Public Comments and Agency Response to Those Comments Received During the Draft EIS Public Comment Period

Description of the Public Comment Period

The Draft Environmental Impact Statement (DEIS) was published and released for public review on December 11, 2009. The 46 day public comment period closed on January 26, 2010. During the public comment period, a public informational meeting was held in Hibbing, Minnesota at the Hibbing Curling Club Memorial Building. The meeting was set up in an open house format, making state and federal agency staff and the Project Proposer available at topic tables to answer questions. The meeting also included a presentation about the Proposed Project and DEIS, followed by a brief question and answer session. The public was encouraged to provide oral comments to the court reporter or submit written comments on available forms at the meeting, and/or provide written comments via email or letter prior to the close of the comment period.

Oral and written comments were received on the DEIS from a total of 25 federal, state, and local agencies, non-governmental groups, and citizens. Individual comments in each comment document (i.e., oral record, letter, form, or email) were labeled and responded to by the Minnesota Department of Natural Resources (MNDNR) and United States Army Corps of Engineers (USACE) in this document. Clarifications on subject matter presented in the DEIS was given in each response where needed. Substantive comments were used as the basis for additional analysis and text revisions in the Final Environmental Impact Statement (FEIS).

The following text includes all comments received during the public comment period on the DEIS. The comments are organized by commenter and separated into individual comments. The individual comments are followed by the response to that comment as well as the location in the FEIS where the revision was made, if necessary.

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Responses to Public Comments received during the Draft EIS Public Comment Period

NOTE: Individual comments were combined where comments were similar, and the comment representative of the common theme was used. Therefore some comments may not be listed and are identified as such.

COMMENT LETTER RECEIVED FROM: **Gary Louzensky, January 11, 2010 (A)**

Comment A-1: *I oppose any attempt to move the snowmobile trail any closer to Kelly Lake than it is now. Snowmobilers have been using the Mesabi Trail more than their own trail.*

RESPONSE: An evaluation of an East Stockpile Alternative showed that the Hibbing South Spur snowmobile trail could remain in its current location. The East Stockpile Alternative does not require the relocation of the Hibbing South snowmobile trail spur.

EIS Modification Text regarding the East Stockpile Alternative was added throughout the FEIS, including Section 4.19 – Recreational Trails.

COMMENT LETTER RECEIVED FROM: **Norm Vorhees, Iron Workers Local 512, January 11, 2010 (B)**

Comment B-1: *I support Kee-Tac's proposed project. The updating of the idle line will produce ore with state of the art technologies that will be beneficial to the environment. The economic spin off will be important to not only northern MN, but the state as a whole. I am also a representative for Iron Worker's Local 512 which has approximately 300 members in northern MN who would have an opportunity to work on this project when it moves forward.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM: **Jason Janisch, January 11, 2010 (C)**

Comment C-1: *We support U.S. Steel's continued responsible development of Minnesota's ore resources.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM: **James Sanders, Forest Supervisor, U.S. Forest Service, January 12, 2010 (D)**

Comment D-1: *Please correct the discussion under 4.7.5.4 - Mitigation Opportunities, Option 1. The add-on control options listed for nitrogen oxides (NOx) have been determined to be technically feasible for Keetac's sister facility Minntac. At Minntac, low NOx combustion has been implemented and Mobotec (a form of selective non-catalytic reduction -SNCR) has been tested. Further trials of other technically feasible technologies (regenerative selective catalytic reduction - RSCR and low temperature oxidation - LoTOx) are planned at Minntac for 2010. In addition, a taconite plant in Sweden of the identical furnace design as that proposed at Keetac is operating SCR.*

RESPONSE: The FEIS text was updated to reflect the recently selected mitigation measure of a low-NOx main burner on the Keetac expansion line, and discusses how Mobotec (SNCR) technology was tested but was not proven to be feasible at Keetac.

EIS Modification Text updated in Section 4.9.5.3.

Comment D-2: *Please revise the discussion regarding 4.7.7.3.1.- Project Proposal for Keetac Under the New and Expanding Source Guidelines of Mercury Reduction Strategy within Section 4.7.7 - Mercury Emissions/Mercury Balance/TMDL Implementation Plan Compliance. We have a staff person who serves on the Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load (Implementation Plan), Implementation Oversight Board members meet regularly to review and evaluate progress toward achieving the goals of the Statewide Mercury TMDL and to determine whether additional measures are needed to meet these goals.*

RESPONSE: The commenter does not specify what revisions are viewed as necessary to the discussion in DEIS 4.7.7.3.1. Other than changes made to reflect issues raised in other comments, no further changes are made in response to this request.

EIS Modification Text added to FEIS Section 4.9.7.4

Comment D-3: *We are unclear what testing the following text from the DEIS is referring to, "the Project Proposer has developed technology research and demonstration plans to conduct testing of control technologies on existing lines at its Minntac facility." If such pilot testing plans exist please be more specific and definitive by providing the names of the technologies that will be investigated and the testing schedule. Minntac staff were unaware of such plans when questioned at a meeting on December 15, 2009.*

RESPONSE: Minnesota Pollution Control Agency (MPCA) has negotiated with U.S. Steel a Mercury Air Emission Reductions Schedule of Compliance for conducting trials at existing U.S. Steel indurating furnaces. The Mercury Air Emission Reductions Schedule of Compliance currently describes the types, timing, and approval of controls, and sets up an accounting process for mercury from all U.S. Steel units at Minntac and Keetac. Until the permit is drafted, MPCA believes that it is premature to develop details other than for the Proposed Project.

EIS Modification Text edit to 4.9.7.4.1.

Comment D-4: *The DEIS discusses the goal of the Project Proposer to reduce emissions at its Minntac facility to "offset the increase in mercury emissions from the Proposed Project." This goal appears to be invented by the Project Proposer. It is not the goal of the MPCA's Implementation Plan which is a 75 percent reduction (from a 2005 baseline) in mercury emissions from this sector by 2025 (pg. 13). Based on Illustration 4-2 from the DEIS, a 75 percent reduction from 2005 would result in emissions of about 50 pounds per year being required from both facilities combined in 2025. Illustration 4-2 shows emissions from both facilities being projected at almost 150 lbs in 2025. This scenario does not achieve the goals for the sector which jeopardizes the success of the Implementation Plan in achieving water quality standards based on fish consumption.*

RESPONSE: The mercury total maximum daily load (TMDL) reduction goal for taconite facilities is to reduce the taconite sector's collective mercury emissions by 75 percent from the 2010 estimated emission levels, not 2005 levels, and should be achieved by 2025. It should not be assumed that the reduction goal necessarily correlates to a 75 percent reduction at each operating unit. The reduction target is a sector-wide target, leaving facility owners free to develop control strategies that may result in differing removal efficiencies or permanent retirement of operating units. The TMDL does not prohibit new projects that may cause increases in mercury emissions. The TMDL's implementation strategy for new and expanding sources directs sources to seek offsets. Alternatives to offsets can also be proposed.

U.S. Steel's approach is to use activated carbon injection on the proposed furnace, and to phase in mercury controls at its existing furnaces as it works to develop mercury emission controls. U.S. Steel has agreed to a long term campaign of research and testing of mercury controls at the existing units, as well as a process for accounting for mercury emissions of the furnaces, new and existing. This agreement would be formalized during permitting. The permit for the expansion would establish conditions for using activated carbon injection. Illustration 4-2 was revised to demonstrate how U.S. Steel might implement reductions at both Keetac and Minntac. Reductions of mercury occur over a period of time as controls are trialed and installed at individual furnaces.

The TMDL strategies also include tasks for the MPCA to complete to facilitate mercury emission reductions, including implementation of mercury emission inventory rules, periodic consultation with stakeholders, and check-ins with affected emission sources. Over the course of the next 15 years, technological understanding and improvements will occur. Hence, the EIS discussion represents a reasonable forecast of the effects of the Proposed Project and U.S. Steel commitments. Other avenues to mercury reductions at these units may develop as well.

EIS Modification New Illustrations and text in Section 4.9.7.

Comment D-5: *We'd also like to note that within the Implementation Plan the Guidelines for New and Modified Mercury Air Emissions Sources lists the requirements for new sources. Requirement #3 states "A modifying facility permittee should provide an assessment of whether its added emissions will impede progress toward attaining the source category's pounds-per-year air emissions goal. A new facility should provide an assessment of whether its added emissions will impede progress in attaining the source category goal, if applicable, or the statewide goal if the new source is not in an existing source category." We don't find such as assessment in this section and feel it is particularly relevant in light of the discussion that is already included.*

RESPONSE: Some of the assessment information will be submitted as part of the permit application. Through the permitting process, MPCA determines whether projects will impede achieving the mercury reduction targets. The actions described in the mercury agreement between the MPCA and U.S. Steel are intended to ensure that U.S. Steel will reduce emissions from its Minntac and Keetac facilities consistent with the Mercury TMDL Implementation Plan and will do so before the 2025 goal date. The early reductions will achieve the same or lower cumulative mercury emissions for the years 2008-2025 as would occur without the new contribution from the proposed new indurating furnace at Keetac. The 2025 target goal for combined, total mercury emissions from Minntac and Keetac is 72.8 lbs/yr. To achieve this, U.S. Steel has a goal of installing mercury controls at Minntac and Keetac to ensure that the increase in mercury emissions from the re-started furnace at Keetac is completely offset by these reductions.

Additionally, the MPCA expects to include in the air permit for the new line conditions, compliance demonstration, recordkeeping, and reporting.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Brandy Toft, Air Quality Specialist, Leech Lake Band, January 22, 2010 (E)**

Comment E-1: *Throughout the air portions of the DEIS it is noticed that NO_x emissions are not explained thoroughly or are improperly referenced with updated information. Updated information is needed in reference to Keetac's emission relationship with Minntac, the lack of calculations to verify statements in the DEIS, and Keetac's reasoning that they will not trigger the major source threshold are a few of the NO_x topics that require further assessment and addressed in the FEIS. Please fully address.*

RESPONSE: In the netting analysis, Keetac used a two-year baseline actual emissions period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5,805 tons per year. The permit for the Proposed Project would limit NOx emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. Prevention of Significant Deterioration (PSD) also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the project are over the major source threshold (40 tpy), the project would be subject to a Best Available Control Technology (BACT) analysis for NOx.

EIS Modification Text revised to explain the NOx limit in Section 4.9.1.

Comment E-2: *On table 4.7.1 we see that an additional 22 TPY of HCl, totaling 65 TPY, will be produced by the induration furnace. Will this HAP be controlled, reused, or disposed of and how will it be done? Please explain.*

RESPONSE: The 22 tpy of hydrogen chloride (HCl) is the controlled potential to emit. The indurating furnace stack, DDD1 that is attributed to the potential HCl emissions would be controlled by a circulating fluidized bed (CFB) followed by a dry electrostatic precipitator (ESP). Reagents such as lime solution or activated carbon are injected into the CFB to provide sufficient residence time for the pollutants such as SO_2, HCl, and mercury to react with the reagent. Once this process is complete, the gas moves into the dry ESP to capture the resulting particulate matter. The dry ESP uses high voltage to negatively charge the particulate matter that is attracted to grounded collection plates that are positively charged. These collection plates are rapped, causing the material to fall into hoppers for further disposal. HCl that is captured in the scrubber will be bound to lime and be disposed of according to solid waste disposal rules.

EIS Modification No change.

Comment E-3: *We are disappointed in the discussions of the fugitive emissions plan in the DEIS. More information is needed and the plan must be discussed in more detail. Again, as with NO_x, there are many sections where this must be further addressed and discussed to fully detail the control and procedures. Many areas indicate that "best mining practices will be used". This is akin to stating that a house will be built to code; built to the minimum standard. Other questions also arise with the discussion of management of fugitives from a separate operator. Is this considered in the fugitive emissions plan? Were they considered in the overall calculations?*

RESPONSE: The FEIS has provided more detail on the proposed fugitive dust emissions mitigation measures for the Proposed Project. The Fugitive Dust Emission Control Plan will be enforced as part of the Air Emission Permit.

Contractors are required to have the necessary permits for their activities. Emissions from the contractor managed portable crushing operations were included in the facility modeling for compliance with National Ambient Air Quality Standards.

EIS Modification Text added to provide more detail on fugitive dust in Section 4.9.2.

Comment E-4: *LLAP has assumed that modeling for particulate matter ($PM_{2.5}$) was done conservatively and PM_{10} emission factors were utilized but I was unable to fully attain this from the DEIS language. Please clarify this. What is being accomplished to better "understand" the $PM_{2.5}$ emissions from taconite operations?*

RESPONSE: Modeling for $PM_{2.5}$ from the Proposed Project point sources has been done by modeling $PM_{2.5}$ emissions at PM_{10} emission rates. The FEIS was revised to describe how $PM_{2.5}$ emissions were modeled. As described in the BACT Review, FEIS Section 4.9.2, testing would commence after the proposed emission units are constructed and operating in order to better understand the distribution of particulate sizes in source emissions and to further define $PM_{2.5}$ emission limits. (Note: $PM_{2.5}$ emission limits defined under the particulate emission study will not exceed the original PM_{10} proposed emission limits.)

EIS Modification Clarifying text added to Section 4.9.2.

Comment E-5: *Mercury. It is true much of mercury is a transport pollutant. However, that does not preclude us from finding a better and more emission control solution to prevent pollution here and the transport elsewhere. If the nearby water bodies and features are already impaired waters it is that much more imperative that local emission producers, such as Keetac, strive to decrease their mercury emissions for the betterment of the environmental community and the people whom work, live, and recreate in the area. The PDEIS discusses only lakes within 10 km were assessed. Why only lakes and only within 10 km? Other water bodies are as equally important to environmental health and we know mercury is a widely distributed pollutant. What was the determination to set a 10 km boundary? Please explain.*

RESPONSE: The Proposed Project mercury emissions were modeled for a 25 km radius from the source. The results showed that the mercury concentrations dropped off significantly within 10 km. Therefore, the lakes further away from the facility would be less affected by mercury emissions than the nearby lakes. The purpose of the analysis in the DEIS was to determine the maximum potential impact. The supporting document titled *Cumulative Impacts Analysis: Local Mercury Deposition and Bioaccumulation in Fish* (Barr, 2009R) further discusses the rationale for choosing certain lakes and the 10 km range (p. 14-15). The area of maximum impact is within 10 km, because dispersion increasingly disperses atmospheric emissions with increasing distance from the source.

EIS Modification Text added to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request.

Comment E-6: *As indicated in the DEIS 4.7.7.3.1, the LLAP is interested in the testing and installation of mercury control systems being investigated by Keetac. We would like more information on these technologies, effectiveness, and installation dates. How will these best address the TMDL to actually lower mercury levels, not to just squeeze under the TMDL cap?*

RESPONSE: MPCA has negotiated with U.S. Steel a Mercury Air Emission Reductions Schedule of Compliance for conducting trials at existing U.S. Steel indurating furnaces. The Mercury Air Emission Reductions Schedule of Compliance requires identifying technologies for short and long term trials. The assessments of the mercury technologies will be provided to the MPCA and to extent that they do not contain confidential business information, will be available for review by interested parties. At this time the success of any control technology is unknown until further research is completed.

EIS Modification No change.

Comment E-7: *At the end of section 4.7.8.1 it discusses the consumption level of 3.5 pounds per week as brought forward by Tribes. This is correct and was brought forward by a Resolution. However, the paragraph and section ends abruptly stating an increase of 13 percent. These numbers need to be closely evaluated and discussed in the FEIS to address these numbers and the outcomes. Please provide more information and discussion on how the increase would be addressed.*

RESPONSE: For the "Existing Facility - Fisher Scenario" (DEIS page 4-140), a 13 percent increase in exposure would increase the potential result from 1.8 per 100,000 to 2.0 per 100,000 related to potential exposure to dioxins, poly aromatic hydrocarbons (PAHs), and arsenic. If the lesser exposure scenario (modified central tendency exposure - MCTE) described in Appendix G is used, the 13 percent increase in exposure would increase the potential result from 0.03 per 100,000 to 0.04 per 100,000. The results from the scaling calculations above have been included in the FEIS. For mercury (DEIS page 4-141), the 13 percent increase would not affect results (which are all below exposure guidelines) except for those of the Fisher Scenario for the proposed project. For those evaluations, the increase in exposure resulting from increasing weekly consumption of fish from 3.0 to approximately 3.5 lbs would increase the incremental hazard quotient (HQ) from the range of 0.08 to 0.5 for the study lakes to a range of 0.09 to 0.6 for the 30 percent control scenario. The results from the scaling calculations above have been included in the FEIS.

EIS Modification Updated and additional text provided in Section 4.9.8.2.3.

Comment E-8: *Diesel emission reduction technologies are very popular to assist in decreasing a sizable amount of emissions from this controllable source. Use of ULSD is also an effective method to decrease emissions, especially when used in conjunction with diesel emission control technologies. A multitude of grants and collaborative efforts exist to utilize this type of emission control. Does Keetac intend to research and utilize this easily accessible and low cost technology?*

RESPONSE: U.S. Steel Keetac has committed to using diesel fuel with a sulfur content not to exceed 15 parts per million (i.e., ultra-low sulfur diesel). Also, new non-road mining equipment would meet Tier-IV emission standards.

EIS Modification No change.

