to be unhappy, but you can't apply a standard that you know is incorrect, to a modern situation, with any integrity.

STATE OF MINNESOTA
Attestation for Transcription

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

AFFIDAVIT OF JUDITH NIEMI

Judith Niemi being duly sworn, deposes and says:

1. My name is Judith Niemi and I live at 735 Robert Street South in St. Paul, MN 55107.

2. I have an M.A. in English, and I have taught and worked as a writer and editor. For several years, I worked transcribing dictated reports of psychological testing. I am aware of the importance of accurate transcription and have experience that allows me to ensure that transcripts are accurate.

3. On March 29, 2015, I transcribed the interview of Governor Mark Dayton identified on the Minnesota Public Radio website as "Dayton's full comments on wild rice and U.S. Steel," to reporter Tom Scheck on March 24, 2015. This audio recording can be found as of today's date at http://www.mprnews.org/story/2015/03/24/dayton-water-standard.

4. I recorded the MPR digital file to cassette tape, and transcribed using a Panasonic Cassette Transcriber to allow for repetition of difficult passages. Since preparing the transcript, I have reviewed it to ensure that it is accurate.

5. The transcription reflects the actual speaking style of the interview, with hesitations, new directions, and parenthetical comments. I transcribed casual spoken pronunciation to standard written form, such as writing "gonna" as "going to." I also put in periods where the sentences do in fact break (although the period breaks were not in the rhythm of the original interview, where sentences ran together).

6. I have not charged for my services providing this transcription.

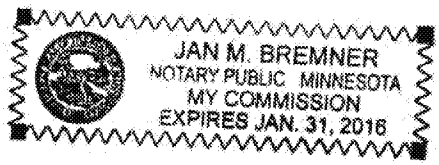
FURTHER YOUR AFFIANT SAYETH NOT.

Judith Niemi
JUDITH NIEMI MNDL A541083161210

Subscribed and sworn to before me this 21 day of April, 2015.

Jan M Bremner
Notary Public
My Commission expires: 1.31.16

JAN M. BREMNER
NOTARY PUBLIC MINNESOTA
MY COMMISSION
EXPIRES JAN. 31, 2016



STATE OF MINNESOTA SPECIAL SESSION
Chapter 4 - S.F. No. 5

Third Reading Repassed
Presentment date 06/13/15
Governor's action Approval 06/13/15

Article 4 Sec. 119. Minnesota Statutes 2014, section 116.07, subdivision 4j, is amended to read:

Subd. 4j.**Permits; solid waste facilities.**

(a) The agency may not issue a permit for new or additional capacity for a mixed municipal solid waste resource recovery or disposal facility as defined in section 115A.03 unless each county using or projected in the permit to use the facility has in place a solid waste management plan approved under section 115A.46 or 473.803 and amended as required by section 115A.96, subdivision 6. The agency shall issue the permit only if the capacity of the facility is consistent with the needs for resource recovery or disposal capacity identified in the approved plan or plans. Consistency must be determined by the Pollution Control Agency. Plans approved before January 1, 1990, need not be revised if the capacity sought in the permit is consistent with the approved plan or plans.

(b) The agency shall require as part of the permit application for a waste incineration facility identification of preliminary plans for ash management and ash leachate treatment or ash utilization. The permit issued by the agency must include requirements for ash management and ash leachate treatment.

(c) Within 180 days of receipt of a completed application, the agency shall approve, disapprove, or delay decision on the application, with reasons for the delay, in writing.

(d) The agency may not issue a permit for a new disposal facility, as defined in section 115A.03, subdivision 10, or a permit to expand an existing disposal facility unless:

(1) all local units of government in which the facility is to be sited and exercising their respective land use and zoning authority pursuant to chapter 366, 494, or 462 have granted approval for and provided any required public notices of the new or expanded facility prior to the issuance of the permit;

(2) all local units of government in which the facility is to be sited and exercising their respective land use and zoning authority pursuant to chapter 366, 494, or 462 have authorized the permit to be issued prior to or concurrent with the required approval by the local unit of government; or

(3) the new or expanded facility is part of and will be sited on land already identified in an approved solid waste management plan as described in paragraph (a).