ORAL COMMENT RECEIVED FROM: William Whiteside, January 11, 2010 (F)

Comment F-1: *My name is Bill Whiteside; I'm from Hibbing, Minnesota, and I support U.S. Steel's efforts to continue mining in the Keewatin area. I think it's a good idea to be able to mine in a mining area where the resources are. I think they are a good cooperate citizen. I think they work hard to do a good job. They provided good employment for many people in this area for many lifetimes. I support their efforts, and I think it's important to the people of Grand Rapids, Keewatin, Nashwauk, Hibbing and the surrounding communities, and I hope we can see these permits be issued in a timely manner. A lot of the permits have been very slow and cumbersome and extremely costly to industry, to the point where it's almost – well, it can actually destroy some projects, just going through the expense and time and effort of justifying the work that someone intends to do. And so I think you should give them the permits in a timely manner so we don't increase the costs of goods produced in the United States unnecessarily. I took a good look at this, and I think an affirmative response to their initiative would be excellent. Thank you.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**David J. Tomassoni, State Senator, Minnesota State Senate, January 22, 2010 (G)**

Comment G-1: *I am writing to you in strong support of the proposed U.S. Steel Keetac expansion project.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**David C. Olson, President, Minnesota Chamber of Commerce, January 21, 2010 (H)**

Comment H-1: *I am writing to you in strong support of the proposed U.S. Steel Keetac expansion project.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Nick Axtell, Environmental Specialist, 1854 Treaty Authority/ Bois Forte Band, January 25, 2010 (I)**

Comment I-1: *One of our concerns with the proposed project is potential impacts to wild rice. We appreciate the effort and attention wild rice received in preparing the draft EIS. At the end of section 4.6.1.1, it states that "Minnesota Rules, part 7050.0470, subp. 1 identifies water bodies selected as wild rice waters." We would like to note that these rules do not attempt to identify all wild rice waters, so care should be taken on how this list is referenced or utilized. Several locations in the document state that wild rice may tolerate a wide range of sulfates, and stands have been found growing in sulfate concentrations between 50 and 282 mg/L. This statement is misleading, and implies that impacts are not occurring in that range. Effects might not be completely understood, but sulfates in this range could be or likely are impacting wild rice growth and success. In fact, recent work completed at the University of Minnesota Duluth indicates impacts on wild rice from elevated sulfate levels. We suggest wording changes in sections 5.4.2.4 and 5.4.5.1 to clarify this point.*

RESPONSE: Additional review of existing literature on wild rice was conducted related to potential impacts from sulfate and water level fluctuations, including the University of Minnesota-Duluth research efforts. The FEIS was revised based on a summary of the findings from this effort to more accurately describe the potential impacts the Proposed Project may have on wild rice that could result from changes in sulfate concentrations or water levels.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment I-2: *Finally, a water quality standard of 10 mg/L sulfate exists for wild rice waters. Concentration levels are already above this in Hay Lake, Hay Creek, Swan Lake, and Swan River. Additional discharges from the project would increase sulfate loading and/or concentration levels in these waters. We are interested in following how water discharges would be permitted in relation to this standard.*

RESPONSE: MPCA staff has reviewed and considered the currently available information for the Proposed Project, including site specific wild rice data and water quality data. Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by the Proposed Project. The FEIS has been modified to include a project-specific section discussing the potential environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment I-3: *On page 4-101, it states that a federal enforceable permit limit for NO_x on the existing and proposed induration furnaces would restrict facility-wide emissions below levels that would trigger a major modification for NO_x. It is unclear in the draft EIS how this would be handled as Table 4.7.2 shows NO_x emissions of 3,107 tpy from the induration furnace. It is the 1854 Treaty Authority understanding that the major source threshold for NO_x for a modification to an existing source is only 40 tons per year.*

RESPONSE: In the netting analysis, Keetac used a two-year baseline actual emissions period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5,805 tons per year. The permit for the Proposed Project would limit NOx emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. PSD also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the project are over the major source threshold (40 tpy), the project would be subject to a BACT analysis for NOx.

EIS Modification Text revised to explain the NOx limit in Section 4.9.1.

Comment I-4: *The 1854 Treaty Authority feels that Class I visibility modeling does not accurately reflect potential visibility impacts. In Table 4.7.11 (Class I Visibility Modeling Results Compared to Natural Background), the two cases modeled show either an extreme worst case scenario (which it is not feasible to operate at 100 percent of the time) or an annual average modeled scenario (that smoothes out the peak emission rates that might occur during startup and shutdown operations that could occur under permit operations). The 1854 Treaty Authority would like to see Class I visibility modeling that reflects the potential increased startup emissions/visibility impacts, or discussion in the EIS referring to the shortcoming of an annual average modeled scenario.*

RESPONSE: A variety of NOx modeling scenarios were revised, as described in the Class I Air Modeling Report (Barr Engineering, June 2010), to demonstrate compliance with visibility standards. The Proposed Project was also evaluated using Method 8 guidance to reflect regulatory changes. The new modeling scenario is based on a combined NOx emission rate for the indurating furnaces to reflect more realistic fuel mixes as well as the limited NOx 24-hour emission rate of 1652 lb/hr. A sensitivity analysis was completed to determine how to distribute the emissions between the two lines to show maximum modeled results. The sensitivity analysis showed that the worst-case modeled impacts occurred by modeling the existing line at its maximum emission rate and attributing the remaining allowable NOx emissions to the expansion line. This scenario is referred to as the "24-hour combined NOx emission rate" scenario. The FEIS was updated to reflect the results of this revised modeling scenario.

EIS Modification Modeling data was updated in Section 4.9.5.2.

Comment I-5: *Because very little information is available regarding $PM_{2.5}$ emissions at taconite facilities, the negotiated tests and set procedure that the project proposed and Minnesota Pollution Control Agency have negotiated to determine $PM_{2.5}$ emission limits should be clarified in the document. The 1854 Treaty Authority is concerned about $PM_{2.5}$ Ambient Air Concentrations (Table 4.7.16) as the cumulative modeling indicates the predicted ambient air concentration of 32 ug/m3. This is very close to the Minnesota and National ambient air quality standard of 35 ug/m3. The 1854 Treaty Authority would also like to note that Mesabi Nugget is listed in Table 4.7.14 (Class II Modeling of Nearby Facilities). The Authority assumes this is considering only emissions from the Mesabi Phase I project and not the Phase 2 project which is undergoing the EIS process. The PolyMet NorthMet project air emissions also do not seem to be listed as well. The Authority is concerned that with the addition of these two sources, the $PM_{2.5}$ Maximum Predicted Ambient Air Concentrations might violate standards.*

RESPONSE: PM_{10} emissions and the effects of control equipment on those emissions are well understood, and the emission limits described in the DEIS are technology forcing. However, little is known about $PM_{2.5}$ emissions and the interaction of control equipment with $PM_{2.5}$ emissions. A test and set procedure has been negotiated between the Project Proposer and the MPCA to account for a deficit of data on $PM_{2.5}$ emissions from taconite facilities. The $PM_{2.5}$ test and set proposal has been developed to prescribe a statistical calculation method to set new $PM_{2.5}$ emissions limits based on the initial $PM_{2.5}$ performance test results. $PM_{2.5}$ emissions limits that will be set based on this method are not to exceed the existing, technology forcing PM_{10} BACT emissions limits (i.e. initial $PM_{2.5}$ BACT emissions limits). The test and set method that has been proposed allows for extensive testing to understand $PM_{2.5}$ emissions, the effects of the proposed control technology on those emissions, and provides a means to set realistic $PM_{2.5}$ emission limits. $PM_{2.5}$ emissions limits that will be set based on this method are not to exceed the existing, technology forcing PM_{10} BACT emissions limits (i.e. initial $PM_{2.5}$ BACT emissions limits).

Class II modeling is considered near-field modeling and therefore is considered accurate within a 50K radius of the facility. Both the Mesabi Nugget and the PolyMet facilities are greater than 50K from Keetac and therefore emissions from these facilities are captured in the $PM_{2.5}$ background values applied to modeled NAAQS concentrations.

EIS Modification Text updated in Section 4.9.6.1.

Comment I-6: *Mercury releases and related fish contamination continue to be of great concern to us, especially in light of potential higher consumption rates by band member in comparison to other populations. It is our understanding that the expansion project will have the potential to release an additional 76 lb/yr of mercury. Efforts to reduce mercury emissions including the Minnesota mercury Total Maximum Daily Load (TMDL) are in place, and it appears that U.S. Steel proposes to use a combined effort of its Minnesota operations (Keetac and Minntac) to comply with overall reduction strategies. The 1854 Treaty Authority would like to see clarification regarding the combined proposed reductions in meeting U.S. Steel's commitment to TMDL goals.*

RESPONSE: The commenter is correct that U.S. Steel seeks to reduce mercury emissions at all of its operations in Minnesota to address the additional release from the Proposed Project. As also provided in Comment D-4, the mercury TMDL reduction goal for taconite facilities is to reduce the taconite sector's collective mercury emissions by 75 percent from 2010 estimated emission levels, and should be achieved by 2025. It should not be assumed that the reduction goal necessarily correlates to a 75 percent reduction at each operating unit. The reduction target is a sector-wide target, leaving facility owners free to develop control strategies that may result in differing removal efficiencies or permanent retirement of operating units. The TMDL does not prohibit new projects that may cause increases in mercury emissions. The TMDL's implementation strategy for new and expanding sources directs sources to seek offsets. Alternatives to offsets can also be proposed.

U.S. Steel's approach is to use activated carbon injection on the proposed furnace, and to phase in mercury controls at its existing furnaces as it works to develop mercury emission controls. U.S. Steel has agreed to a long term campaign of research and testing of mercury controls at the existing units, as well as a process for accounting for mercury emissions of the furnaces, new and existing. This agreement would be formalized during permitting. The permit for the expansion would establish conditions for using activated carbon injection. The illustrations demonstrate how U.S. Steel might implement reductions at both Keetac and Minntac. Reductions of mercury occur over a period of time as controls are trialed and installed at individual furnaces.

The TMDL strategies also include tasks for the MPCA to complete to facilitate mercury emission reductions, including implementation of the mercury emission inventory rules, periodic consultation with stakeholders, and check-ins with affected emission sources. Over the course of the next 15 years, technological understanding and improvements will occur. Hence, the EIS discussion represents a reasonable forecast of the effects of the Proposed Project and U.S. Steel commitments. Other avenues to mercury reductions at these units may develop as well.

EIS Modification New Illustrations and text in Section 4.9.7.

Comment I-7: *It states on page 4-133, "By installing controls early, the total mercury emissions from the project proposer at Minntac and Keetac, including the proposed project, can be maintained at the same or lower total emissions than would otherwise occur without the proposed project." As the current facilities (Keetac and Minntac) are going to be required to reduce mercury emissions, regardless of this expansion project going through, wouldn't the reductions shown in Illustration 4-2 (Annual Mercury Emissions) be inevitable? Even with the reduction shown it does not appear from Illustration 4-2 that a 75 percent reduction has taken place by 2025. We will be interested in following this process forward.*

RESPONSE: The date for achieving mercury reductions for the ferrous mining sector in the Mercury TMDL Implementation Plan is 2025. After that date, controls are expected to be installed so that the industry meets the goal of a 75 percent reduction from its estimated 2010 emissions. An implementation plan, which has not been developed yet by the ferrous mining industry, should describe the dates and types of equipment for installation. Controls are not required to be installed prior to 2025. U.S. Steel has proposed to test and install mercury controls as needed during the time period leading up to 2025 so that cumulative mercury emissions are not different.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Anthony Sertich, State Representative Majority Leader, Minnesota House of Representatives, January 25, 2010 (J)**

Comment J-1: *I am writing to you in strong support of the proposed U.S. Steel Keetac expansion project.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Patrick K. Mullen, David J. McMillan, Alan R. Hodnik, V.P. Marketing and Public Affairs, Executive V.P., President, Minnesota Power, January 25, 2010 (K)**

Comment K-1: *Minnesota Power supports this project and looks forward to the successful completion of this process and the eventual re-start of the idled pellet line.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Amy Klobuchar, U.S. Senator, U.S. Senate, January 26, 2010 (L)**

Comment L-1: *Thank you for the opportunity to provide my comments on the draft environmental impact statement (DEIS) for the Keetac project near Keewatin, Minnesota. I believe this project holds great promise for economic development on Minnesota's Iron Range. I am hopeful that the EIS process can be completed and the adequacy determination be finalized. I appreciate the environmental issues that have been discussed in the DEIS and the on-going public comment period, and I am hopeful that U.S. Steel can take appropriate action to address the concerns raised.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**James Oberstar, U.S. Representative, U.S. House of Representatives, January 26, 2010 (M)**

Comment M-1: *I write in strong support of the proposed U.S. Steel Keetac expansion project.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Craig Pagel, President, Iron Mining Association of Minnesota, January 26, 2010 (N)**

Comment N-1: *The Iron Mining Association fully supports this project moving ahead.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Joy Wiecks, Air Quality Technician, Fond du Lac Band, January 26, 2010 (O)**

Comment O-1: *Page EX-8. Greenhouse Gas ("GHG") emissions. Project Alternatives include discussing the alternative of producing iron pellets in another country with weaker emissions control. How about studying production in a country with stronger GHG emissions controls?*

RESPONSE: The DEIS states that emissions would vary with location. The variability would be based on several factors related to process, logistics, and regulations. However, the infrastructure, logistical relationships, and material availability currently define the Proposed Project. DEIS text regarding production of pellets in the U.S. is better for the environment has been revised in the FEIS to indicate that pellets may be produced in countries with weaker or stronger emissions regulations. However, the Proposed Project has taken steps to mitigate emissions despite the lack of regulations at the current location.

EIS Modification Text changes to Section 3.3.5 and section 3.9.4.3.

Comment O-2: *The section (3.5.2.3) doesn't compare this project with similar project elsewhere, with either looser or tighter regulations. It discusses doing this but never really does it.*

RESPONSE: This comment is similar to Comment O-1, and therefore was combined. Please see response to Comment O-1.

EIS Modification See response to Comment O-1.

Comment O-3: *Page 3-25. Section 3.5.2.1 Proposed Project Carbon footprint doesn't discuss impacts from peat removal. Is there any peat in the area that will be disturbed?*

RESPONSE: Greenhouse gas (GHG) emissions associated with peat removal have been addressed through wetland land use change. Emissions associated with wetland removal and associated matter, such as peat, have considerable uncertainty. A conservative approach for all wetland area has been used to quantify emissions associated with all wetland land use change emissions. Calculation methodology and results are detailed in the *Climate Change Evaluation Report* (Barr, 2009F). The summary of emissions associated with wetland land use change is presented in the DEIS.

EIS Modification No change.

Comment O-4: *Page 3-42. Section 3.9.1 should also include: state and federal acid rain caps; possible GHG regulations; upcoming Electric Generating Unit Maximum Achievable Control Technology regulations; EPA's NO_x State Implementation Plan call requirements; low sulfur diesel regulations; upcoming $PM_{2.5}$ regulations.*

RESPONSE: The list of past, present and reasonably foreseeable governmental actions listed in Section 3.8 FEIS was expanded to include the following in the FEIS: implementation of federal Acid Rain Program regulations to fulfill the requirements of Title IV of the Clean Air Act Amendments of 1990; implementation of $PM_{2.5}$ regulations for permitting of stationary source air emissions; federal mandates requiring various phase-in dates for use of Ultra-low Sulfur Diesel (ULSD) in on-road and non-road diesel engines; possible future regulation of GHGs for stationary sources of air emissions; possible future regulation of Hazardous Air Pollutants (HAPs) from electric generating units; and possible future regulation to address interstate transport of air pollutants, through direct regulation of stationary sources and/or the state/federal implementation plan (SIP/FIP) process.

EIS Modification Additional bulleted text was added to Section 3.8.

Comment O-5: *Page 3-43. Section 3.9.3 should list the Laurentian wood-fired energy project and others that are listed in the Polymet DEIS.*

RESPONSE: The following projects were listed in the PolyMet/NorthMet EIS that were not included in the Keetac DEIS: proposed expansion of Peter Mitchell mine pits (Babbitt), Proposed MN Power Great River Energy Transmission Project (Nashwauk Area), Proposed Cliffs Erie railroad pellet transfer facility (Hoyt Lakes), ArcelorMittal East Reserve Project (Biwabik and McKinley), Proposed NOvA Off-Axis detector (Ash River/Orr), community growth and development, and forestry practices on public and private lands. Based on project location, the Minnesota Power Transmission Project, community growth and development, and forestry practices were added to the list of future private actions in FEIS Section 3.8.

EIS Modification Additional bulleted text was added to Section 3.8.

Comment O-6: *Page 4-93. Table 4.7.1 indicates that 22 additional tons per year of hydrochloric acid will be released into the air from this expansion. Will any control technology be applied?*

RESPONSE: The 22 tpy of HCL is the controlled potential to emit. HCL will be controlled by a circulation fluidized bed (CFB) followed by a dry electrostatic precipitator (ESP).

EIS Modification No change.

Comment O-7: *Page 4-95. Need to see numbers proving that NO_x is below the major modification threshold. Table 4.7.2 shows NO_x emissions from the proposed project at thousands of tons per year. The major source threshold for NO_x for a modification to an existing source is only 40 tons per year. It appears that the facility is attempting to "net out" by reducing emissions elsewhere – please explain in full detail and show netting calculations. If Continuous Emissions Monitoring indicates that the major source threshold is indeed being exceeded, what steps will be taken to rectify the issue?*

RESPONSE: In the netting analysis, Keetac used a two-year baseline actual emissions period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5,805 tons per year. The permit for the Proposed Project would limit NOx emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. PSD also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the project are over the major source threshold (40 tpy), the project would be subject to a BACT analysis for NOx.

EIS Modification Text updated in FEIS to explain the NOx limit in Section 4.9.1

Comment O-8: *Page 4-96 states that fugitive dust from portable crushing operations will be managed by the crushing contractor. More details needed. Will the contractor have a permit for this activity? Were these emissions considered as part of the facility-wide total (i.e. modeled)?*

RESPONSE: Contractors are required to have the necessary permits for their activities. Emissions from the contractor managed portable crushing operations are included in the facility modeling for compliance with National Ambient Air Quality Standards.

EIS Modification No change.

Comment O-9: *Page 4-100. Fugitive dust plan is mentioned as containing mitigation opportunities. Where is this plan? If mitigation is to be proposed through this plan, it needs to be part of the FEIS, not just part of the permit.*

RESPONSE: The Fugitive Dust Emissions Control Plan is Appendix E in the BACT Analysis, which is part of the Air Permit. The Fugitive Dust Emissions Control Plan is a federal requirement for operation of the Keetac facility, carried out under the MPCA issuance of an air permit. Keetac currently has a Fugitive Dust Control Plan in place as part of their current air permit. This plan would be revised for the Proposed Project to reflect appropriate mitigation measures. The Fugitive Dust Emissions Control Plan is available by contacting Erik Carlson at the MNDNR email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change.

Comment O-10: *Page 4-101. Again states that "Project Proposer would accept… limits for NO_x on the existing and proposed induration furnaces. These limits would restrict facility-wide emissions below levels that would trigger a major modification for NO_x". Where are the emissions calculations that support this claim? The only numbers I see are from Tables 4.7.2 and they indicate that this is a major source of NO_x emissions.*

RESPONSE: In the netting analysis, Keetac used a two-year baseline actual emissions (BAE) period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5805 tons per year. The permit for the Proposed Project would limit NOx emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. PSD also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the project are over the major source threshold (40 tpy), the project would be subject to a BACT analysis for NOx.

EIS Modification Text updated in FEIS to explain the NOx limit in Section 4.9.1.

Comment O-11: *Pg. 4-103. Was a BACT analysis done for SO2 emissions from haul trucks? Use of low-sulfur fuel in haul trucks is probably required, please address. Please research any alternatives that could be considered for BACT on the haul trucks*

RESPONSE: BACT is a technology review under PSD which is a program under Title V of the Clean Air Act (CAA). Title V regulates stationary sources and fugitive emissions that occur at those stationary sources. Although haul road dust is evaluated in the Title V program because it is considered fugitive dust emissions from the stationary source, tail pipe emissions are not examined under the Title V program because these emissions are considered to be from mobile sources which are already regulated under Title II of CAA.

Regardless, the Proposed Project would use fuel containing a maximum of 15 ppm sulfur content (i.e., ultra-low sulfur diesel) in the mine equipment. Also, new non-road mining equipment would meet Tier-IV emission standards.

EIS Modification No change.

Comment O-12: *Page 4-114 refers to the FLAG Phase I Report of December 2000. Please address the proposed update to this guidance, the Draft FLAG Phase I Report - Revised, published June 27, 2008. Some differences exist between the two reports. Please discuss how these differences affect the project.*

RESPONSE: Federal Land Managers' Air Quality-related Values Workgroup (FLAG) 2000 guidance was determined to be more appropriate when evaluating visibility impacts because the document released in 2008 – Draft FLAG Phase I Report remains in draft form. Federal Land Managers (FLMs) concur with this determination.

EIS Modification No change.

Comment O-13: *Page 4-114 talks about proposed limits in NO_x emissions. Again, more details are needed regarding these limits.*

RESPONSE: Updated operational limits for visibility and shorter-term limits for NOx are included in the FEIS.

EIS Modification Text updated in Section 4.9.5.

Comment O-14: *Table 4.7.11 indicates that mitigation will be needed in order to avoid visibility problems in three nearby Class I areas. The Draft FLAG Phase I Report – Revised indicates that if a project is predicted to increase the daily extinction coefficient by an amount greater than or equal 10 percent at a Class I area, the FLM may issue a finding of adverse impact. An increase of 5 percent indicates that the FLM will want to see further analysis. According to data presented in the table, emissions from this project will cause impacts greater than or equal to 5 percent and 10 percent on several days per year at various Class I areas, particularly in the BWCA and VNP. This is an area that FdL is very concerned about.*

RESPONSE: FLAG 2000 is the guidance being used to determine visibility impacts. Updated visibility modeling and proposed mitigation are agreed to in the FEIS.

EIS Modification Modeling data was updated in Section 4.9.5. 2.

Comment O-15: *Following up on this issue, pg. 4-116 lists mitigation strategies. It is our understanding, based on discussions with the U.S. Forest Service that the evaluations of the add-on NO_x control options listed should be updated in light of recent determinations made for U.S. Steel's Minntac plant. Namely, the use of low NO_x combustion has been implemented at Minntac and a form of selective non-catalytic reduction has been tested. Regenerative selective catalytic reduction - and low temperature oxidation may also be feasible. It also appears that selective catalytic reduction is being used in Sweden on a taconite furnace that is the same design as the one proposed at Keetac. The FEIS should present the very latest information available.*

RESPONSE: The FEIS text was updated to reflect the recently selected mitigation measure of a low-NOx main burner on the expansion line. It also discusses how Mobotec (SNCR) technology was tested but was not proven to be feasible.

EIS Modification Text was updated in Section 4.9.5.3.

Comment O-16: *The list of mitigation options includes securing and retiring tradable emission allowances from National Emissions. FdL supports this option only if it can be demonstrated that retiring these allowances will actually improve regional haze in Minnesota. Likewise, FdL would only support mitigation through enforceable reductions to nearby sources under the same conditions.*

RESPONSE: Tradeable emission allowances have been removed as a mitigation option from the FEIS.

EIS Modification Text deleted in Section 4.9.5.4 and Executive Summary.

Comment O-17: *Table 4.7.11 shows results from two modeled scenarios. The first is a 24-hour worst-case scenario and the second scenario used an annual average NO_x emission rate based on the proposed NO_x emission limit. FdL does not support the use of an annual average emission rate. While it may not be appropriate to use the worst-case emissions if the facility plans to limit its emissions through a federally-enforceable permit, the use of an annual average rate tends to smooth out the peaks of operation that could still occur under the permit requirements. Please use the appropriate hourly peak emission rates for this analysis.*

RESPONSE: The modeling scenarios were revised, as described in the Class I Air Modeling Report (Barr Engineering, June 2010). The new modeling scenario is based on a combined NOx emission rate for the indurating furnaces to reflect more realistic fuel mixes as well as the limited NOx 24-hour emission rate of 1,652 lb/hr. A sensitivity analysis was completed to determine how to distribute the emissions between the two lines to show maximum modeled results. The sensitivity analysis showed that the worst-case modeled impacts occurred by modeling the existing line at its maximum emission rate and attributing the remaining allowable NOx emissions to the expansion line. This scenario is referred to as the "24-hour combined NOx emission rate" scenario. The FEIS was updated to reflect the results of this revised modeling scenario.

EIS Modification Modeling data was updated in Section 4.9.5. 2.

Comment O-18: *Page 4-119. The FEIS should reference where the 80 percent control efficiency assumption for particulate from haul roads comes from.*

RESPONSE: The haul road control efficiency that Keetac has proposed can be found in: *Taconite Industry Haul Truck Unpaved Haul Road Fugitive Particulate Emission Factor and Control Efficiency*, November 18, 1998. This document was developed by the Taconite Industry Fugitive Emission Workgroup which was comprised of MPCA and taconite industry representatives. The final document was sent in a November 24, 1998 letter to Larry Salmela (U.S. Steel) from Todd Biewen (MPCA). FEIS text has been updated to include reference to the *Taconite Industry Haul Truck Unpaved Haul Road Fugitive Particulate Emission Factor and Control Efficiency* report.

EIS Modification FEIS text updated in Section 4.9.6.

Comment O-19: *Page 4-122, Table 4.7.16. $PM_{2.5}$ concentration is within 3 micrograms per cubic meter (or about 9 percent) of the National Ambient Air Quality Standards and Minnesota Ambient Air Quality Standards. The text admits that very little is known about $PM_{2.5}$ emissions at taconite facilities (page 4-103). How were uncertainties dealt with in obtaining the modeled impacts? What level of conservatism was built in? Was $PM_{2.5}$ assumed to be equal to PM_{10}?*

RESPONSE: Modeling and background values were applied conservatively to address uncertainties. This means that where there are no reliable emission factors for $PM_{2.5}$, all PM_{10} is assumed to be $PM_{2.5}$. Additionally, background values are added to the modeled concentrations without regard to time and space. It is assumed that the maximum background concentration is occurring at the same time and in the same location as the Proposed Project's modeled concentration, which is unlikely but is conservative.

EIS Modification No change.

Comment O-20: *Page 4-132, Section 4.7.7.3.1 proposes to conduct testing of mercury control technologies on existing lines. What types of controls will be studied? What studies have already been done? Do any show promise? Is a targeted approach being taken? What about keeping recovered particulate out of the furnaces by sending to tailings instead of recycling back to the furnace? Why not impose this as an interim measure?*

RESPONSE: MPCA has negotiated with U.S. Steel a schedule of compliance for conducting trials at existing U.S. Steel indurating furnaces. The schedule requires identifying technologies for short and long term trials. The assessments of the mercury technologies will be provided to the MPCA and to extent that they do not contain confidential business information, will be available for review by interested parties. At this time the success of any control technology is unknown until further research is completed. U.S. Steel has indicated that it will work with the Mercury Emissions - Reduction Research and Implementation Council to identify mercury control technologies.

EIS Modification No change.

Comment O-21: *Page 4-133 states that the facilities may take until 2025 to install mercury controls on existing lines. Illustration 4-3 on page 4-134 shows that estimated cumulative mercury emissions "from the expansion" exceed totals "without the expansion" for quite some time, not breaking even until 2025. No data is shown after that time. The goal of the Total Maximum Daily Load ("TMDL") is to reduce mercury overall, not to reduce just enough to allow for emissions from new sources. In addition, the DEIS is proposing to use reductions at existing sources as mitigation measures for the new line. This is not allowed by the TMDL. Reductions at the existing lines are mandatory and can't be used for mitigation purposes unless they take place early or go beyond control requirements. Neither of these situations appears to be the case, therefore these reductions cannot be used as credits.*

RESPONSE: The Mercury TMDL Implementation Plan describes steps and timing for pollution control development at the taconite furnaces, and sets a course to achieve the reductions by 2025. The Mercury TMDL Implementation Plan does not prohibit new sources or short term mercury increases.

EIS Modification No change.

Comment O-22: *Illustration 4-2 shows expected reductions in terms of pounds per year, but it does not look as though the required 75 percent reduction from existing sources will be achieved (i.e. reductions of 75 percent should result in emissions of 50 pounds per year, but instead emissions of nearly 150 pounds per year are shown). Please address.*

RESPONSE: The mercury TMDL reduction goal for taconite facilities is to reduce the taconite sector's collective mercury emissions by 75 percent from 2010 estimated emission levels, not 2005 levels, and should be achieved by 2025. It should not be assumed that the reduction goal necessarily correlates to a 75 percent reduction at each operating unit. The reduction target is a sector-wide target, leaving facility owners free to develop control strategies that may result in differing removal efficiencies or permanent retirement of operating units. The TMDL does not prohibit new projects that may cause increases in mercury emissions. The TMDL's implementation strategy for new and expanding sources directs sources to seek offsets. Alternatives to offsets can also be proposed.

U.S. Steel's approach is to use activated carbon injection on the proposed furnace, and to phase in mercury controls at its existing furnaces as it works to develop mercury emission controls. U.S. Steel has agreed to a long term campaign of research and testing of mercury controls at the existing units, as well as a process for accounting for mercury emissions of the furnaces, new and existing. This agreement would be formalized during permitting. The permit for the expansion would establish conditions for using activated carbon injection. The illustrations demonstrate how U.S. Steel might implement reductions at both Keetac and Minntac. Reductions of mercury occur over a period of time as controls are trialed and installed at individual furnaces.

The TMDL strategies also include tasks for the MPCA to complete to facilitate mercury emission reductions, including implementation of the mercury emission inventory rules, periodic consultation with stakeholders, and check-ins with affected emission sources. Over the course of the next 15 years, technological understanding and improvements will occur. Hence, the EIS discussion represents a reasonable forecast of the effects of the Proposed Project and U.S. Steel commitments. Other avenues to mercury reductions at these units may develop as well.

EIS Modification New Illustrations and text in Section 4.9.7.

Comment O-23: *Page 4-138 mentions an established hierarchy of toxicity data. Please explain what the hierarchy is (i.e. Minnesota Dept of Health ("MDH") recommended given highest priority, etc).*

RESPONSE: As guided by the Minnesota Department of Health (MDH), the MPCA uses five different databases for identifying inhalation health benchmarks (toxicity values). Values within the databases that are higher in the hierarchy are considered better values by the MPCA and MDH. This hierarchy is described at http://www.pca.state.mn.us/air/aera-ci.html with links to each database. The hierarchy of toxicity value databases is as follows: Specific MDH Guidance is better than MDH Health Risk Values, which is better than EPA's Integrated Risk Information System (IRIS), which is better than Cal. EPA's OEHHA Values, which is better than EPA's Health Effects Assessment Summary Tables (HEAST).

EIS Modification No change.

Comment O-24: *Page 4-138 and pg. 5-120 discuss mercury and the MMREM. These sections state that tribal reps have suggested a consumption level of 3.5 lbs/wk to be more appropriate, and state that this would affect consumption/exposure results linearly, increasing results by about 13 percent. These results need to be shown numerically. It is not the responsibility of the reader to calculate this out for themselves. If they are shown elsewhere in the DEIS, please reference.*

RESPONSE: For chronic effects of the Post-Project Total Facility on the Fisher Scenario, the maximum exposure scenario for Kelly Lake assuming a fish consumption of 3 lbs/week has a result of 2 per 100,000. If consumption is increased to approximately 3.5 lbs/week, the result increases to 2.3 per 100,000. Chemicals most contributing to these results are dioxins, PAHs, and arsenic. The results from the scaling calculations above have been included in the FEIS. Cancer risk is generally reported to one significant figure due to uncertainty in the estimates. Two significant figures have been reported in the EIS for transparency.

EIS Modification Text added to Section 5.13.1.3.2.

Comment O-25: *Page 4-139, Section 4.7.8.2.3 Chronic Cancer Results. Existing Maximally Exposed Individual ("MEI") has a maximum risk estimate of 2.6/100,000. This is 2.6 times the guideline, just for the existing source. How will this be addressed? The farmer exposure scenario is 1.5 times the guideline. Please link exposure pathways to air or water emissions. Under Existing Facility, Resident Scenario (page 4-140) the MEI with recreational fish consumption is 1.4/100,000, which is high, especially as the consumption rate is only 0.4 lbs/wk. Although the MEI is a conservative scenario, the results shown here do exceed the guideline.*

RESPONSE: The commenter is correct that some of the initial incremental risk estimates for the existing facility were above the guideline values. However, the exceedance of an incremental risk guideline value does not indicate that adverse impacts will occur. Rather, an exceedance of a guideline value indicates that additional investigation of the risk driver chemicals (i.e., emission estimates, exposure assumptions, toxicity values, etc.) is needed.

For those results that exceed 1 per 100,000, additional investigation would be required. This can take the form of a closer look at the behavioral scenarios used to calculate the potential human health risk, a review of the assumptions regarding chemical emission, form and transport used to calculate potential exposure, or the potential human health risk associated with project alternatives. The pollutant risk drivers for this screening were arsenic, dioxins, furans, and polyaromatic hydrocarbons. These are pollutants which are generally particulate bound. The facility has chosen the BACT for particulate matter according to their BACT review. This review was summarized in the FEIS in section 4.9.3.

Interpretation of exposure scenarios should follow the guidelines presented in 4.9.8.1 of the FEIS. With exposure scenarios calculated using maximally exposed individual (MEI), the likelihood that any individual would receive the level of exposure used in the MEI scenario is very close to zero due to the innate health protective nature in this screening exercise.

The result for the MEI for the "Existing Facility - Farmer Scenario" living at the site of maximum exposure near Kelly Lake is 2.6 per 100,000. A second "Existing Facility - Farmer Scenario" for a hypothetical farmer living just east of the northern end of the tailings basin gives an MEI-based exposure result of 1.5 per 100,000.

The "Existing Facility - Resident Scenario" result is 1.4 per 100,000 using MEI. Because there is only one significant digit in this calculation (as suggested by United State Environmental Protection Agency (USEPA) guidelines), this value is the same as 1 per 100,000, the same as the acceptable guideline.

Commenter asked to "link exposure pathways to air or water emissions." In the FEIS, all potential sources that may impact an exposure scenario individual are used in the calculations and included in the overall result. Additional details of the relative contribution of each chemical and exposure pathway are provided in Appendix G of the FEIS.

EIS Modification No change.

Comment O-26: *Page 4-140, Section 4.7.8.2.4 proposes to assess mercury contributions to selected lakes within 10 km. Need to specify why certain lakes were chosen and why the 10 km range was chosen. If this is specified elsewhere, please reference.*

RESPONSE: The Proposed Project mercury emissions were modeled for a 25 km radius from the source. The results showed that the mercury concentrations dropped off significantly within 10 km. Therefore, the lakes further away from the facility would be less affected by mercury emissions than the nearby lakes. The purpose of the analysis in the DEIS was to determine the maximum potential impact. The supporting document titled *Cumulative Impacts Analysis: Local Mercury Deposition and Bioaccumulation in Fish* (Barr, 2009R), discusses the reasons certain lakes were chosen and the reasons the 10 km range was chosen (p. 14-15). The area of maximum impact is within 10 km, because dispersion increasingly disperses atmospheric emissions with increasing distance from the source.

EIS Modification Text added to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request.

Comment O-27: *On pg 5-55, the text states that "the greatest potential increase in mercury loading to a lake is estimated to be 5.5 percent". This appears to be significant and is cause for concern. Again, the chosen existing facility inclusion radius of 15 miles should be explained and references given for why this is appropriate.*

RESPONSE: The cumulative effect to mercury concentrations in fish is adverse and significant as stated in the EIS. The Proposed Project would potentially contribute 14.5 percent (0.003 ppm) of the 5.5 percent (0.023 ppm) increase in Swan Lake. The existing facility inclusion radius is 25 km (15 miles). Including any additional facilities in the analysis would have meant extending the radius beyond 50 km. This would have not significantly increased the cumulative impact because of the large distance between facilities (discussed on page 15 of a supporting document: *Cumulative Impacts Analysis Local Mercury Deposition and Bioaccumulation in Fish* (Barr, 2009R).

EIS Modification Text added to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request.

Comment O-28: *Pg 5-105 mentions that "USEPA had defined contributing to visibility impairment as the change in haze index of greater than 0.5 deciview. This is not a threshold assessed as part of this analysis". Why not?*

RESPONSE: Visibility impacts due to facility emissions were modeled under FLAG 2000. Mitigation strategies are identified in the FEIS. The air permit will include methods to minimize emissions modeled under FLAG 2000 to meet emissions limits. The 0.5 dv threshold is used for evaluating individual projects under Best Available Retrofit Technology (BART) and Regional haze. Under the Regional Haze SIP, the Proposed Project emissions are tracked under the Northeast Regional Haze Plan and modeling is done under the PSD framework of a 5 percent visibility impact.

EIS Modification No change.

Comment O-29: *Pg 5-111, Section 5.12.2.3 Mitigation Opportunities states "At this time it is unknown whether additional mitigation will be required". Based on the results shown in Table 4.7.11, FdL considers it highly likely that mitigation will be required. It is misleading to indicate otherwise.*

RESPONSE: This sentence was deleted from the FEIS.

EIS Modification Sentence deletion in Section 5.11.2.3.

Comment O-30: *On page 5-120, Risk Assessment section. Under Section 5.14.1.1, states "The cumulative analysis is for the inhalation pathway only" but under Section 5.14.1.2.1, states that "a multi-pathway human health screening-level risk assessment ("HHSRA") was conducted and inhalation and ingestion exposures were considered including bioaccumulation". These sentences seem to contradict one another – please either correct or provide more explanation. Does this have anything to do with Section 5.14.1.3.1, "Only the risk result for the respiratory endpoint exceeds the guideline value or 1.0". Pg 5-120 indicates that only the inhalation pathway of exposure was analyzed for cumulative effects because of "limitations of available background data for any other pathway". FdL finds this unacceptable. Other pathways can lead to high exposure and need to be evaluated. What would the MDH recommend as a way to obtain background ingestion information?*

RESPONSE: Cumulative mercury exposure through fish ingestion and lead ingestion from soil, diet, and drinking water have both been assessed in the EIS through a multi-pathway human health risk assessment (HHRA); however, due to the limitations of available background data for other pathways, analyses of cumulative effects were only conducted for the inhalation pathway. MPCA has conducted air monitoring and analyses in Virginia, Hibbing, and Cloquet, but has not conducted monitoring in Keewatin or other, similar sites. Pathways assessed for post project versus cumulative effects have been clarified in the FEIS.