(e) The commissioners of the Pollution Control Agency and natural resources shall apply Minnesota Rules, parts 7001.3050, subpart 3, item G, and 7035.2525, subpart 2, item G, to solid waste facilities permitted under and in compliance with those rules and in compliance with Minnesota Rules, chapter 6132.

SENATE STATE OF MINNESOTA 1st SPECIAL SESSION 2015
Chapter 4 -- S.F. No. 5

Third Reading Repassed
Presentment date 06/13/15
Governor's action Approval 06/13/15

Sec. 114. Minnesota Statutes 2014, section 116.02, subdivision 1, is amended to read:

Subdivision 1. **Creation.** A pollution control agency, designated as the Minnesota Pollution Control Agency, is hereby created. ~~The agency shall consist of the commissioner and eight members appointed by the governor, by and with the advice and consent of the senate. One of such members shall be a person knowledgeable in the field of agriculture and one shall be representative of organized labor.~~

Sec. 115. Minnesota Statutes 2014, section 116.02, subdivision 5, is amended to read:

Subd. 5. **Agency is successor to commission.** The Pollution Control Agency is the successor of the Water Pollution Control Commission, and all powers and duties now vested in or imposed upon said commission by chapter 115, or any act amendatory thereof or supplementary thereto, are hereby transferred to, imposed upon, and vested in the ~~Minnesota~~ new texcommissioner of the Pollution Control Agency, ~~except as to those matters pending before the commission in which hearings have been held and evidence has been adduced. The Water Pollution Commission shall complete its action in such pending matters not later than six months from May 26, 1967. The Water Pollution Control Commission, as heretofore constituted, is hereby abolished, (a) effective upon completion of its action in the pending cases, as hereinbefore provided for; or (b) six months from May 26, 1967, whichever is the earlier.~~

Sec. 116. Minnesota Statutes 2014, section 116.03, subdivision 1, is amended to read:

Subdivision 1.**Office.**

(a) The Office of Commissioner of the Pollution Control Agency is created and is under the supervision and control of the commissioner, who is appointed by the governor under the provisions of section 15.06.

(b) The commissioner may appoint a deputy commissioner and assistant commissioners who shall be in the unclassified service.

(c) The commissioner shall make all decisions on behalf of the agency ~~that are not required to be made by the agency under section 116.02~~.

Sec. 117. Minnesota Statutes 2014, section 116.03, subdivision 2a, is amended to read:

Subd. 2a.**Mission; efficiency.** It is part of the agency's mission that within the agency's resources the commissioner ~~and the members of the agency~~ shall endeavor to:

(1) prevent the waste or unnecessary spending of public money;

(2) use innovative fiscal and human resource practices to manage the state's resources and operate the agency as efficiently as possible;

(3) coordinate the agency's activities wherever appropriate with the activities of other governmental agencies;

(4) use technology where appropriate to increase agency productivity, improve customer service, increase public access to information about government, and increase public participation in the business of government;

(5) utilize constructive and cooperative labor-management practices to the extent otherwise required by chapters 43A and 179A;

(6) report to the legislature on the performance of agency operations and the accomplishment of agency goals in the agency's biennial budget according to section 16A.10, subdivision 1; and

(7) recommend to the legislature appropriate changes in law necessary to carry out the mission and improve the performance of the agency.