In response to the question: "Does this have anything to do with ... Only the risk result for the respiratory endpoint exceeds the guideline value or 1.0," the answer is no. This result is for an acute, 1-hour exposure at the point of maximum emissions. Other endpoints (i.e., reproductive, eyes, skin contact) all had HI values less than 1. This has been clarified in the FEIS. Objections to a lack of existing background data for ingestion-related exposure are noted. *Cumulative Air Emissions Risk Analysis at the MPCA – Background Document* (March 2009) explains some of the difficulties inherent in assessing non-inhalation cumulative risk and some of the steps that are being taken to remedy this gap.

Ingestion-based risks from off-site sources are not currently quantitatively assessed in the cumulative air emissions risk analysis process with the exception of cumulative risks from the fish ingestion pathway, e.g. the MPCA Mercury Risk Evaluation Method (MMREM). There are methodological challenges such as source apportionment associated with cumulative ingestion-based risk analyses. The uncertainty associated with these challenges could be propagated with the summation of multiple pathways, routes and endpoints. The MPCA is working on quantifying cumulative risks that take into account background levels of persistent and bioaccumulative toxics from the fish ingestion pathway using Industrial Risk Assessment Program (IRAP-h) view, the MMREM and the MPCA Fish Pollutant Accumulation Spreadsheet System (FPASS) models. Other issues not addressed by the cumulative air emissions risk analysis are: indoor air quality, pollutants not measured by ambient air monitors (unless modeled), pollutants without health benchmarks, chemical transformation, pollutant interaction effects (e.g. synergistic toxicity, antagonistic absorption, etc.), occupational exposures, personal microenvironmental exposure, etc.

EIS Modification Text clarification in Section 5.13.1.

Comment O-31: *Pg 5-121, Section 5.14.1.2.2 states that the MPCA screened nearby facilities for inclusion in the cumulative air emissions risk analysis and excluded some based on distance from the proposed project and/or level of risk. Were screening numbers used (i.e. Q/d) or were these facilities excluded based on a "judgment call"? Please give more details. Hibbing Taconite was evidently excluded based on a lack of dispersion modeling data. Such data could be obtained, if needed. On what basis was this decision for exclusion made? 30. Pg. 5-122/123 Acute Results indicates that the 1-hour acute respiratory results exceed the guideline hazard index ("HI") value of 1.0, for the project alone. The cumulative results are 2.3. Mitigation is mentioned, where are the details?*

RESPONSE: The cumulative inhalation risk analysis for the Proposed Project included estimated risks from ambient monitoring data measured in the Iron Range, the existing facility, and the Proposed Project. Decisions concerning the details of the methodology used in this cumulative inhalation risk analysis were both screening level quantitative estimates and professional judgment. Ambient air data were taken from monitoring locations in Hibbing (carbonyls and volatile organic chemicals), Virginia (metals) and Cloquet (NOx). These cities are more densely populated (i.e., more air pollution sources) than the area described for the Proposed Project cumulative inhalation risk analysis. Hibbing Taconite was excluded from being specifically modeled for this analysis for two reasons: the assumption that the ambient monitoring data captured similar sources as Hibbing Taconite, and the assumption that estimated risks from Hibbing Taconite would be below risk driver levels (10 percent of risk guidelines) once dispersed to the area assessed for the Proposed Project cumulative inhalation risk analysis. More recently, a MPCA Risk Screening tool was used to inform and confirm this decision. This tool (MNRiskS) estimates potential risks from sources using air dispersion of emissions included in the Minnesota emissions inventory. MPCA staff considered both typical risk drivers from natural gas combustion and risk drivers as estimated from the MN Risk screening tool. As estimated by MNriskS, NOx, arsenic and manganese would not be expected to be at risk driver levels once dispersed to the area of interest for the Proposed Project cumulative inhalation risk analysis. These four pollutants were included in the estimates conducted using ambient monitoring data, and are expected to be at higher air concentrations than what would be expected in Keewatin, Minnesota and impacted by sources similar to that of Hibbing Taconite.

The mitigation mentioned by the commenter rests primarily on NOx reduction, which is described in other sections of the EIS, including Section 5.13.1.4 of the FEIS: "In this case, mitigation is proposed for acute 1-hr results. Mitigation for NOx impacts on visibility is discussed in FEIS Section 4.9.5.4. Mitigation affecting NOx to address visibility would also affect this analysis. See FEIS Section 4.9.5.4 for a discussion of visibility mitigation options."

NOx mitigation identified for the Proposed Project includes a low-NOx burner on the new line and the implementation of an early action alert plan. Other possible methods of mitigating visibility impacts are listed in FEIS Section 4.9.5.4:

- Install emission reduction/control equipment on proposed equipment or implement process optimization;
- Enforceable reductions in emissions from the Proposed Project facility or nearby sources and model the improvement to visibility; and
- Implement on-site green energy generation.

EIS Modification No change.

Comment O-32: *Pg. 5-122/123 Acute Results indicates that the 1-hour acute respiratory results exceed the guidance hazard indent ("HI") value of 1.0 for the project alone. The cumulative results are 2.3. Mitigation is mentioned, where are the details?*

RESPONSE: Mitigation for HHRA is discussed in section 5.13.1.4, Mitigation. The mitigation mentioned by the commenter rests primarily on NOx reduction, which is described in other sections of the EIS, including Section 5.13.1.4 of the FEIS: "In this case, mitigation is proposed for acute 1-hr results. Mitigation for NOx impacts on visibility is discussed in FEIS Section 4.9.5.4. Mitigation affecting NOx to address visibility would also affect this analysis. See FEIS Section 4.9.5.4 for a discussion of visibility mitigation options." NOx mitigation identified for the Proposed Project includes low-NOx burner on the expansion line. Other possible methods of mitigating visibility impacts are listed in FEIS Section 4.9.5.4:

- Install emission reduction/control equipment on proposed equipment or implement process optimization;
- Enforce reductions in emissions from the Proposed Project facility or nearby sources and model the improvement to visibility; and
- Implement on-site green energy generation.

Specific details will be developed as part of the air permitting process.

EIS Modification No change.

Comment O-33: *On page 5-123/124, Section 5.14.1.3.3 (Chronic Cancer Results) states that "For the farmer, the maximum exposure scenario has a result of 3 in 100,000", which is three times the recommended HI. Also that "the fisher scenario… has a result of 2 in 100,000" and that "The background monitoring data results in an estimation of inhalation cancer risk of 5.0 in 100,000….Only a subset of the Post-Project Total Facility results are additive to this inhalation value giving a combined result of 5.5 in 100,000". These results are five times greater than the "1 in 100,000" guideline for potential significant adverse health effects for susceptible populations. While a value of 1.2, for example, may not exceed the guideline by an appreciable amount, a five-fold increase is certainly a matter of concern. The FEIS should include some discussion of what types of mitigation are being considered and what levels of pollution reduction could be expected.*

RESPONSE: In response to the comment: "For the farmer, the maximum exposure scenario has a result of 3 in 100,000", which is three times the recommended hazard index (HI)," please note that use of the MCTE exposure scenario assumptions drops this result to 0.08 per 100,000.

In response to the comment: "Also that "the fisher scenario… has a result of 2 in 100,000," please note that the use of the MCTE exposure scenario assumptions drops this result to 0.03 per 100,000.

See also Response to Comment O 25, which briefly explains the MEI exposure scenario assumptions.

Additionally, USEPA recommends that cancer risk estimates be reported to one significant figure. For example, a cancer risk of 3.9 E-06 should be reported as 4 E-06. In turn, an estimated incremental cancer risk of 1.2 E-05 should be reported as 1 E-05. More than one significant figure in cancer risk estimates implies an accuracy that does not exist because of the uncertainty and data gaps inherent in risk analysis. In cancer risk estimation, an estimated risk of 1.2E-05 is no different from 1E-05. The background inhalation cancer risk based on ambient air monitoring data was determined by MPCA staff to be approximately 5E-05. This estimate is dominated by the risk from benzene and carbon tetrachloride. Carbon tetrachloride was banned in the Montreal Protocol and is in decline globally. The majority of benzene emissions in Minnesota come from gasoline burning in highway and off-highway vehicles.

EIS Modification No change.

Comment O-34: *Section 5.14.2.5.2 states that the cumulative Hazard Index for summed surface water exposures was 26.1. This is twenty-six times greater than the recommended hazard index! This is unacceptable, please discuss how the situation will be addressed.*

RESPONSE: Section 5.13.2.5.2 (DEIS section 5.14.2.5.2) is a part of the Ecological Risk Assessment (ERA), not the HHRA. In ERA, the interpretation of the Hazard Index (HI) is different than that used for human health risk assessments because every chemical stressor is compared to the organism known to display the most sensitive response to that chemical, regardless of whether that organism exists on site. Because no single organism would be that sensitive to each of the 76 chemicals of interest (COI) used in calculating the HI, interpretation of an HI (or more properly an Ecological

Screening Coefficient (ESQ) for ecological risk generally follows the USEPA guidelines:

- For total ESQ values less than 1, it is unlikely that adverse ecological effects would occur.
- For total ESQ values between 1 and 10, the risk is characterized as negligible, and
- For total ESQ values between 10 and 100, the risk is characterized as marginal.

The initial ecological risk from the Proposed Project to surface water was 26.1 and was primarily related to the ecological risks for magnesium, boron, iron, copper and cadmium. However, the paragraph following the one cited by the commenter explains that when more site-specific and toxicologically up-to-date TRVs were applied for magnesium, boron and copper, the HI drops to 4.4, which is well within the 1-10 range that USEPA generally uses as an acceptable screening risk range for ecological risk assessments.

The Toxicity Reference Values (TRVs) for the COI that contributed most to the ESQ (magnesium, boron, and copper) for applicability to conditions in the region surrounding Keetac. Alternative TRVs were selected for these COI. An alternative Ecological Screening Quotient (ESQ) using the Minnesota Water Quality Standard, which is a relevant benchmark value for assessing potential impacts to Minnesota waters, was used as a more accurate assessment of risk and reduced the ESQ from 5.3 to 0.29 for the Proposed Project. When the alternative TRVs were used in the risk calculations, the total ESQ decreased to 4.4. Risk associated with that ESQ would be characterized as negligible using USEPA guidelines.

EIS Modification No change.

Comment O-35: *Pg. 5-134, Section 5.14.2.5.4 states that since the sulfate/methylization relationship is so complex, it is impossible to assess potential changes in fish tissue concentration. This section needs to include more discussion.*

RESPONSE: DEIS Section 5.14.2.5.4, pg 5-134 states: "Due to the complexity of the sulfate - methylmercury relationship, it is not possible with currently available information to accurately assess the probability of a significant change in fish mercury concentrations resulting from the Proposed Project."

Increasing sulfate concentrations in aquatic systems do not necessarily produce a linear increase in methylmercury concentrations in water and in fish. Other factors may decrease the response of the system to increasing sulfate concentrations. These include the potential that other factors may be limiting the methylation rate. Such factors could include:

- limited availability of neutral mercury species required for uptake by sulfate-reducing bacteria;
- lack of anoxic conditions for sufficient periods of time to stimulate sulfate-reducing bacteria;
- presence of sufficient nitrate ion to provide an alternate and more energetic electron acceptor; and
- limited availability of organic matter of sufficient quality (i.e., readily digestible by microbes) as to limit microbial metabolic activity.

EIS Modification Text edits to Section 5.13.2.5.4.

Comment O-36: *Section 6.9.1.1.3 states that "Records for existing detonation practices indicate that the Project Proposer has not exceeded 130 dB(A) at the closest receptors, which are 500 feet from the surface wall". This statement doesn't give enough information. These noise levels exceed industrial noise standards of 75 or 80 dB(A) given in Table 6.9.1, so is the proposed facility expected to be just as loud? Also, Section 6.9.2.2 states that "predicted sound levels….would exceed night time standards at some of the receptor sites." Mitigation options have been outlined, but need to be studied further. This should be addressed in the FEIS.*

RESPONSE: Detonation is considered an impulsive noise, and is not addressed by the noise standards in Minnesota Rules 7030, but rather by Minnesota Rules 6130.3900. It is also important to note that noise standards are a reference to sound levels at the residential receptors, and the residential standard would be applied. Permit conditions that restrict nighttime activity in some areas are proposed, which would reduce nighttime noise.

EIS Modification No change.

Comment O-37: *According to Section 6.17, amphibole fibers are not expected to be released. The intrusive rock formation that contains these fibers is said to be well mapped. This formation will be removed as waste rock and not processed, thereby not releasing any of these harmful fibers. What assurance/documentation will the company provide that these actions will be adequate? "If the intrusive rock material is processed with the taconite, it would be rejected by the concentrator due to its low iron content and therefore sent as slurry to the tailings basin for disposal". If the rock is processed, its amphibole fibers would have already been released.*

RESPONSE: Processing of overburden, waste rock, and iron ore is regulated by Minnesota Rules 6130, which also outline the requirements for the Permit to Mine. Minnesota Rules 6130.2800 regulate the separation of materials in stockpiles. Minnesota Rules 6130.2600 outline special treatment of stockpiles with rapidly decomposing materials, such as those susceptible to wind and water erosion or highly erodible soils. Through the Permit to Mine, the Project Proposer would be required to document materials handling and stockpiling. The Project Proposer is required to remain in compliance with the conditions and regulations in their Permit to Mine.

EIS Modification No change.

Comment O-38: *Pg 5-116 Section 5.13.1.4 address acid deposition. No comparisons are made to greenline/redline values used by the Park Service in their evaluation. Only MPCA standards are mentioned (Section 5.13.2). I do see a greenline comparison in Tables 4.7.8 and 4.7.9, it may be helpful to reference these tables in Section 5.13.1.4.*

RESPONSE: Section 5.12.1.4 was updated to reference Tables 4.9.9 and 4.9.10.

EIS Modification Section 5.12.1.4 revisions.

Comment O-39: *Pg. 5-118 states that the potential cumulative emissions increases of SO_2 and NO_x would only increase state totals by 1.8 percent and 1.3 percent, respectively. Sulfate, at least, needs to be assessed in terms of how it impacts mercury methylization. This section overall is inadequate.*

RESPONSE: The difficulty of assessing the change in mercury methylation rates due to an increase in atmospheric sulfate deposition is discussed in the DEIS (page 5-52, Section 5.5.1). When assessing the possible effect of sulfate enrichment, a technical study titled *Screening-level Ecological Risk Assessment Report. U. S. Steel – Keetac Expansion Project* (Barr, 2009X), asserts that an overestimate of the possible impact of increased sulfate can be calculated by assuming there can be a linear relationship between the percent increase in sulfate and percent increase in the mercury concentration of fish in those waters (pages 123-125). Additionally, to address mercury concentrations, cumulative modeling analysis was conducted for the Proposed Project to estimate the likely impact of the cumulative mercury emissions.

The MPCA is pursuing reductions in mercury emissions that would mitigate the modeled impacts. The emissions from the Proposed Project already reflect an assumed 30 percent control of mercury. Additional mercury control would be achieved through the use of activated carbon, which achieves much greater mercury control than 30 percent when utilized at coal-fired electric units. The goal for control at the Proposed Project would be to approach or exceed 80 percent. In addition, Minnesota's implementation of the statewide mercury TMDL includes a goal of reducing total mercury emissions from taconite facilities by 75 percent by 2025. U.S. Steel has agreed to perform research and development with the intent of reaching that goal before the deadline. If these goals are met, the mercury content of fish in lakes near the facilities will likely decline, even if short term emission increases occur.

EIS Modification Recalculation and text revisions in Section 5.12.2.

Comment O-40: *Page 82, talks about sequestering control-collected PM to the tailings basin for mercury control reasons. This should be a permit condition.*

RESPONSE: The EIS document is used to inform the permitting process for the Proposed Project. Items addressed in the EIS will be considered in the development of the permits required for construction and operation of the Proposed Project. The National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) and Air Emission permits will go on public notice if and when the EIS is determined to be adequate. At that time, the public will have the opportunity to comment on those documents.

EIS Modification No change.

Comment O-41: *Comment 4O – although Regional Haze State Implementation Plan has not yet been approved by Region 5, we still think Northeast Regional Haze Plan should be mentioned, as facility will need to comply with it if the SIP is approved.*

RESPONSE: The Northeast Regional Haze Plan is mentioned in several places in the DEIS. The following is a list of locations in the DEIS that reference the Plan: Section 5.12.2.1.1, Table 5.12.1 makes calculations of emission changes in the area similar to the Northeast Regional Haze Plan, and Section 5.12.2.2.1 mentions that additional mitigation is likely to be necessary for the expansion in order to meet the 2018 goal. FEIS text was clarified by adding a sentence in Section 5.11.2.1.1 (DEIS Section 5.12.2.1.1) that states, "Increased emissions from the Proposed Project must be considered when determining if the area will meet the 2018 goal." Text was updated in the FEIS to reflect that the Regional Haze SIP has now been submitted to EPA.

EIS Modification Text updates and additions to Section 5.11.2.1.1.

Comment O-42: *App. C pg 28, why does analysis not include Other Newly Permitted and Reasonably Foreseeable Sources in Class I visibility modeling?*

RESPONSE: Visibility is one of three Air Quality Related Values (AQRV) modeled based solely on facility emissions. Impacts to Class I area visibility as described within FLAG 2000 require mitigation. Cumulative increment analysis includes emissions affecting increment from surrounding facilities. Because the Proposed Project modeled below the SILs, a cumulative increment analysis was not required. Other newly permitted and reasonably foreseeable sources are included in other cumulative analyses and are discussed throughout Chapter 5: Cumulative Effects, and specifically in Section 5.11.2.

EIS Modification No change.

Comment O-43: *App. G shows that several MEI cancer risk estimates are above the guideline of 1 E-5. Some are 2 and 3 times this level. How will this be addressed?*

RESPONSE: The MEI exposure scenarios are used as a screening exercise to test if more investigation is warranted. The MCTE results were reported in an effort to communicate the uncertainty inherent in these types of risk estimations. The risk estimates referred to by the commenter are driven by pollutants that are generally bound to particulates. Control of particulates (PM_{10} and $PM_{2.5}$) will be achieved according to the BACT review which is discussed in FEIS Section 4.9.3 and Section 4.9.2.

EIS Modification No change.

Comment O-44: *App. H, no mention of a study of increased acidification and mercury methylization. Was one done?*

RESPONSE: A study was not completed for the Proposed Project that relates increased acidification to the methylation of mercury, for it is not anticipated that there would be increased acidification. However, if the commenter is asking about the relationship between acid deposition and mercury methylation, please see response to Comment O-39, for the major acid is sulfuric acid, which is a compound that dissociates into sulfate and the hydrogen ion. Additionally, the effect of acidification on the ecosystem was addressed in *Cumulative Impacts Analysis Minnesota Iron Range Industrial Development Projects - Assessment of Potential Ecosystem Acidification Cumulative Impacts in Northeast Minnesota* (Barr, 2009I) and is available by contacting Erik Carlson at the MNDNR email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change.

Comment O-45: *App. H page 9, any air permit issued should include the deadlines for testing and reporting requirements for mercury controls that are shown on this page.*

RESPONSE: Permit conditions that address the proposed mercury reduction strategies for the new line will be included in the air emissions permit. The air emissions permit will be available for public comment if and when the Keetac Expansion Project EIS is determined to be adequate. Also, there is an agreement between U.S. Steel and the MPCA that has been developed to address the mercury reductions at the Minntac facility, as discussed in Responses to Comments E-6 and O-20.

EIS Modification No change.

Comment O-46: *Page 4-82; Page 5-46: Includes statement on MPCA's policy for establishing appropriate water quality based effluent limits to protect the applicable water quality standard and the designated uses of the water as a wild rice water. Fond du Lac has consistently expressed its position to the MPCA on the applicability of the state's (identical to the Band's) sulfate criterion of 10 mg/l for the protection of wild rice: if wild rice is present in a water body, that water body must be protected for the production of wild rice.*

RESPONSE: MPCA staff has reviewed and considered the currently available information for the Proposed Project, including site specific wild rice data and water quality data. Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by these projects. The FEIS has been modified to include a project-specific section discussing the environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been slightly modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment O-47: *Page 5-42: Wild rice presence is documented in Swan Lake, Swan River, Hay Lake, and Hay Creek; 10 mg/l sulfate criterion should be applied in the NPDES permit for the project.*

RESPONSE: MPCA staff has reviewed and considered the currently available information for the Proposed Project, including site specific wild rice data and water quality data. Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by these projects. The FEIS has been modified to include a project-specific section discussing the environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been slightly modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment O-48: *Pages 5-45, 5-49: References to studies that show wild rice stands in waters where the sulfate concentration is higher than 10 mg/l; however, there is no discussion or analysis of the vigor or productivity of the wild rice plants growing in those waters. It is entirely possible that remnant stands or individual wild rice plants can continue to germinate and grow in waters where sulfate exceeds 10 mg/l, but recent research conducted by Dr. John Pastor of the University of Minnesota-Duluth shows significantly reduced root biomass and vegetative biomass on wild rice plants exposed to 100 mg/l and 300 mg/l sulfate treatments, as compared to 0 mg/l and 10 mg/l sulfate concentrations. Seed production was also reduced, but not statistically significant. This research strongly suggests that the existing wild rice sulfate criterion is protective of wild rice, and that elevated sulfate concentrations contribute additional stress to an annual plant that already is at a competitive disadvantage and under stress from hydrologic changes.*

RESPONSE: Additional review of existing literature on wild rice was conducted related to potential impacts from sulfate and water level fluctuations, including the University of Minnesota-Duluth research efforts. The FEIS was revised based on a summary of the findings from this effort to more accurately describe the potential impacts the Proposed Project may have on wild rice that could result from changes in sulfate concentrations or water levels.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment O-49: *Page 5-47: Discussion of wild rice in Hay Lake and Hay Creek; based upon the literature cited on stem density, Hay Lake at 61-184 stems/m3 could also be considered 'moderate' yield, bordering on 'poor yield' (we have not seen the supporting survey data to know how many plots were measured, or the variability between survey plots). It is not necessarily accurate to categorize Hay Lake as 'high yielding'. Persistence of wild rice plants in elevated sulfate concentrations is not evidence that elevated sulfate does not impact its health and vigor.*

RESPONSE: The FEIS has been modified to include a project-specific section discussing the environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been slightly modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project. Due to a lack of available data and information needed to make a correlation between stem counts and wild rice yields, the text characterizing yields was removed from the FEIS.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment O-50: *Page 5-135: Discussion of mercury methylation and fish tissue mercury concentrations; fish in all lakes affected by the proposed project already grossly exceed the fish tissue standard of 0.2 mg/l; any increases are in conflict with Clean Water Act requirements that no additional loadings be permitted that would contribute to an existing impairment, such as a fish consumption advisory. It is irrelevant to compare a projected increase in the fish tissue mercury concentration to fish from Voyageurs National Park, regardless of the ambient sulfate concentrations in those waters. It is relevant to note that this project will increase the problem of mercury in fish tissue impairments, and that additional TMDL studies are needed to reduce any and all sources of those impairments.*

RESPONSE: The Environmental Assessment phase of this project, as represented by the Ecological Risk Assessment portion of the DEIS, is a discovery phase wherein potential ecological risks are identified. As noted in Section 5.13.2.5.4, potential increases in fish tissue mercury concentrations have been described. Comparisons to fish tissue concentrations from Voyageurs National Park, a relatively pristine portion of the state, are made to place these tissue concentrations in a regional context. The discussion of relative differences in water sulfate concentrations between Swan Lake and lakes in Voyageurs National Park is provided to illustrate that factors other than sulfate concentration of water may influence fish tissue mercury concentrations. Because fish in Swan Lake, a lake with relatively high existing sulfate concentrations, have lower tissue concentrations of mercury than similar species of fish from lower sulfate lakes in Voyageurs National Park, factors other than sulfate must be at least partially limiting to net methylation in Swan Lake. That being the case, it is unlikely that increased sulfate loading to Swan Lake would produce a linear response in methylmercury concentrations in water or in fish.

EIS Modification No change.

Comment O-51: *There is also no evidence presented to support the statement that "Because sulfate is most likely not limiting to mercury methylation processes in Swan Lake, it is likely that any potential observed increase would be smaller. In fact, the existing and predicted sulfate concentrations in Swan Lake are likely in the range of optimal sulfate-mediated mercury methylation by sulfate reducing bacteria.*

RESPONSE: Comparison of sulfate concentrations and corresponding methylmercury concentrations in Swan Lake to lakes in Voyageurs National Park, which generally have much lower concentrations of sulfate indicate that sulfate may not be a limiting factor in the methylation process. Additionally, a study of mercury methylation in the Florida Everglades by Gilmour et al. (1998) showed that both methylmercury concentrations and percent methylmercury (i.e., methylmercury divided by total mercury concentrations) were highest in the waters having the lowest sulfate concentrations (~10 mg/L), and lowest in waters having the highest sulfate concentrations (greater than 60 mg/L). This range encompasses the 23 mg/L found in Swan Lake. In the study, addition of sulfate to the samples did not significantly increase mercury methylation, indicating that sulfate was not a limiting factor in mercury methylation processes.

Gilmour, C.C., G.S. Riedel, M.C. Ederington, J.T. Bell, J.M. Benoit, G.A. Gill and M.C. Stordal. 1998. Methylmercury concentrations and production rates across a trophic gradient in the northern Everglades . Biogeochemistry. 40: 327-345.

EIS Modification Text revisions in 5.13.2.5.4.

COMMENT LETTER RECEIVED FROM: James Sanders, Forest Supervisor, U.S. Forest Service, January 26, 2010 (P)

Comment P-1: *In section 1.4.5 Cumulative Effects Analysis, page 1-5, it would be beneficial to show the relationship between the issues and resources listed in this section and sections 1.4.3 Issues of Which Significant Impacts Were Not Expected and 1.4.4 Potentially Significant Issues Requiring More Extensive Analysis (page 1-4). Further developing the narrative relating the relationship of these sections to the cumulative effects analysis would provide a more comprehensive and complete disclosure of the effects analysis and issues considered in the DEIS.*

RESPONSE: The DEIS included three chapters that discussed potential Proposed Project impacts, which were based on Final Scoping Decision Document (FSDD) categories for the anticipated level of potential impact, such as potentially significant impacts may result, cumulative effects analysis, and significant impacts are not expected. Based on analysis completed for the DEIS, it was determined that these chapters did not provide an effective way of presenting the analysis findings that showed the relationship between various potential impacts to the environment. The FEIS was reorganized to better show the comprehensive nature of the EIS and the potential Proposed Project impacts. For the FEIS, Chapter 4 and Chapter 6 were combined into Chapter 4. Chapter 4 now discusses all project-specific affected environments and potential environmental consequences. The organization of Chapter 5, which provided the cumulative effects discussion, did not change. DEIS sections were reorganized and renumbered accordingly.

EIS Modification Chapters 4 and 6 of the DEIS were merged together into Chapter 4 for the FEIS and sections renumbered accordingly.

Comment P-2: *In section 3.3.3.4 Biomass Facility on page 3-14 and 3.9 Governmental Actions on page 3-42 (relating to past and reasonably foreseeable actions in the project vicinity), the DEIS indicates the potential for biomass (including roundwood) to be utilized could come from federal lands. Biomass that could come from vegetation management on the Superior National Forest (SNF) would occur as a result of implementation of the Forest Plan direction (goals, objectives, standards and guidelines). In addition, vegetation management projects on the SNF would be subject to procedures under the National Environmental Policy Act.*

RESPONSE: Text has been added to Section 3.8 of the FEIS: first bullet indicates that logging would occur on federal lands in accordance with the Superior National Forest Forest Management Plan.

EIS Modification Text addition to Section 3.8.

Comment P-3: *The Final Environmental Impact Statement (FEIS) for the Forest Plan provides projected outputs relating to vegetation management on the SNF over the course of the first decade (2004-2014) in Table 2-9 (page 2-31) and Table 2-11. The selected alternative in the FEIS was Modified E. The FEIS is available at http://www.fs.fed.us/r9/forests/superior/projects/forest_plan/2004Plan/feis/index.shtml.*

RESPONSE: This comment is similar to Comment P-2 , and therefore was combined. Please see response to Comment P-2.

EIS Modification See response to Comment P-2.

COMMENT LETTER RECEIVED FROM:	**Lynn McClure, Cory MacNulty, Paul Aasen, Midwest Regional Director, Executive Director, Policy Director, National Parks Conservation Association, Voyageurs National Park Association, Minnesota Center for Environmental Advocacy, January 26, 2010 (Q)**

Comment Q-1: *In general, the Draft EIS fails to accomplish several of its main goals, including evaluating potentially significant impacts of the Proposed Project, examining alternatives to or mitigation of those impacts, and providing accurate and complete information. Significant impacts to human health, visibility, and other qualities have been brushed aside with assumptions that mitigation options will appear in the future. In many instances, the Draft EIS only presents summary information, with little or none of underlying analysis available. In other places, the information provided is inaccurate or fails to fully account for pre-existing impairment. We offer a non-exhaustive set of examples below, focusing primarily on air impacts.*

RESPONSE: The MNDNR and USACE reviewed all of the comments received on the DEIS and have made changes to the FEIS based on those comments in order to improve the quality of the information and data conveyed on the Proposed Project.

EIS Modification Text revisions and additions made throughout the FEIS to reflect responses to comments.

Comment Q-2: *We appreciate the discussion of alternatives in the Draft EIS. Given the indefinite ability to mitigate definite impacts from nitrogen oxides (NO_x), mercury, and greenhouse gas emissions, we encourage MNDNR to thoroughly review the benefits from the "no action" alternative. We also request additional development and analysis of alternatives with regard to modified scale of the Proposed Project, greenhouse gas emissions and climate change (including mitigation options), and any other reasonable alternatives not included in the Draft EIS.*

RESPONSE: The DEIS evaluated Best Available Control Technologies, mercury control technologies and alternative fuel mixes to limit greenhouse gas emissions for the Proposed Project. The Project Proposer would install air pollution controls to meet air emissions limits on NOx and mercury as part of the Proposed Project. The FSDD determined that alternative scale or magnitude changes would not meet the underlying purpose of the project and were not further evaluated for this reason. Since publication of the DEIS, a stockpile alternative has been developed and evaluated. The results of this analysis are included in the FEIS.

EIS Modification No change.

Comment Q-3: *The Draft EIS' treatment of NO_x emissions and related visibility impacts illustrate a lack of complete and accurate information and a reliance on uncertain mitigation. Taconite processing creates NO_x mainly as a byproduct of providing heat for induration. The Proposed Project, if operated at capacity, would significantly increase NO_x emissions from Keetac, adding an additional 3,350 tons per year to the estimated existing 6,573 tons per year. DEIS page 4-93,4. In order to avoid review under the Prevention of Significant Deterioration program, the Proposer has agreed to a lower annual limit of 5,840 tons per year for both the existing facility and the Project combined.*[1]

[1] *Footnote 3 to Table 4.7.3 is ambiguous. If this is not the intended meaning of the footnote, the final EIS should more clearly communicate what is included under the 5,840 ton per year limit, and also what the combined total limit for both the existing facility and Proposed Project would be.*

RESPONSE: In the netting analysis, Keetac used a two-year baseline actual emissions (BAE) period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5,805 tons per year. The permit for the Proposed Project would limit NOX emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. PSD also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the Proposed Project are over the major source threshold (40 tpy), the Proposed Project would be subject to a BACT analysis for the aforementioned pollutant.

EIS Modification Additional text was added for the NOx limit in Section 4.9.1.

Comment Q-4: *The Draft EIS does not provide a clear articulation of how that limit will be met. It is not apparent that this limit, which is lower than emissions from the current operations alone, can and will be achieved. Additional control technologies and operating scenarios are mentioned as possibilities, but none is well-defined or certain. This is particularly problematic in light of ongoing issues with NO_x emissions at Minntac, another U.S. Steel taconite facility. Although testing is ongoing, no effective NO_x reduction technique has yet emerged, and U.S. Steel has avoided testing some feasible technologies. A clear, enforceable roadmap should be provided for any promised emission reductions.*

RESPONSE:

In the netting analysis, Keetac used a two-year baseline actual emissions period ending on November 1, 2001. During that period, Keetac's NOx emissions from this unit averaged 5,805 tons per year. The permit for the Proposed Project would limit NOx emissions from the existing furnace to 3,500 tons per year. This limit would create a reduction of 2,305 tons of NOx per year that would be creditable against an emissions increase. PSD also allows an increase in emissions below the significance level. For NOx, the significance level is 40 tons per year. The Proposed Project would increase NOx emissions by 2,340 tons per year (2,305 plus 35) for the installation and operation of the new indurating line. Since the expansion furnace itself has no creditable decreases, NOx emissions from the expansion furnace would be limited to 2,340 tons per year. The FEIS was updated to explain the netting calculation in more detail. If it is determined that actual NOx emissions increase from the Proposed Project are over the major source threshold (40 tpy), the Proposed Project would be subject to a BACT analysis for NOx.

Keetac will utilize continuous emission monitors (CEM) to directly measure the emissions of NOx from both the existing and expansion indurating furnaces. These monitors will be used to determine compliance with the NOx emission limits that will apply individually to both the existing and expansion indurating furnaces.

EIS Modification Text updated in Section 4.9.1.

Comment Q-5: *Additionally, the proposed annual NO_x limit is not enough to eliminate visibility impacts at nearby Class I areas. As demonstrated by the modeling results reported in the Draft EIS, the potential emissions from the Proposed Project would significantly decrease visibility in Voyageurs National Park and Boundary Waters Canoe Area Wilderness thus requiring mitigation. DEIS at 4-114. Because visibility impact occur on time scales of 30 days or less, an annual limit alone cannot address this impact, and a short term limit should be implemented in conjunction.*

RESPONSE: The modeling scenarios were revised, as described in the Class I Air Modeling Report (Barr Engineering, June 2010). The new modeling scenario is based on a combined NOx emission rate for the indurating furnaces to reflect more realistic fuel mixes as well as the limited NOx 24-hour emission rate of 1,652 lb/hr. A sensitivity analysis was completed to determine how to distribute the emissions between the two lines to show maximum modeled results. The sensitivity analysis showed that the worst-case modeled impacts occurred by modeling the existing line at its maximum emission rate and attributing the remaining allowable NOx emissions to the expansion line. This scenario is referred to as the "24-hour combined NOx emission rate" scenario. The FEIS was updated to reflect the results of this revised modeling scenario.

EIS Modification Text revisions in Section 4.9.5.2.

Comment Q-6a: *The Draft EIS only briefly puts these visibility impacts into the context of the regional haze program or the Northeast County Plan.[2] Under federal law, the regional haze program aims to eliminate man-made haze in Class I areas by 2064. Minnesota's recent submission to U.S. EPA described an inability to meet a uniform rate of progress towards that 2064 goal, and how the Northeast County Plan's 30 percent reduction goals may not be met due to new construction. It is in this context – of already impaired parks and wilderness areas; of an inability to clean up existing emissions, let alone new ones – that the Keetac Expansion's impacts on visibility should be evaluated.*

RESPONSE: As also described for Comment O-41, the Regional Haze SIP and the Northeast Regional Haze Plan are mentioned in the DEIS. Note meeting the uniform rate of progress is not required. Commitments in the Regional Haze SIP to reduce visibility impairment that were used as the basis for the DEIS text. Additionally, MPCA's latest projections for the Northeast Regional Haze Plan show that the 30 percent reduction goals will be met, even when the Proposed Project is included at the facility's controlled Potential-to-Emit (PTE). Reducing emissions at existing taconite lines, through BART and research into additional controls, is a different issue.

EIS Modification Text updates and additions to Section 5.11.2.1.2 based also on response to Comment O-41.

Comment Q-6b: *[2] In its cumulative analysis on page 5-109, the Draft EIS attributes an increase of 39 tons per year NO_x to the Keetac Expansion. The origin of this number is unclear, as it is not included in, and does not appear to be derived from, any of the emissions inventories found on pages 4-93 through 4-95.*

RESPONSE: The 39 tpy number for NOx was presented in the Cumulative Impacts Analysis report prepared by Barr Engineering (January 2009). This number reflected an increase in emissions below the PSD significance level (40 tpy for NOx). Since that time, MPCA has set the increase in emissions at 35 tpy to stay below the NOx PSD significance level for the expansion furnace. The air emission permit will contain NOx emission limits that correlate with the 35 tpy increase. The text was updated to reflect 35 tpy instead of 39 tpy.

EIS Modification Text revisions in Section 5.11.2.2.1 and Table 5.11.1.

Comment Q-7: *The Draft EIS acknowledges that mitigation may be required, and lists options for mitigation from NO_x emissions; however, these mitigation options are generally poorly delineated and insufficient. The first mitigation option, describing add-on controls including low NO_x combustion, selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), and Mobotec System™, states that none of these have been tested at taconite facilities. In fact, SNCR has been tested at Minntac, with unsatisfactory results to date. Low NO_x combustion is scheduled to be tested this year, as is LoTox.*

RESPONSE: The FEIS text was updated to reflect the recently selected mitigation measure of a low-NOx main burner on the expansion line. It also discusses how Mobotec (SNCR) technology was tested but was not proven to be feasible.