Sec. 149. **REVISOR'S INSTRUCTION**
The revisor of statutes shall prepare draft legislation to amend statutes to conform with structural changes to the Minnesota Pollution Control Agency under sections 114 to 117 and 150. The revisor shall submit the proposed legislation to the chairs of the house of representatives and senate committees with jurisdiction over environment policy by January 1, 2016.new text end

Sec. 150. **REPEALER.**(a) Minnesota Statutes 2014, sections 84.68; 88.47; 88.48; 88.49, subdivisions 1, 2, and 10; 88.491, subdivision 1; 88.51, subdivision 2; and 282.013, are repealed. (b) Minnesota Statutes 2014, section 86B.13, subdivisions 2 and 4, are repealed. (c) Minnesota Statutes 2014, sections 103F.421, subdivision 5; 103F.451; and 114D.50, subdivision 4a, are repealed. (d) Minnesota Statutes 2014, section 116.02, subdivisions 2, 3, 4, 6, 7, 8, 9, and 10, are repealed.

STATE OF MINNESOTA SESSION LAWS 2015
Chapter 77 – S.F. No. 888

Presentment date 05/20/15
Governor's action Approval 05/23/15

Article 2 STATE GOVERNMENT OPERATIONS

Sec. 3. **[6.481] COUNTY AUDITS.**

Subdivision 1. **Powers and duties.** All the powers and duties conferred and imposed upon the state auditor shall be exercised and performed by the state auditor in respect to the offices, institutions, public property, and improvements of several counties of the state. The state auditor may visit, without previous notice, each county and examine all accounts and records relating to the receipt and disbursement of the public funds and the custody of the public funds and other property. The state auditor shall prescribe and install systems of accounts and financial reports that shall be uniform, so far as practicable, for the same class of offices.

Subd. 2. **Annual audit required.** A county must have an annual financial audit. A county may choose to have the audit performed by the state auditor, or may choose to have the audit performed by a CPA firm meeting the requirements of section 326A.05. The state auditor or a CPA firm may accept the records and audit of the Department of Human Services instead of examining county human service funds, if the audit of the Department of Human Services has been made within any period covered by the auditor's audit of other county records.

Subd. 3. **CPA firm audit.** A county audit performed by a CPA firm must meet the standards and be in the form required by the state auditor. The state auditor may require additional information from the CPA firm if the state auditor determines that is in the public interest, but the state auditor must accept the audit unless the state auditor determines it does not meet recognized industry auditing standards or is not in the form required by the state auditor. The state auditor may make additional examinations as the auditor determines to be in the public interest.

Subd. 4. **Audit availability; data.** A copy of the annual audit by the state auditor or by a CPA firm must be available for public inspection in the Office of the State Auditor and in the Office of the County Auditor. If an audit is performed by a CPA firm, data relating to the audit are subject to the same data classifications that apply under section 6.715. A CPA firm conducting a county audit must provide access to data relating to the audit and is liable for unlawful disclosure of the data as if it were a government entity under chapter 13.

Subd. 5. **Reporting.** If an audit conducted by the state auditor or a CPA firm discloses malfeasance, misfeasance, or nonfeasance, the auditor must report this to the county attorney, who shall institute civil and criminal proceedings as the law and the protection of the public interests requires.

Subd. 6. **Payments to state auditor.** A county audited by the state auditor must pay the state auditor for the costs and expenses of the audit. If the state auditor makes additional examinations

of a county whose audit is performed by a CPA firm, the county must pay the auditor for the cost of these examinations. Payments must be deposited in the state auditor enterprise fund.

Subd. 7. **Procedures for change of auditor.** A county that plans to change to or from the state auditor and a CPA firm must notify the state auditor of this change by August 1 of an even-numbered year. Upon this notice, the following calendar year will be the first year's records that will be subject to an audit by the new entity. A county that changes to or from the state auditor must have two annual audits done by the new entity.

EFFECTIVE DATE. This section is effective August 1, 2016.

COMMENTARY

Iron Range legislators: Cross us at your own risk

Those legislators are the real culprit behind changes to the MPCA and State Auditor's office.

By Ron Way () | JUNE 22, 2015 — 12:40AM

It was outrageous that a few legislators huddled in the dead of night at the end of this year's legislative session and secretly agreed to slip language into a bill to abolish the Minnesota Pollution Control Agency's Citizens' Board.