EIS Modification Text updated in Section 4.9.5.3 and 4.9.6.3.1.

Comment Q-8: *Another option, "Securing and retiring tradable emission allowances from National Emissions," is wholly insufficient. Unless the national emissions happened to also be local, the actual mitigation value with regard to Voyageurs, Isle Royale, or Boundary Waters would be nil. Overall, the Draft EIS' strategy for dealing with a potentially significant increase in NO_x emissions in light of already impacted visibility is vague and overly reliant on promised rather than concrete emission reductions.*

RESPONSE: Tradeable emission allowances have been removed as a mitigation option from the FEIS.

EIS Modification Text deleted in Section 4.9.5.3 and the Executive Summary.

Comment Q-9: *Like its approach to NO_x, the Draft EIS' approach to mercury emissions seems to rely heavily on promises of technological controls in light of an already impaired environment. In this case, nearby waterbodies already require reductions in existing mercury emissions to meeting Total Maximum Daily Loads (TMDLs). While we support the development of control options for the taconite industry, such controls should be more fully developed prior to reliance on their assumed success to justify significantly increased operation and emissions.*

RESPONSE: We agree that reliable controls are needed to obtain and maintain compliance with environmental standards. U.S. Steel has conducted assessment of mercury assuming a low level of mercury control in order to estimate the environmental impacts should mercury controls, such as activated carbon injection, not perform as well as it has performed for the utility power industry.

EIS Modification No change.

Comment Q-10: *The discussion of mercury emissions in the Draft EIS also seems flawed in that it fails to explain how the Proposed Project's mercury emissions will be offset in addition to the 75 percent reduction from existing emissions required by Minnesota's Mercury Reduction Plan. Illustration 4-2, for instance, shows somewhat lower emissions in the future, but not enough to also meet a 75 percent reduction goal. The Draft EIS should clarify this discrepancy.*

RESPONSE: The mercury TMDL reduction goal for taconite facilities is to reduce the taconite sector's collective mercury emissions by 75 percent from 2010 estimated emission levels, not 2005 levels, and should be achieved by 2025. It should not be assumed that the reduction goal necessarily correlates to a 75 percent reduction at each operating unit. The reduction target is a sector-wide target, leaving facility owners free to develop control strategies that may result in differing removal efficiencies or permanent retirement of operating units. The TMDL does not prohibit new projects that may cause increases in mercury emissions. The TMDL's implementation strategy for new and expanding sources directs sources to seek offsets. Alternatives to offsets can also be proposed.

U.S. Steel's approach is to use activated carbon injection on the proposed furnace, and to phase in mercury controls at its existing furnaces as it works to develop mercury emission controls. U.S. Steel has agreed to a long term campaign of research and testing of mercury controls at the existing units, as well as a process for accounting for mercury emissions of the furnaces, new and existing. The permit for the expansion would establish conditions for using activated carbon injection. The illustrations demonstrate how U.S. Steel would implement reductions at both Keetac and Minntac. Reductions of mercury occur over a period of time as controls are trialed and installed at individual furnaces.

The TMDL strategies also include tasks for the MPCA to complete to facilitate mercury emission reductions, including implementation of the mercury emission inventory rules, periodic consultation with stakeholders, and check-ins with affected emission sources. Over the course of the next 15 years, technological understanding and improvements will occur. Hence, the EIS discussion represents a reasonable forecast of the effects of the Proposed Project and U.S. Steel commitments. Other avenues to mercury reductions at these units may develop as well.

EIS Modification New Illustrations and text in Section 4.9.7.

Comment Q-11: *Treatment of particulate matter emissions includes examples of missing information, analysis, and context. For instance, when discussing PM_{10} monitoring at the tailings basin, the Draft EIS only discussed results from 2008 (nine months, as the monitor did not start until the last day of March). DEIS at 4-98. Given the history of violations regarding fugitive dust emissions from the tailings basin, and that the emissions are correlated somewhat to the size of the pile, MNDNR should consider the most complete data set (i.e. including 2009) when evaluating the possibility of significantly expanding the source.*

RESPONSE: The tailings basin mitigation measures are described in DEIS Section 4.7.2.1.2 under Existing Conditions. The No Action Alternative and Proposed Action Alternative FEIS Sections 4.9.2.1.3 and 4.9.2.2.1 were intended to reference the mitigation measures in the existing conditions section because the same mitigation measures would occur in the No Action Alternative and in the Proposed Action Alternative. However this reference was not made clear. The No Action Alternative and Proposed Action Alternative sections have been revised to discuss the tailings basin mitigation measures.

Additionally, MPCA reported on February 11, 2010 that based on the lack of complaints received and no report of violations in seven quarters of ambient air monitoring at three sites near the basin, the mitigation measures described in the existing conditions section appear to have reduced fugitive emissions from the basin. The FEIS was updated to reflect 2009 particulate monitoring data that was not available at DEIS publication time. Additionally, no violations of ambient PM_{10} standards or fugitive dust rules were reported in 2010 as of May 20, 2010.

EIS Modification Updated text was added to Section 4.9.2.1.

Comment Q-12: *In evaluating $PM_{2.5}$ emissions and limits, the Draft EIS describes how little is known about $PM_{2.5}$ emissions from taconite facilities. DEIS at 4-103. The Draft EIS again suggests putting off information gathering into the future (post-permit "test and set" procedure). By setting the limit at existing performance levels, this approach fails to serve the technology-forcing mandate of Best Available Control Technology (BACT).*

RESPONSE: PM_{10} emissions and the effects of control equipment on those emissions are well understood, and the emission limits described in the DEIS are technology forcing. However, little is known about $PM_{2.5}$ emissions and the interaction of control equipment with $PM_{2.5}$ emissions. The test and set procedure that has been negotiated between the project proposer and the MPCA to account for a deficit of data on $PM_{2.5}$ emissions from taconite facilities. The $PM_{2.5}$ test and set proposal has been developed to prescribe a statistical calculation method to set new $PM_{2.5}$ emissions limits based on the initial $PM_{2.5}$ performance test results. $PM_{2.5}$ emissions limits that will be set based on this method are not to exceed the existing, technology forcing PM_{10} BACT emissions limits (i.e. initial $PM_{2.5}$ BACT emissions limits). The test and set method that has been proposed allows for extensive testing to understand $PM_{2.5}$ emissions, the effects of the proposed control technology on those emissions, and provides a means to set realistic $PM_{2.5}$ emission limits. $PM_{2.5}$ emissions limits that will be set based on this method are not to exceed the existing, technology forcing PM_{10} BACT emissions limits (i.e. initial $PM_{2.5}$ BACT emissions limits).

EIS Modification No change.

Comment Q-13: *In addition to the missing information noted above, many of the documents which contain the actual analyses were not made a part of the Draft EIS. For instance, the Draft EIS contains none of the BACT analysis itself – it merely lists the technologies which were proposed as BACT. Among other examples, this makes it difficult for the public to evaluate the decision to use dry instead of wet scrubbers to control SO_2, [footnote] 3 especially when faced with the assertion that dry scrubbers prohibit the use of LoTox, a promising control for both mercury and NO_x. In addition, numerous analyses by Barr Engineering are referenced by the Draft EIS and not available for review. [footnote] 3 The Draft EIS also states that dry scrubbers were chosen as part of the BACT analysis for acid gases (4-126); however, the section on BACT analyses does not mention acid gases. 4-100,1.*

RESPONSE: The FEIS was updated to further address the reasoning behind the control technology selections that have been made as part of the BACT analysis. The documents used in the development of the Keetac DEIS were referenced in Chapter 8.0-References and are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or telephone: (651) 259-5162.

The decision to use dry instead of wet methods for control of SO_2 was explained in the *BACT Report* (Barr, 2009C). The Proposed Project NOx emission increases do not trigger a BACT review for NOx under PSD. This denotes that a technology review (i.e., BACT review under PSD) for control of NOx is not required for the Proposed Project for PSD.

In order to be consistent with the BACT, the mistaken reference to acid gases on page 4-126 of the DEIS should reference SO_2. The FEIS was updated to correct this error.

EIS Modification Text edit to Section 4.9.7.1.2.

Comment Q-14: *In conclusion, the Draft EIS requires significantly more analysis and documentation to achieve its purpose of providing a detailed statement of the impacts associated with, and alternatives to, the Proposed Project. We request that the Final EIS be delayed until the air permit, among others, is issued and reviewed by the National Park Service, Forest Service, U.S. EPA, and any other interested federal agencies. This would provide more concrete emission limits and controls on which to base the Draft EIS' description of potential impacts. We also request that any comments on future air permits for the Keetac Expansion be incorporated into these comments on the Draft EIS.*

RESPONSE: MNDNR and USACE reviewed all of the comments received on the DEIS and have made changes to the FEIS based on those comments in order to improve the quality of the information and data conveyed on the Proposed Project. The FEIS will be noticed as required according to state and federal procedures. Once the notice requirements have been met, the MNDNR and USACE will render final agency decisions as warranted. The MPCA cannot issue an air permit until the MNDNR has determined that the EIS is adequate.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**David A. Lotti, Chair, Western Mesabi Planning Board, January 26, 2010 (R)**

Comment R-1: *At the Board's request, this letter is being sent to you to inform you of the Board's support for this project and to encourage approval of the EIS and issuance of the necessary permits so that the proposed expansion can proceed.*

RESPONSE: Comment has been noted.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Sam Malloy, Water Resources Tech, Leech Lake Band, January 26, 2010 (S)**

Comment S-1: *How can there be such a "need" for taconite (for steel making) that so many acres of "overburden" (trees, plants, soil, animals, habitat) can be so casually discussed as needing to be removed, never to be actually recoverable as they once were?*

RESPONSE: The benefits of a proposed project, as defined by the stated purpose and need, and the impacts to natural resources are given serious consideration in the environmental review and permitting process. These benefits and effects were reviewed in more detail in the FEIS. Furthermore, USACE permitting regulations state, "The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative effects, of the proposed activity and its intended use on the public interest." Federal Code of Regulations (CFR) (33 CFR 320.4(a)(1)). Additionally, the Project Proposer operates under a Permit to Mine, which requires mineland reclamation according to standards set forth in Minnesota Rules Chapter 6130.

EIS Modification No change.

Comment S-2: *How can there be such a "need" for taconite (for steel making) that this many acres of wetlands (723.12 acres, pg. 4-46) can be directly impacted, altered or lost and the discussion of that loss be reduced to casual numbers, the replacement of these acres talked about as though the loss of complex, critical ecosystems were easily recouped?*

RESPONSE: The benefits of a proposed project, as defined by the stated purpose and need, and the impacts to natural resources are given serious consideration in the environmental review and permitting process. These benefits and effects were reviewed in more detail in the FEIS. Furthermore, USACE permitting regulations state, "The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative effects, of the proposed activity and its intended use on the public interest." (33 CFR 320.4(a)(1)). Additionally, the Project Proposer operates under a Permit to Mine, which requires mineland reclamation according to standards set forth in Minnesota Rules Chapter 6130.

EIS Modification No change.

Comment S-3: *How can the "need" for taconite (for steel making) be so great that the maps ("figures") showing the impact of the proposed project be presented as though this was an o.k. and acceptable level of loss?*

RESPONSE: The benefits of a proposed project, as defined by the stated purpose and need, and the impacts to natural resources are given serious consideration in the environmental review and permitting process. These benefits and effects were reviewed in more detail in the FEIS. Furthermore, USACE permitting regulations state, “The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative effects, of the proposed activity and its intended use on the public interest.” (33 CFR 320.4(a)(1)). Additionally, the Project Proposer operates under a Permit to Mine, which requires mineland reclamation according to standards set forth in Minnesota Rules Chapter 6130.

EIS Modification No change.

Comment S-4: *How can the "need" for taconite (for steel making) be so great that the nearby communities can be realistically asked to risk their drinking water supply for the sake of a private corporation's bottom line? (Section 4.5 Water Use, pg 4-77 and Appendix F)*

RESPONSE: It is not the purpose or the intent of the Proposed Project to impact local drinking water supplies. The Cities of Keewatin and Nashwauk have signed drinking water contingency plans with U.S. Steel in an effort to minimize the risk to their communities' drinking water. Additionally, the EIS process examines and identifies potential impacts to natural resources. The EIS is used by decision makers to determine whether the potential impacts from a project can be avoided or mitigated. The benefits of a Proposed Project, as defined by the stated purpose and need, and the impacts to natural resources are given serious consideration in the environmental review and permitting process, as provided in more detail in the FEIS. If risks outweigh benefits of a Proposed Project, decision makers have options during permitting to require additional conditions or alternatives before issuing a permit. Furthermore, Army Corps of Engineers permitting regulations state, “The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative effects, of the proposed activity and its intended use on the public interest.” (33 CFR 320.4(a)(1)).

EIS Modification No change.

Comment S-5: *What about employing people in recycling and reclamation of used steel and iron ore? How does the total carbon footprint (emissions and materiel used) compare between taconite mining for the production of steel versus the recycling/reclamation of used steel? How deep a pit has to be dug to recycle? How large a tailings pond is generated? How much "overburden" has to be removed?*

RESPONSE: The Proposed Project is an expansion of an existing mining operation that is currently permitted to mine taconite to sell in global markets. The production of taconite pellets is directly correlated to the market demand for the product. If there was no demand for taconite pellets, there would be no need for mining of taconite or production of taconite pellets. The comment that there are other options to produce steel products beyond mining taconite is noted. There is evidence that the North American steel industry has shifted in the past ten years to using more recycled steel and new technologies to produce steel. This has reduced air emissions including air toxics and greenhouse gas (http://www.sustainable-steel.org/emreduction.html). Using only recycled steel to produce steel products would not eliminate the need for mining taconite, and therefore the need to remove overburden, use open pit mines, and create tailings ponds. However, the purpose of the EIS is not to evaluate the business plan/cost effectiveness of the Proposed Project, but rather the potential impacts of the Proposed Project on both the natural resources and the human environment.

EIS Modification No change.

Comment S-6: *Why does the seepage cause groundwater mounding? What is the subsurface topography that results in ground water flowing in the direction of surface water? What are the subsurface soil/rock strata such that this phenomenon occurs? How was this determined?*

RESPONSE: Groundwater mounding occurs because the seepage water is adding to the natural groundwater flow beneath the settling pond and needs time and distance to dissipate into the aquifer. There is no particular structural reason for this, there is simply more water added to the aquifer surface immediately beneath the basin. It dissipates radially outward from the basin slowly since it is limited by the permeability of the aquifer soil. This zone of radial flow is called a “groundwater mound." A groundwater mound is the inverse of the cone of depression beneath a pumping well. As the mound dissipates the extra water eventually turns and follows the natural flow path of the groundwater which, at this site, follows the natural topography to the southwest. The groundwater flow follows the surface topography because it generally mirrors the patterns of infiltration and surface water flow. More specifically, the groundwater is recharged in the upland areas and discharges to the major streams and lakes in the area. Thus, the pattern of groundwater flow mirrors topography and flow within the watershed. This pattern is quite common in areas with a moist climate and shallow aquifers. The flow direction is determined from a combination of mapping the groundwater elevation measurements in wells and from examining the recharge/discharge patterns in the watershed, as discussed above. In addition, specific to the Keetac tailings basin, general groundwater flow patterns have been inferred from piezometers installed in various locations around the tailings basin, as well as physical expressions of groundwater outflow such as wetlands in the surrounding non-active portion of the tailings basin.

EIS Modification No change.

Comment S-7: *When was the SWPPP last reviewed? How old is it? How well does it work? Where is it-is it included in the DEIS? What elements are actually utilized from the SWPP?*

RESPONSE: Under Keetac's existing NPDES permit, dated June 15, 2006 (expires May 31, 2011) and the NPDES permit for the tailings basin dated March 10, 2006 (expires Feb. 28, 2011), the facility is required to comply with the storm water pollution prevention plan (SWPPP), originally written in 1998. All elements of the latest revision (Rev. 4, July 16, 2007) are currently being utilized. The SWPPP is reviewed annually and is a condition of Keetac's current NPDES permit. The SWPPP is required to protect groundwater and surface water quality by implementing best management practices (BMPs) on a regular schedule. The SWPPP is not included in the FEIS, but is maintained onsite as permit requirements. To request a copy of the SWPPP, contact Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change.

Comment S-8: *"Planned dewatering of the Perry Pit is part of the No Action Alternative." The subsequently described dewatering plan/"need" is far from "No Action"; it is understood that the term "No Action Alternative" refers to making no adjustment to the current mine operations plan--however, this can end up misleading--reminding readers/DEIS end users that "No Action Alternative" refers to NOT expanding current mine operations, rather than no mining would be a very useful and equitable regular statement to make in the body of the EIS.*

RESPONSE: The definition of the No Action Alternative was added to the FEIS Definitions section. Clarification was added to FEIS text to better distinguish between the No Action Alternative and a theoretical no mining scenario, which is not being considered. The Proposed Project is an expansion of an existing mining operation that is currently permitted. Under existing conditions and current processing rates, the Keetac mine is expected to deplete recoverable taconite by 2021 with no additional permits or amendments. The EIS does not analyze a theoretical no mining scenario, because if the Proposed Project is not implemented, Keetac is anticipated to continue operating its facility for the remainder of their current permits and/or as market conditions allow.

EIS Modification Added definition of No Action Alternative to Definitions section of FEIS and text to Section 3.2.1.

Comment S-9: *"The biomass facility would provide biomass fueled to the new indurating line." What annual/monthly tonnage is needed for this? What is being proposed as the biomass source? If the source is trees, how many acres of forest need to be sacrificed for the biomass fuel source to be operational? What is the operational efficiency of such a facility?*

RESPONSE: Section 3.3.3.4 summarizes how biomass would be used by the Proposed Project as follows: "The Project Proposer would purchase biomass fuels, from local suppliers, including material from forest harvesting not used in pulpwood or saw timber markets. These include roundwood, logging residual from forest harvest, and wood chips. The Proposed Project would process approximately 200,000 tons of green biomass annually, which would result in the production of about 100,000 oven dried tons. Approximately half of the oven dried biomass (50,000 tons) would be utilized at the Keetac facility, and the additional supply would be trucked to the Project Proposer's Minntac facility near Mountain Iron, Minnesota." Section 5.1 provides further discussion on biomass related to the Proposed Project and potential cumulative effects. Table 5.1.1 provides information on the availability of biomass. Results of the *Biomass CI Study* are also discussed in Section 5.1.1.1.1 of the FEIS. As to the operational efficiency of a biomass facility, Section 3.3.3.4 (Biomass Facility) states, "The proposed biomass dryer would utilize recovered heat off the existing Phase II indurating furnace to process green woody biomass into oven dried fuel."

EIS Modification No change.