But it's a mistake to think, as too many do, that the board was done in by big agriculture's concern that the board had reversed a PCA staff decision and required more environmental study of a planned animal feedlot. It's another mistake to think that Minnesota business interests were finally successful in salving their decades-long pique that the PCA and its board burden business with "overregulation."

The PCA board has dealt with many controversial ag and business issues ever since it was created in 1967. Ag got its pound of flesh early on when the Legislature required that one member of the nine-member board be a farmer. Business was able to dilute citizens' power when then-Gov. Arne Carlson made his MPCA commissioner the board's chair.

What really happened this year was that Iron Range legislators saw an opportunity to send yet another pointed message to everyone in government that there's a political price for saying or doing anything that even hints of opposition to long-planned copper-nickel mining in northern Minnesota, with the environmentally dangerous sulfates that come with ore extraction.

In the early 1970s a brash Grant Merritt courageously — and successfully — challenged Reserve Mining Co.'s dumping of taconite tailings directly into Lake Superior at Silver Bay. Merritt, the first head of the MPCA, was also prominent in a 1970s plan to explore copper-nickel mining in the Arrowhead, and he properly called public attention to ecological devastation from copper smelting in Sudbury, Ontario. Merritt was out as MPCA commissioner before his first term was over.

Rep. Don Fraser irked the Iron Range by supporting wilderness designation for the Boundary Waters Canoe Area. When Fraser later ran for the U.S. Senate, Rangers made the BWCA an issue and helped a more pliable Bob Short win a divisive DFL primary against Fraser.

And so this year, a small cadre of Range legislators quietly conspired in the dead of night to dump the board. As a bonus, Rangers somehow deflected blame for their underhandedness to agriculture and business interests.

Leading the stealth attack on the PCA was Senate Majority Leader Tom Bakk, DFL-Cook, and his co-conspirator on these things, Sen. David Tomassoni, DFL-Grand Rapids. Their worry was that the PCA was seeking to regulate sulfides in a way that Rangers thought detrimental to copper-nickel mining. Also, Rangers knew they couldn't count on the board to rubber-stamp environmental permits. It's easier to gang up on a single commissioner.

It wasn't only the PCA that felt the Rangers' sting. Two years ago DFL State Auditor Rebecca Otto cast the lone vote on the state's Executive Council against mineral leases for copper-nickel mining. In another late-night huddle, Bakk and fellow Rangers quietly agreed to limit Otto's responsibility to audit local government.

A few years back, the Legislature was considering another mining issue in a way that offended Rangers, and before long the issue vanished. When asked if any legislator ever wins on anything relating to mining, Bakk grinned and said, "Everyone knows that they're up against some pretty tall timber" when they take on the Range.

The bitter Ranger-fueled 1978 DFL primary against Fraser left a foul aftertaste with voters who handily elected Republican Dave Durenberger as U.S. senator. Other DFLers, including Gov. Rudy Perpich and Sen. Wendell Anderson also took a whipping from voters that year.

But it didn't matter. The "tall timber" made their point then just as they did a few weeks ago by nixing the PCA board and trimming the state auditor's area of responsibility.

There's surely more to come in this saga, because copper-nickel mining has a long regulatory pathway before the first mine can open. Truth is, such mining has proved environmentally harmful, even disastrous, wherever in the world it's been done. The other truth is Rangers want it. And that's that.

Ron Way, of Edina, was assistant PCA commissioner when the Reserve Mining controversy unfolded.

Range wins big by not losing

BILL HANNA Executive Editor | Posted: Saturday, June 13, 2015 8:53 pm

Range wins big by not losing

ST. PAUL — Sometimes the best offense is a good defense. And Iron Range lawmakers were at the top of their game in that regard to forge a hard-fought good end to the 2015 legislative session.

Provisions in contentious legislation that are vital to the Iron Range were in doubt right up to the early Saturday morning adjournment of the legislative overtime session.

Even the very future of the PolyMet copper/nickel/precious metals project near Hoyt Lakes, which is knocking on the door of production and creation of 360 jobs, was in jeopardy.

But they all survived.

Twin Cities liberal DFL lawmakers were relentless in their attempts to get legislation changed to meet their environmental agenda, which would have proved disastrous to the Iron Range.

But Range legislators, especially Senate Majority Leader Tom Bakk of Cook and Sen. David Tomassoni, DFL-Chisholm, returned their left-wing serves with hard, fast and successful volleys.

The results for the Range were huge:

• Elimination of a long-standing citizens' advisory board that would have had the authority to delay the PolyMet project through the back door even after the venture receives its permits, which is likely later this year, following the environmental impact

statement soon to be approved. The advisory board is hostile to nonferrous mining on the Range and would have used all tactics available to delay even further the venture.

• A compromise sulfate standard for wild rice was included in the agriculutre and environment bill. The legislation will block an imposition of current sulfate regulations that would cause serious harm for mining companies and likely lead to even more layoffs in the troubled industry.

Meanwhile, it would also stem potential steep cost increases at wastewater treatment plants across the state, with those costs passed on to customers.

• Additional unemployment benefits for Steelworkers should the current layoffs go from temporary to permanent. It also applies to other laid off workers in the state. That was part of the energy and jobs

bill.

• Also in the energy and jobs bill, a provision allows taconite mining producers to renegotiate lower utility costs while the industry is being hammered by a global glut of iron ore and a flood of illegally subsidized foreign steel into the U.S. marketplace.

• The Highway 53 relocation and bridge over the Rouchleau Pit project received $140 million in the capital improvement bonding bill.

It was the environmental bill that forced an overtime of the overtime and pushed a one-day special session into the early hours of Saturday.

Democrats in the majority helped sink the agriculure and environment bill by a single vote on a first try Friday, which forced Senate Majority Leader Tom Bakk to remove two measures they found most objectionable. They passed a bill that kept intact decades-old oversight board at the Minnesota Pollution Control Agency and removed a provision exempting copper and nickel mines from solid waste regulations.

But the GOP-controlled House rejected that new bill and reinstated the original measure that abolished the MPCA advisory board, which is hostile toward copper/nickel/precious metals mining on the Iron Range, and the provision beneficial to the PolyMet project.

Bakk then steered the bill through a final vote in the Senate.

DFL Gov. Mark Dayton called the agriculture and environment bill "terrible," but signed it into law along with all other special session measures on Saturday.

With that, the 2015 legislative session finally came to an end and Minnesota has a new $42 billion two-year budget and a partial shutdown that could have happened on July 1 was avoided.

And the Iron Range survived to certainly do battle with liberal metro lawmakers again in another session and another and another ...

o

Rep. Jason Metsa, DFL-Virginia, was especially pleased with the money secured for the Highway 53 project.

"The session was ever-changing. But we got $140 million for Highway 53 and a language correction in the $19.5 million approved last year for utiliites associated with the project.

"If we walked away with just that it would have been good. But we got a lot more for the Range," Metsa said.

The $140 million for the Highway 53 project was not approved in regular session, but made the cut in special session.

The money comes from the bond proceeds account in the Trunk Highway Fund and will finance design, engineering, construction, reconstruction and improvement for the highway relocation that is required to allow for a United Taconite expansion that will tap into needed ore reserves under a portion of the current roadway.

The $19.5 million previously OK'd for the project will be allocated as a grant to Virginia to relocate utilities for service to the Midway area related to the highway project. The utilities connection cannot be strung along the bridge because of safety concerns.

Duluth News Tribune

Environmental View: Minnesota officials bowing to demands of mining companies

By Don Arnosti on Jun 18, 2015 at 10:45 p.m.

We all have heard of poorly governed countries in Africa and South America where big mining companies take the minerals and profits and leave polluted water and toxic waste for local people to grapple with. Wake up, Minnesota; it's happening here, too, and within the past two weeks both Democrats and Republicans, when confronted by the power of mining companies, proved too selfish and shortsighted to do what was right for the people of Minnesota.