Comment S-10: *"A Water Balance/Mine Yield Study was completed for the Proposed Project." Where is the study? What are the results? The methods/process used? Where is the data? This study is referenced very frequently in the DEIS--having it on hand to read/review would be very helpful.*

RESPONSE: The *Water Balance/Mine Yield Study* is available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162. The study was completed by Liesch Associates, Inc. in February 2009. The methods and processes used to gather and develop the data for the study are presented in the full version of the study. The data from *Water Balance/Mine Yield Study* is summarized and referenced in the EIS text.

EIS Modification No change.

Comment S-11: *Table 4.4.15, pg 4-53. Total acres of wetlands impacted by proposed project are cited as 780.77; this is a rather sizable loss of wetlands--where will these wetlands be replaced? Will they be replaced through wetland restoration? If so, when and where?*

RESPONSE: Mitigation for wetland impacts would use on site locations for wetland creation and off site locations to create and/or restore wetlands. Past monitoring results in the inactive area of the tailings basin indicate that wetlands in that location can be created to compensate for the Proposed Project. If all of the wetland creation in the tailings basin is successful, which would be determined over the next 5-10 years, mitigation wetland credit would total approximately 435 acres in that location (a credit amount equal to 75 percent of the wetlands created). An additional 322 acres of wetland mitigation credit off site is necessary to meet compensatory wetland mitigation requirements. Off site wetland mitigation would be accomplished through a combination of wetland creation and wetland restoration currently proposed in Aitkin County. FEIS Section 4.6.3 (DEIS Section 4.4.1.3.1) describes potential wetland mitigation measures in greater detail. Text in the FEIS was revised to reflect mitigation credit allowance for on site compensation.

EIS Modification Text revised in Section 4.6.3.

Comment S-12: *Water Balance Model--potential evapotranspiration is cited as a "known parameter" (2nd paragraph); the next paragraph states that the depth to which evapotranspiration occurs is an unknown parameter....Clearly, evapotranspiration rates are governed by precipitation (available moisture), soil content, weather, and amount and type of foliage cover. Except in extremely cool, humid climates, evapotranspiration is the major use of water--this begs the following questions: how was the potential evapotranspiration rate determined for the Keetac site? What accounting for vegetative cover was made? If the depth to which the evapotranspiration is occurring is unknown, how can potential evapotranspiration be referred to as a "known parameter"? This seems a fairly significant issue, since evapotranspiration is know to be the major use of water environmentally.*

RESPONSE: The *Water Balance Report* provides a detailed description how evapotranspiration is calculated. It is calculated through a widely accepted water balance method, the Thornthwaite Method. The Project Proposer collaborated with MNDNR to reach an agreement about an approach for water balance modeling. The maximum depth of evapotranspiration losses used in the model was 12 inches, which is representative of the majority of the rooting mass for many plants growing in wetlands as evidenced within forested wetlands in northern Minnesota. This depth is validated through examination of uprooted trees in which the shallow rooting depth is prominent due to saturated soils.

EIS Modification No change.

Comment S-13: *"The values selected for the unknown parameters were all determined to be within the accepted range for conditions present." How were they so determined? What are the ranges? Where is this mysterious model--is there any written report of the modeling and the results?*

RESPONSE: The *Water Balance Report* provides a detailed description how evapotranspiration is calculated. It is calculated through a widely accepted water balance method, the Thornthwaite Method. The Project Proposer collaborated with MNDNR to reach an agreement about an approach for water balance modeling. The maximum depth of evapotranspiration losses used in the model was 12 inches, which is representative of the majority of the rooting mass for many plants growing in wetlands as evidenced within forested wetlands in northern Minnesota. This depth is validated through examination of uprooted trees in which the shallow rooting depth is prominent due to saturated soils.

EIS Modification No change.

Comment S-14: *The point is that simply tallying up the total amount of water for a given region and proposing that removal of water from say the groundwater portion of the area can be replaced with surface was addition without there being any ill-effects is ludicrous. If the same quantity of water is returned to surficial water resources that was removed from the groundwater--considering that to actually keep the water balanced it would seem to need to be returned at the same rate that it was removed--flooding or "over abundance of surface water" would definitely occur. Additionally, removing surface water at a rate ground water could be removed would cause an equally deleterious effect bit in the reverse--drying up and loosing critical surface waters. Either scenario results in devastating effects of the habitats--aquatic, riparian, littoral, shoreline terrestrial, wetlands--directly dependent upon the water actually staying balanced and present in the environment. If the above discussion is off the mark, please be more clear in how the water balance model is actually employed as a water resource management tool.*

RESPONSE: The DEIS and supporting *Indirect Wetland Impacts Study* (Barr, 2009CC) conclude that the potential for wetland impacts due to subsurface drainage would be small. This is due to a significant portion of the wetlands being perched and not directly linked to the groundwater. Therefore, it is not suggested that surface water runoff would be replacing a groundwater component of wetland hydrology. Thus, the Indirect Wetland Impacts Study focused on evaluating the effects of the Proposed Project on surface water changes through calibration using existing hydrology data and modeling future effects. The results showed that through the implementation of mitigation measures, including installing outlets from wetlands and appropriately planning drainage from stockpiles, the existing hydrologic regime of wetlands adjacent to the Proposed Project could be maintained similar to existing conditions. The Project Proposer is also required to monitor 174.6 acres of adjacent wetlands to ensure future impacts do not occur, or if they do, wetland compensation would be required.

The potential for impacts associated with the withdrawal of groundwater is addressed in the *Water Contingency Plans* (Liesch, 2009). The fractured nature of the ore creates some uncertainty about the impacts of groundwater withdrawal, but through evaluation of existing groundwater monitoring records associated with the mine operation drawdown impacts are considered to be minimal. To ensure against the potential for impacts the Project Proposer would install an extensive network of groundwater monitoring wells with a definitive monitoring frequency, as was agreed to with the MNDNR.

The potential for dewatering flows were accounted for in the *Water Balance Report, O'Brien Creek Stream Morphology Report*, and *Hay Creek Water Quality Report*, and were determined to not significantly increase the potential for flooding adjacent to and downstream of the Proposed Project.

EIS Modification No change.

Comment S-15: *2nd Paragraph: "some wetlands near the project could have excessive water while others could become drier as a result of the Proposed Project." This is a major concern--this will have a serious impact on habitats and the ecosystems dependent upon the wetlands effected (see above discussion).*

RESPONSE: The Project Proposer has installed a series of monitoring wells in wetlands with the potential to be impacted in the future. These wetlands are located north of the proposed east stockpile. Hydrology monitoring has occurred in 2008 and 2009 to establish pre-project conditions in these wetlands. Continued monitoring of these wetlands during the Proposed Project would occur as a condition of the Clean Water Act (CWA) section 404 and Wetland Conservation Act (WCA) permits, to determine if additional wetland impacts have occurred. Future wetland impacts would require compensatory mitigation. Additionally, the MPCA Section 401 Certification is required to ensure that the Proposed Project will be in compliance with state water quality standards. This certification will require continued monitoring for potential wetland impacts.

EIS Modification No change.

Comment S-16: *"The documents provided by the Project Proposer are listed below, which were submitted in support of the quantifying and qualifying the potential impacts to non-wetland resources." (List on page 4-59) Where are these documents? Why is their location not referenced here if they are part of the DEIS? If they are not part of it, why not? How can consulting agencies and/or the public get to view them? Portions of information from these documents appear in the body of the EIS, but the whole reports do not make an appearance--why not?*

RESPONSE: The documents listed on page 4-59 in Section 4.4.2 of the DEIS are described at the beginning of the DEIS in the Project Related Studies section and also referenced in the References chapter. The documents were not included in the DEIS appendices as the data presented in those documents was summarized in the DEIS text. The project-related studies are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change.

Comment S-17: *One key aspect to Wild Rice not mentioned is that any waters that have ever had wild rice growing in them are potential wild rice beds. The seeds can lie dormant for an undetermined period of time, waiting for the conditions to return that will allow sprouting and growing.*

RESPONSE: The EIS currently states that seeds may remain dormant for years to decades until conditions are favorable for germination and plant growth. In the absence of historic records documenting past wild rice stands, it is not possible to know which water bodies may contain dormant wild rice beds.

EIS Modification No change.

Comment S-18: *5th Paragraph, pg 5-45: The sulfate levels conducive to healthy, abundant wild rice production have been reliably documented at 10 mg/L. While it is true that wild rice can grow in the higher sulfate levels quoted, it is also true that wild rice production (bed abundance) declines and the rice itself becomes a poorer quality, reducing its food value, when the sulfate levels increase. Wild rice thrives at 10 mg/L sulfate concentrations and less--deleterious effects begin to be observable on the quality and quantity of bed production at 35+ mg/L. (Section 5.4.5 Environmental Consequences).*

RESPONSE: Additional review of existing literature on wild rice was conducted related to potential impacts from sulfate and water level fluctuations, including the University of Minnesota-Duluth research efforts. The FEIS was revised based on a summary of the findings from this effort to more accurately describe the potential impacts the Proposed Project may have on wild rice that could result from changes in sulfate concentrations or water levels.

EIS Modification Text revisions to Section 5.4 and creation of new Section 4.7.

Comment S-19: *Overall the portions addressing water, water quality, wetlands and cumulative effects on same gave concise and thorough background information; however, the several documents that continued to be referred to as having been provided where not manifest in the DEIS. These need to be included at least as appendices or cited such that the documents could be viewed.*

RESPONSE: The documents listed on page 4-59 in Section 4.4.2 of the DEIS are described at the beginning of the DEIS in the EIS Related Studies section and also referenced in the References chapter. The documents were not included in the DEIS appendices as the data presented in those documents was summarized in the DEIS text. The project-related studies are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change.

Comment S-20: *The level of potential damaging impact to water resources surrounding the proposed and current project have been reduced to easy to discuss numbers and details on paper, while the terrestrial damage done by "removing overburden" was not addressed at all. Reducing the environment to numbers, stats and charts removes or at least lessens the connective understanding many people have of their environment. A similar effect is seen when referring to soil and forest or overlying rock formations as "overburden". This degree of separation does a disservice to the profound impact mining has on the landscape, the animals and the human inhabitants of the neighboring areas.*

RESPONSE: The purpose of an EIS is to present a factual and scientific document that describes the potential impacts a proposed project may have on the natural resources and human environment, including consideration of project alternatives in a succinct manner, as described in Minnesota Rules part 4410.2300, subp. H. It is also intended to provide an opportunity for public input. Through the writing of the EIS, it is not the intent of the MNDNR or USACE to marginalize the impacts that mining has on the environment. It is realized that mining converts forested uplands, wetlands, and other natural resources into open mine pits, stockpiles, and tailings basins. However, ferrous mining is allowed and regulated in the state of Minnesota under Minnesota Rules Chapter 6130, which sets forth standards and permits required to conduct mining-related activities. The MNDNR and USACE recognize the interrelationship of natural resources and the human environment and have described the relationship in the EIS text through discussions about potential impacts and mitigation measures. Further, FEIS Section 4.18 (DEIS Section 6.11) discusses the Federal Trust Responsibilities to Indian Tribes, which describes the interrelationship of natural resources and the human environment. In addition, the effects of removing overburden as a function of open pit mining is addressed in the Section 5.6 -Wildlife Habitat Loss/ Fragmentation and Travel Corridor Obstruction.

EIS Modification No change.

Comment S-21: *Finally, considering all the damaging effects already known and acknowledged by the "project proposer" as being part and parcel of the proposed project, and further considering all the potential damaging effects which have to be monitored for and necessitate contingency plans, one has to ask if this project expansion proposal is actually necessary--or is it simply desired by the proposer regardless of the environmental risk and cost.*

RESPONSE: The existence of communities on the Iron Range is due to the presence of iron ore. Historically, the local economy thrived due to this iron ore, which created communities in its vicinity. This in turn contributed greatly to the state of Minnesota's economy and established Minnesota as a global competitor in the production of taconite for use around the world. While there are now a number of other industries in northern Minnesota, such as forestry, tourism, and recreation that fuel the economy, the production of taconite still contributes greatly to the state and local economy. The Project Proposer has evaluated its own economic risk and investment as it relates to the Proposed Project. Communities in the area have also been planning for expansion of major industries that would bring employment opportunities to the Iron Range. Working together, the Project Proposer, government agencies, and other interested parties are seeking to develop a project that minimizes the impacts on the environment, while satisfying existing local and regional plans for economic growth and stability.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM:	**Lynn McClure, Cory MacNulty, Paul Aasen, National Parks Conservation Association, Voyageurs National Park Association, Minnesota Center for Environmental Advocacy (e-mail received January 27, 2010 (T)**

Comment T-1: *Our comment letter referenced impacts from mercury emissions. The attached document, which we received earlier today in response to a data practices act request, brought to our attention the cumulative impact of mercury on wildlife species. This impact should be thoroughly investigated in the Draft EIS as a part of NEPA requirements. Please consider this email and the attachment as an addendum to our comments submitted yesterday. (email received 1/27/2010)*

RESPONSE: Additional analysis was completed for Section 5.13.2 – Ecological Risk Assessment for the FEIS. Based on MPCA's Mercury Risk Estimation Method (MMREM) approach, the estimated increase in mercury levels in piscivorous animals eating fish from the study lakes would fall in the range of 0.2 percent to 2.2 percent. This analysis found that the effects of mercury on wildlife would vary depending on the species and its habits. For example, potential increases of mercury concentrations in piscivorous animals whose diet consists solely of fish from Swan Lake would be proportional to the increase in methylmercury concentrations in Swan Lake. Additionally, the risk of increased exposure to the birds and animals that prey on them would be proportional to the increase in mercury concentrations in the prey organisms they consume from the study lakes multiplied by the fraction of their total diet that is composed of these insects or other affected prey items.

EIS Modification Text revisions and additions in Section 5.13.2.

COMMENT LETTER RECEIVED FROM:	Kenneth Westlake, NEPA Compliance Officer, EPA Region 5, January 27, 2010 (U)

Comment U-1: *The applicant must follow a sequence of steps to be in compliance with the 404(b)(1) Guidelines, which include avoidance, minimization, and compensation for unavoidable impacts. After review of the information available, EPA has determined the applicant has not demonstrated that impacts have been avoided and minimized to the maximum extent practicable and is not in compliance with the 404(b)(1) Guidelines at this time.*

RESPONSE: Included in Appendix E are volumes of waste rock and surface overburden that would be generated from the Proposed Project and where these materials would be stockpiled (in-pit vs. out of pit). All potential in-pit and out of pit stockpiling areas were evaluated for feasibility. Based on a review of the Proposed Project mine plan by MNDNR Land and Minerals mining engineers, it was determined that to the extent practicable, the Project Proposer would be maximizing the use of in-pit stockpiles. After maximizing in-pit stockpiles, approximately half of the stockpiling needs would need to be managed in out of pit stockpiles. Out of pit stockpiles account for the greatest area of wetland impacts from the Proposed Project.

After publication of the DEIS, the USACE and MNDNR held a two day workshop with U.S. Steel, USEPA, and the Bois Forte Band devoted to wetlands specifically to analyze the minimization of potential impacts from the Proposed Project. Through the preparation for the workshop, and discussions during the workshop, a stockpile alternative was developed. This stockpile alternative is now presented in the FEIS and shows approximately 100 acres fewer wetland impacts. In addition, the FEIS includes additional information that demonstrates how the Proposed Project minimized wetland impacts to the extent practicable, in those areas where wetland impacts would still occur, while meeting the purpose of the project.

The Project Proposer is required, for the Clean Water Act Section 404 permit, the Wetland Conservation Act approval, and for MPCA Section 401 Water Quality Certification, to demonstrate sequencing (avoidance, minimization, and compensation). Appendix E of the FEIS is an analysis that provides the basis for decision making of the regulatory agencies as it relates to the first two sequencing steps, avoidance and minimization. Complete avoidance of wetland impacts from the Proposed Project is not practicable and does not meet the purpose of the project as the taconite resource dictates where the excavation needs to occur. If minimization, or partial avoidance, of wetland impacts is practicable, it needs to be demonstrated by the Project Proposer. The lead agencies have identified an environmentally preferred alternative that minimizes wetland impacts as discussed in the FEIS.

EIS Modification Text revised in Sections 4.6.2.2.1 and 6.2.

Comment U-2: *Based on the information provided in the Draft EIS, EPA has assigned a rating of Environmental Objections - Insufficient Information "EO-2." Additional information needs to be provided to support the impact analysis documented in the DEIS.*

RESPONSE: The MNDNR and USACE reviewed all of the comments received on the DEIS and have made changes to the FEIS based on those comments in order to improve the quality of the information and data conveyed on the Proposed Project.

EIS Modification Text revisions and additions have been made throughout the FEIS based on comments received.

Comment U-3: *Our objections are based on the impacts to wetlands and the need for demonstrated measures to avoid and minimize those impacts, as well as concerns over the compensatory wetland plan. At this point, we question whether the project will meet Clean Water Act Section 404 requirements for selecting the least environmentally damaging practicable alternative (LEDPA).*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-4: *After our review of the Draft EIS, we have identified significant issues with the wetlands analysis. As you know, the Clear Water Act Section 404(b)(1) Guidelines require that the applicant demonstrate there are no practicable alternatives available that would have a less adverse impact on the aquatic environment for non-water dependent activities. The Guidelines presume that less damaging upland alternatives are available for these activities unless demonstrated otherwise by the applicant. The applicant must follow a sequence of steps to be in compliance with 404(b)(1) Guidelines; which include avoidance, minimization, and compensation for unavoidable impacts.*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-5: *EPA has determined the applicant: 1) has not demonstrated that impacts have been avoided and minimized to the maximum extent practicable, and 2) is not in compliance with the 404(b)(1) Guidelines at this time.*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-6: *We agree with the proposer that alternative sites or modified designs for the plant, pit, tailings thickener, and tailings basin do not have advantages over the proposed project because those portions of the proposed project take advantage of existing infrastructure.*

RESPONSE: Comment has been noted.

EIS Modification No change.

Comment U-7: *"The Project Proposer has indicated that the footprint of the proposed east and south stockpiles is required to meet the out-of-pit stockpiling needs after maximizing in-pit stockpiling." However, there isn't a sufficient amount of information included to substantiate the statement. Throughout the Draft EIS, similar statements about stockpiling are made without adequate support.*

RESPONSE: The calculations used in determining the volume of material generated for stockpiling followed accepted mining engineering principles with a swelling factor of 25 percent. The MNDNR Land and Minerals mining engineers have reviewed the Proposed Project mine plan and concur with the analysis.

An additional analysis was completed to determine if other beneficial uses could account for a reduction in stockpile area. For example, the Project Proposer uses surface overburden to a depth of two feet on the top of waste rock stockpiles to add in reclamation. The use of this material for mineland reclamation accounts for less than 1 percent of the surface overburden stockpiling needs. A similar analysis on using waste rock to build surface overburden roads yields a similar volume of less than 1 percent of waste rock stockpiling needs.