What do we hear about mining? Mining will pay taxes and royalties that benefit all of us. The mining industry accepts and will abide by "our tough environmental regulations." Mining companies will put money aside to deal with pollution problems that could extend far into the future. We need the well-paying jobs. Those are the things we hear.

But on June 3, the state Executive Board voted unanimously to roll back taconite royalty payments for the biggest mining company in the state by millions of dollars over the next 15 months. There was no promise of reducing any of the hundreds of layoffs already announced. Coincidentally, the CEO of this mining company took home more than $13 million in compensation last year. Our taconite mines are suffering from international competition and reduced demand from China. The problem is not excessive royalty payments to Minnesota taxpayers. So much for the supposed tax benefits.

Late in the legislative session, an obscure and nearly incomprehensible amendment was added to a 200-page "environmental" bill exempting sulfide ore mining waste from solid waste permits. We don't even know what is in this new

form of toxic mining waste, and now it's exempt from regulation. So much for "tough regulations."

In the same "environmental" bill, the Legislature raided an account paid for by metropolitan polluters (all people) who dispose of garbage. This account was designed to clean up pollution from landfills after companies operating them were gone. It was designed as a pollution trust fund. Now, even though we have a budget surplus, $8 million was taken for other purposes. So much for dealing with future pollution problems.

Jobs: Yes, we need them, particularly in Iron Range communities caught in the international boom-bust mining cycle. But is mining the best way to create them? PolyMet Mining company is promising only 360 jobs in its first 20 years of operation. Its toxic water pollution could last 500 years.

PolyMet is poised to ask our government for permits to operate later this year. Our Minnesota government has proven itself helpless to resist such demands. Like in those poorly governed countries in Africa and South America, a mining company is coming to take the minerals and profits and leave us with the polluted water and toxic waste.

It would be cheaper for Minnesota taxpayers, better for our water quality and fairer to future generations if we the taxpayers simply paid 360 people on the Iron Range $80,000 each for

20 years. Perhaps they could start working to clean up some of our closed landfills and piles of mining waste left from previous generations?

Don Arnosti *of St. Paul is the conservation program director for the Izaak Walton League's Minnesota division.*

Governor Arne Carlson

Tuesday, June 2, 2015

Raw Politics and the Office of State Auditor

Most of the media has concluded that this last legislative session was a failure largely due to the usual Republican Democrat refusal to compromise. But that is not quite accurate. After all, the Senate is controlled by the Democrats and they passed the same provisions as the Republican House that a Democrat Governor finds offensive. That would seem to suggest poor legislative management on the part of the Governor or a host of significant policy differences between the Governor and his own party in the Legislature.

One example of this not-to-subtle intra-party war is the provision in the State Departments Omnibus bill that effectively renders the office of State Auditor an empty shell. Its powers of auditing local governments is essentially eliminated and its staff unemployed.

This major policy was contained in a House bill that received a public hearing and was ultimately passed. However, in the Senate there were no comparable public hearings or a vote. Instead, it emerged from a late night conference committee in the closing hours with Democrat leaders in support.

Now, why would Senate Democrat leadership accept a Republican proposal to virtually eliminate the office of the State Auditor which is held by a Democrat incumbent?

The answer likely has little to do with the issue of privatizing the office by permitting local government to contract out their audits and all to do with the incumbent's stance on mining leases and, particularly, the proposed copper mine located in the Iron Range of northern Minnesota. It should be remembered that in addition to an audit responsibility which charges the State Auditor with oversight of the more than 20 billion dollars spent by local governments, the State Auditor also serves as a constitutional officer elected by the people of Minnesota. As such, she serves on the State Executive Council, the State Board of Investment (pension investments), Land Exchange Board, and a variety of other state boards. One major issue that regularly arises is the management of state lands including the issuances of mining leases.

For the past several years, there has been a heated controversy involving Polymet Mining Corporation of Canada's proposal to open pit mine near Babbitt on the eastern edge of Minnesota's Iron Range. There is believed to be a large copper, nickel, and other valuable mineral deposits beneath a wide stretch of forests and lakes in the area.

Understandably, it pits jobs (around 350) against the protection of the environment including the flow of harmful mining residue into the waters that flow into Lake Superior.

Rebecca Otto, as State Auditor and as a member of the Executive Council publicly announced her opposition to the project and instantly became a political target for the Iron Range legislators.

She was challenged in the Democratic Party primary and mining was a dominant issue. Otto won an easy victory and that should have been the end of this matter.

However, it appears that it resurfaced in the fading hours of this legislative session when the Republican House bill was accepted by the Democratic leadership in the Senate. All indicators are that this was largely the handiwork of two Iron Range legislators with power and long memories; Senate Majority leader, Tom Bakk of Cook County and Senator Tom Saxhaug of Grand Rapids.

This episode represents a most dangerous threat to our state's constitution in that it constitutes an effort to intimidate an elected official. What's next? If the Attorney General disagrees on a policy matter with a segment of the legislature is it acceptable for the legislature then to privatize her

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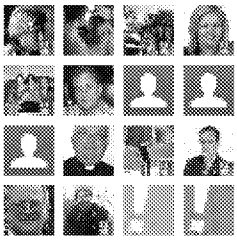

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- 2015 (3)
  - June (1)
    - Raw Politics and the Office of State Auditor
  - May (1)
  - January (1)
- 2014 (4)
- 2013 (7)
- 2012 (12)
- 2011 (29)

About Arne

Governor Arne Carlson

Elected Governor of the State of MN in 1990; re-elected in 1994 by a landslide. Named with HHH and VP Mondale as 1 of 3 "Great" political figures of 20th Century in MN Poll. Accomplishments: 1-Restored integrity to MN's budget process by lifting the state out of an inherited $2.3B deficit into a budget surplus of $2.3B in 1997 and $1.9B in 1998 2-Funded tax cuts of nearly $2.5B to Minnesotans through 2001 - largest tax relief in state history 3-Regained MN's AAA bond rating, the lst state so upgraded in 23 years. 4-Reduced workers's compensation premiums by 40% annually 5-Created meaningful welfare reform thru the MN Family Investment Program

office and render her powerless?

We, the people, created these offices and we fully expect them to be treated with respect and fairness by our other elected branches of government. There is no reason in a democratic society for such a gross abuse of power. In this matter, the people have spoken via an election and the legislature has the obligation to honor the will of the people.

May I add that the same goes for the House Republicans and their continuing battle to privatize the office of State Auditor. In this case, the Republican candidate for State Auditor had the full opportunity to make the case for privatizing the office and changing the responsibilities of the office. Discussing policy differences is what elections should be about. At the polls, the people spoke and spoke loudly in support of the incumbent and the preservation of the powers and responsibilities of that office.

Now, if the legislature wants to study the office and review concerns about the management, costs, competition, timeliness, etc. that is entirely proper. Apparently, that is what both houses of the legislature intended until the raw power play occurred in the closing moments of the session.

As a former State Auditor, I am deeply upset by this flippant and mean-spirited approach to an office that belongs to the people. The value of the office lies in the fact that it provides not just a financial audit but also a strong compliance review as well. This means matching financial transactions against the law. That is a real strength of that office. It is designed to prevent financial scandals.

Private firms do an excellent job on the financial and management review front. But compliance work is where the office of State Auditor excels and that is where the taxpayers' interests are protected.

Overall, Minnesota has a well-respected system of local government. I doubt that there is any better in our nation. Part of the reason for this success is that we take the oversight function seriously. We want it to be independent and professional. The office of State Auditor was designed with that goal in mind. And overall, it has worked well.

If the legislature has concerns about the office, then a study and public hearings are entirely appropriate. But what the legislature did is wholly unacceptable and the Governor should flatly refuse to close the special session until this matter is properly resolved.

It may also be well for the legislature to take a hard look at itself. They may find some room for improvement.

Posted by Governor Arne Carlson at 7:40 AM

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Exhibit 26

(MFIP), which moved 52% of its participants into jobs in just 18 months. 6-Established MN's comprehensive health care reform program called MN Care, a nat'l model for health care reform. 7-Achieved historic education reform implementing School Choice which was hailed by the Wall Street Journal as a "model for the rest of the country". 8-Launched MN's 1st commitment to Light Rail

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EDITORIAL

Legislature 2015: Special interests win, environment loses with ag bill

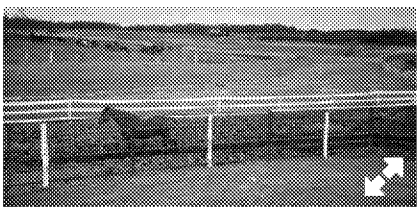
Revised budget legislation puts industry needs over environmental protection.

By Editorial Board () Star Tribune **JUNE 10, 2015 — 6:28PM**

Legislators this year are brazenly putting the needs of special interests over Minnesota's treasured natural resources with an agriculture and environment budget bill that undercuts critical pollution safeguards. In doing so, they also sent an alarming warning to anyone in years to come who challenges powerful interests such as agriculture and mining: Those who ask hard questions should expect political payback.

Thanks to a responsible veto (http://www.startribune.com/dayton-vetoes-agriculture-environment-and-jobs-energy-bills/304821741/) by Gov. Mark Dayton, the sprawling ag and environment budget legislation has improved somewhat since it first passed the Republican-controlled Minnesota House and the DFL-controlled Minnesota Senate, where many pro-mining Iron Range lawmakers are in leadership roles. The revised bill will be up for a vote during the upcoming special session. While the bill still contains a needed compromise on "buffer strips," which will help curb agricultural runoff, there's still too much in the legislation that threatens environment interests.

It took the respected Minnesota Environmental Partnership (http://www.mepartnership.org/) three pages to sum up the myriad ways that the legislation rolls back or undermines important safeguards. Among the lowlights: raiding millions of dollars from landfill cleanup funds, abolishing the Minnesota Pollution Control Agency (MPCA) Citizens' Board (http://www.pca.state.mn.us/index.php/about-mpca/mpca-overview/mpca-citizens-board/index.html) , exempting mining sulfide waste from solid-waste rules, allowing cities to unsustainably tap dwindling aquifers, and putting in place costly and time-consuming new hurdles clearly intended to keep state pollution control officials from doing their jobs.



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BRIAN PETERSON • STAR TRIBUNE

One positive note in the agriculture and environment bill is a needed compromise on "buffer strips," which help to curb ag runoff. A...

At a time when there's international alarm about shrinking bee populations, state lawmakers also approved funding to put deceptive "pollinator-friendly" labels on products that are not. Lawmakers also reprehensibly broke a widely heralded agreement (http://www.startribune.com/adding-minnesota-jobs-without-hurting-water-quality/298972301/) that would have provided incentives for advanced biofuels development while spurring farmers to grow more perennials or cover crops as the raw material. The landmark incentives for these corn alternatives, which can help curb erosion and runoff, were jettisoned.

There's more than a whiff of political payback in this bill and in another key action taken this session. The move to eliminate the 48-year-old MPCA Citizens Board came after its members voted in 2014 to require an environmental-impact statement from a proposed 9,000-head dairy operation, spurring outrage from some in agribusiness. Language requiring additional notice before state officials order a "discretionary environmental review" comes after the Minnesota Department of Natural Resources ordered (http://www.startribune.com/a-review-of-pines-to-potatoes-conversion-in-minnesota/291919351/) one earlier this year for a large North Dakota potato grower intending to convert forest land to potato fields.

The high-profile move to privatize a key duty of the state auditor's office also comes after Auditor Rebecca Otto cast a vote against mineral mining leases in 2013.

The flawed legislation will likely pass in the special session. In future elections, voters should ask a key question: How did incumbents vote on a bill that so clearly prioritized special interests over Minnesota's natural resources?