It has been determined that the Project Proposer would maximize in-pit stockpiling before relying on out of pit stockpiles. Additional information on material volumes generated for stockpiling and how the sequencing of mining operations dictates where material must go has been added to the FEIS.

After publication of the DEIS, the USACE and MNDNR held a two day workshop with U.S. Steel, USEPA, and the Bois Forte Band devoted to wetlands and specifically to analyze the minimization of potential impacts from the Proposed Project. Through the preparation for the workshop, and discussions during the workshop, a stockpile alternative was developed. This stockpile alternative is now presented in the FEIS and shows approximately 100 acres fewer wetland impacts. In addition, the FEIS includes additional information that demonstrates wetland impact minimization.

EIS Modification Revisions made to Section 3.5 and Appendix E.

Comment U-8: *While the project cannot completely avoid impacting wetlands, the Draft EIS isn't clear how wetland impacts have been avoided or minimized.*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-9: *Even though there is some information in the Draft EIS, including Appendix E, which addresses stockpile alternatives, the level of information included is insufficient to support a least environmentally damaging practicable alternative (LEDPA) decision under Section 404 of the Clean Water Act.*

RESPONSE: Additional analysis has been completed and a stockpile alternative identified. This additional analysis will provide information for a future LEDPA determination.

EIS Modification Text added to Section 3.5 and Section 6.2.

Comment U-10: *From a process perspective, it is not clear if the Draft EIS will, by itself, serve as the basis for a permit decision by the USACE or if additional information will be evaluated prior to a permit decision.*

RESPONSE: Additional permit-level information will be developed and evaluated prior to a permit decisions by the USACE, specifically, additional information is required by the Project Proposer on each of the compensation wetlands in the onsite wetland mitigation plan to substantiate the intended success of the wetland creation. See also response to comment U-26.

EIS Modification No change.

Comment U-11: *As written, the Draft EIS does not demonstrate that all necessary avoidance and minimization steps have occurred. Since avoidance and minimization of wetland impacts are critical to achieving compliance with Clean Water Act Section 404(b)(1) Guidelines, we recommend that the relevant sections of the Final EIS be expanded.*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-12: *We understand the additional analysis on avoidance and minimization of wetland impacts, in particular, in-pit stockpiling, will be evaluated as part of the Permit-to-Mine process. We believe that the stockpile avoidance information is critical and needed in the EIS process in order for the NEPA documentation to be used to support a LEDPA determination by the USACE for wetlands dredge and fill under Section 404. We recommend the comments on minimizing impacts to wetlands due to stockpiling be addressed in the Final EIS.*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-13: *Sections of the EIS, including 3.2.2.1 and Appendix E, which deal with stockpiling, should be expanded to include the following information: The available and required stockpiling capacity and how it was calculated.*

RESPONSE: Additional figures from the Project Proposer's Permit to Mine application have been added to Appendix E of the FEIS. Supporting text is included in the FEIS documenting the effort to minimize the out of pit stockpile footprint.

EIS Modification Text added to Appendix E.

Comment U-14: *Sections of the EIS, including 3.2.2.1 and Appendix E, which deal with stockpiling, should be expanded to include the following information: Existing capacity and location of in-pit stockpiling.*

RESPONSE: This comment is similar to Comment U-13, and therefore was combined. Please see response to Comment U-13.

EIS Modification See response to Comment U-13.

Comment U-15: *Sections of the EIS, including 3.2.2.1 and Appendix E, which deal with stockpiling, should be expanded to include the following information: Capacity and location of existing out-of-pit stockpile and an explanation of how the applicant optimized the use of existing stockpiles.*

RESPONSE: This comment is similar to Comment U-13, and therefore was combined. Please see response to Comment U-13.

EIS Modification See response to Comment U-13.

Comment U-16: *Sections of the EIS, including 3.2.2.1 and Appendix E, which deal with stockpiling, should be expanded to include the following information: Waste rock recycling and reuse initiatives used or proposed by the applicant. For example, will coarse waste rock be used to construct/reinforce the tailings basin dam?*

RESPONSE: This comment is similar to Comment U-13, and therefore was combined. Please see response to Comment U-13.

EIS Modification See response to Comment U-13.

Comment U-17: *We believe that the information included in Appendix E is targeted at the question of where it makes most sense to site new out-of-pit stockpiles. The analysis provides a start, but does not completely answer the question. As indicated in the bullets above, we do not think it is clear how much out-of-pit stockpile capacity is needed.*

RESPONSE: Additional analysis has been completed and is included in the FEIS documenting the capacity of in-pit stockpiles, existing out of pit stockpiles, and the need for additional out of pit stockpiles.

EIS Modification Revisions made to Section 3.5 and Appendix E.

Comment U-18: *More information is needed to explain the relationship between mineral property rights and phasing of the project and the effect both have on stockpile alternatives.*

RESPONSE: Appendix E includes a discussion of mineral rights, property rights, and how they relate to stockpile locations.

EIS Modification Revisions made to Appendix E.

Comment U-19: *We believe there may be potential stockpile areas outside of those areas evaluated in Appendix E that would have fewer impacts on wetlands. Stockpile options adjacent to existing mining activities and still inside the proposed permit-to-mine area were not evaluated.*

RESPONSE: Appendix E includes new figures and discussion of stockpile exclusion areas. Exclusion areas are determined based on environmental and economic factors.

EIS Modification Revisions made to Appendix E.

Comment U-20: *The process used to avoid and minimize impacts to wetlands was not communicated in the Draft EIS. This is important to demonstrate for all wetlands. Additionally, steps taken to avoid and minimize impact to higher quality wetland systems were not described. It does not appear that any steps were taken to avoid high quality wetlands, such as 9.23 acres of hardwood swamp in the proposed south stockpile area or high quality wetlands in the proposed east stockpile area {such as Wetlands #2008_13 and 2008_33).*

RESPONSE: This comment is similar to Comment U-1, and therefore was combined. Please see response to Comment U-1.

EIS Modification See response to Comment U-1.

Comment U-21: *Some of the wetlands are geographically isolated. It appears to us that measures could be taken to avoid or minimize impacts to those wetlands. We question if the impacts to the south stockpile could be avoided completely by finding additional upland stockpile capacity in the area of Stockpile Concept D and other areas.*

RESPONSE: The proposed south stockpile was determined to be the only practicable location given environmental and economic considerations. This analysis was updated in Appendix E.

EIS Modification Revisions to Appendix E.

Comment U-22: *Stockpile Concept D appears to have potential and should be explored in more detail. This stockpile option would result in approximately 159 fewer acres of wetland impacts. However, it isn't clear how much of the land in Concept D is owned or otherwise in the control of the Project Proposer versus how much of the Concept D area would need to be acquired by U.S. Steel.*

RESPONSE: Concepts B and D have not been further evaluated in the FEIS for several reasons. When a range of environmental impacts are considered, Concepts B and D provide no less environmental impact than the proposed stockpile area. For example, particulate, GHG, and NOx emissions would increase. Upland acres disturbed would increase and in the case of Concept D, a rare species had been identified in the area. Moreover, there are mine worker safety concerns with these options and the cost of Concepts B and D are approximately double what is proposed.

Further evaluation of wetlands in Concepts B and D areas has not been done for the FEIS, though a better description of the existing analysis is offered. Additional wetland analysis is not warranted for Concepts B and D because the current level of detail was enough to fulfill the purpose of the analysis - to screen potential alternatives.

Additional details on mine development sequencing, in-pit and out of pit stockpile capacity, and property ownership has been added to Appendix E of the FEIS.

EIS Modification Revisions made to Appendix E.

Comment U-23: *There is not enough information presented in the Draft EIS that allows us to evaluate the quality of the wetlands in the Concept B and D locations. The acres of stockpile capacity that would be available, the number of wetland acres in those parcels, and the quality of the resources are important considerations.*

RESPONSE: This comment is similar to Comment U-22, and therefore was combined. Please see response to Comment U-22.

EIS Modification See response to Comment U-22.

Comment U-24: *In the case of the Keetac project, it would be useful to consider the use of tables and narratives for this purpose. For example, a table that showed the total number of acres of wetland within the permit-to-mine area, wetland acres proposed to be impacted within the permit-to-mine area, percentage of wetland avoided in the permit-to-mine area could be useful.*

RESPONSE: Tables summarizing wetland impacts are included in Section 4.6.

EIS Modification Text revised in Section 4.6.

Comment U-25: *Although a good portion of the proposed mitigation is on-site, EPA is not certain whether or not the compensatory wetlands associated with the tailings basin wetland site will be jurisdictional.*

RESPONSE: USACE has jurisdiction through its 404 permit for wetland impacts from the Proposed Project, which includes compensatory wetlands associated with the tailings basin. In order to receive credit as compensation for project impacts, wetlands are required to meet specified success criteria to ensure they replace lost wetland functions and will be protected from future impacts through a conservation easement or similar legally-binding agreement.

EIS Modification No change.

Comment U-26: *We have reviewed the performance standards for the compensatory tailings basin wetlands, and we are satisfied that the standards are appropriate. However, we have concerns about the long-term management of the tailings basin wetlands system.*

RESPONSE: A macro scale analysis across the entire tailings basin, representing post-closure conditions, was completed to determine the percent contribution the inner tailings basin has to the hydrology of the outer tailings basin wetlands following closure of the mine. The analysis indicated that approximately 50-60 percent of the water added to the outer tailings basin is from the inner tailings basin. While this appears to be a large contribution, it is unknown what impact the loss of water from the inner tailings basin to the outer basin would have on individual wetlands. A micro scale analysis of each proposed wetland basin in the outer tailings basin would need to be completed and submitted to the USACE, MNDNR, and MPCA prior to issuance of the record of decision (ROD), WCA approval, and Section 401 Certification. This micro scale analysis would evaluate the hydrology inputs, output mechanisms, depth of water, and topography of each wetland basin to demonstrate that wetland hydrology and vegetation would be unaffected after mine closure. If this micro scale analysis determines that the loss of hydrology after mine closure is significant, additional off site wetland compensation would be required.

The Project Proposer has been informed that if the performance standards are met they would receive a maximum 75 percent compensation credit for the wetlands created. A lower compensation credit, or likely minimum, would be administered by the USACE if not all of the performance standards are met. It has been determined that this likely minimum would be approximately 20 percent compensation credit indicating that the Project Proposer would receive between 20-75 percent compensation credit for the on site wetland creation based on success. The Project Proposer would have to provide offsite compensation if and when it is determined the performance standards would not be met in any or all created wetlands. This time frame has been estimate to be within 5-10 years.

EIS Modification Text changes to Section 4.6.3.

Comment U-27: *Since those wetlands are partially relying on the mining process to provide hydrology, it is important to establish what would happen to the needed wetland hydrology if the mining operation is reduced or stopped completely.*

RESPONSE: See Response to Comment U-26.

EIS Modification No change.

Comment U-28: *To help evaluate this concern, we recommend that the Final EIS include a water budget for the tailings basin compensatory wetlands. We would expect this water budget to evaluate baseline conditions, conditions during mining operations, and post-mining conditions.*

RESPONSE: See Response to Comment U-26.

EIS Modification No change.

Comment U-29: *Additionally, we are concerned with the ability of the tailings basin wetlands to provide the necessary functions and values needed to replace those wetlands that will be impacted. We anticipate that getting the appropriate functions and values established on a nutrient poor tailings basin will be a difficult task.*

RESPONSE: The USACE and MNDNR have reviewed the Proposed Project wetland mitigation plan and determined that a 1:1 mitigation ratio is applicable based on Section 404 and WCA guidance. Performance standards have been developed that, if adequately met, would replace the impacted wetlands functions and values. If and when it is determined the created wetlands would not meet the performance standards, the Project Proposer would need to provide additional offsite compensatory mitigation.

EIS Modification No change.

Comment U-30: *In order to receive appropriate credit for these wetlands, we recommend that functional assessments be done on these mitigation areas. Specifically, we recommend that the applicant use the Minnesota Rapid Assessment Model (MNRAM) to assess the functional status of the mitigation wetlands during monitoring.*

RESPONSE: The USACE and MNDNR require, as part of the permit and approval process of compensation credit, a wetland delineation and function and value assessment. Minnesota Routine Assessment Method (MNRAM) is widely used and accepted for function and value assessments in Minnesota. It is likely that MNRAM (or approved equal) would be used during monitoring of the created wetlands.

EIS Modification No change.

Comment U-31: *The USACE regulations allow, for credit of up to 100 percent for creation if the mitigation is low risk and adequate hydrologic data exists, but for high-risk areas, the USACE allows up to 50 percent credit. WCA allows for credit of up to 75 percent for creation and 50-75 percent for buffers. The proposed mitigation ratio of 1:1 is too low. Creation is EPA's least preferred mitigation method. There is a greater risk of failure and greater challenges involved.*

RESPONSE: The Project Proposer has been informed that if the performance standards are met they would receive a maximum 75 percent compensation credit for the wetlands created. A lower compensation credit, or likely minimum, would be administered by the USACE if not all of the performance standards are met. It has been determined that this likely minimum would be approximately 20 percent compensation credit indicating that the Project Proposer would receive between 20-75 percent compensation credit for the on site wetland creation based on success. The Project Proposer would have to provide offsite compensation if and when it is determined the performance standards would not be met in any or all created wetlands. This time frame has been estimated to be within 5-10 years.

EIS Modification Text revised in Section 4.6.3.

Comment U-32: *We understand that mitigation will be occurring concurrently with impacts, but there are risks associated with establishing wetlands in a tailings basin.*

RESPONSE: This comment is similar to Comment U-29, and therefore was combined. Please see response to Comment U-29.

EIS Modification See response to Comment U-29.

Comment U-33: *Additionally, there will still be a temporal loss of function because of the amount of time it will take wetlands to develop in a low-nutrient medium. It may take quite a number of years to achieve the functional value of existing wetlands. Because of these issues, EPA recommends a mitigation ratio of 2: 1.*

RESPONSE: Through the EIS process the USACE, MNDNR, and MPCA have met to discuss the mitigation ratio and all agencies have agreed to a 1:1 compensation ratio to remain consistent with their guidance regulations. In addition, there is no guarantee that an increase in wetland acreage would replace a lost function. Therefore, a monitoring and maintenance plan has been developed to ensure the replacement of lost wetland function. The monitoring and maintenance plan is available for review by contacting Erik Carlson at erik.carlson@state.mn.us. The agencies acknowledge that full functional replacement will take time and a temporal loss would occur. At this time it is estimated that the functional replacement would occur within 5-10 years. During this period if the results of the monitoring indicate that wetland function cannot be replaced through the proposed mitigation, additional mitigation would be required.

EIS Modification No change.

Comment U-34: *Financial assurances for wetland mitigation must be addressed before issuance of the Section 404 permit and should be based on size and complexity of the project, the cost of planning, acquiring and constructing mitigation sites, monitoring, etc. U.S. Steel must discuss the details of the dollar amount, type of financial assurance (for example, performance bond or letter of credit) and release conditions with USACE. USACE cannot evaluate whether the financial assurances are sufficient to cover potential mitigation inadequacies without this type of information.*

RESPONSE: Financial assurance is a mechanism that federal and state agencies use to make sure that a project proposer or company complies with its permit requirements. Financial assurance consists of a project proposer setting aside money or other security as an indication that permit requirements, such as mineland reclamation after the mine closes, will be completed. Minnesota Rules, part 6130.6000 sets forth the circumstances for requiring a performance bond, or other security acceptable to the Commissioner, on a mining operation. The USACE governs compensatory mitigation for losses of aquatic resources under Federal Code of Regulations 33 CFR 332, which is regulated through the Section 404 Permit. The Section 404 Permit for the Proposed Project would require financial assurance of some type prior to issuance of the permit.

EIS Modification Text additions to Sections 2.1.1, 2.2.1, 2.2.4, 4.6.1.2, and 4.6.3.

Comment U-35: *Throughout the document, the Draft EIS references two different types of compensatory mitigation for wetlands, restoration and creation. When characterizing the mitigation wetlands, the terms are used inconsistently. To avoid confusion and to improve accuracy, we recommend that the Final EIS describe exactly what is being proposed for compensatory mitigation. Creation and restoration are two different approaches. From our conversations with USACE, we understand that the proposed mitigation wetlands in the tailings basin are to be created. The applicant should describe in detail in the Final EIS how/why the mitigation proposed constitutes the creation of wetlands.*

RESPONSE: The Project Proposer intends to compensate for wetland impacts through onsite wetland creation and offsite wetland creation and restoration as stated in FEIS Section 4.6. The DEIS uses the terms wetland creation and restoration correctly and does not use the terms restore or restoration in the context of the Project Proposer's onsite wetland mitigation plan. Compensatory mitigation described in Section 4.6.3.

EIS Modification No change.

Comment U-36: *When characterizing wetlands, the terms "artificial" and "degraded" should not be used interchangeably. If a wetland is artificial, it doesn't necessarily mean it's degraded. If a system is artificial and degraded, it should be identified as such. Conversely, a wetland may be degraded but not artificial, or artificial but not degraded. The Final EIS should clarify these terms and use them consistently.*

RESPONSE: The term artificial/degraded was used in Appendix E of the DEIS. The terms were changed and defined in the FEIS to help the reader understand the context.

EIS Modification Text revision in Appendix E.

Comment U-37: *The Draft EIS did not include a map or figure that shows where proposed direct, indirect, and temporary impacts to wetlands would take place based on the proposed project footprint. From the information in the Draft EIS, we could not determine if the wetlands in the area northwest, north and east of the proposed East Stockpile area that will be temporarily impacted are already counted in the discussion of direct and indirect impacts. We recommend that the Final EIS address this by adding a figure and providing additional information in the text.*

RESPONSE: It is unknown at this time if wetlands northwest, north, and east of the proposed east stockpile would be impacted by activities of the Proposed Project. The FEIS has been changed from the DEIS to remove the estimate of potential indirect wetland impacts to focus on monitoring for potential indirect wetland impacts. With the Proposed Project, a total of 174.6 acres of wetland would be monitored as shown on the new Figure 4.6.9. With the East Stockpile Alternative, a total of 275 acres of wetlands would be monitored as shown on the new Figure 4.6.10. The Project Proposer has begun monitoring these wetlands in 2008 and 2009 to establish the baseline vegetation and hydrologic data to compare to conditions during the Proposed Project and post-closure.

EIS Modification New Figure 4.6.9 and 4.6.10, and text revisions throughout Section 4.6.

Comment U-38: *Additionally, we recommend that the indirect wetland impact study be improved by including a sensitivity analysis of the unknown parameters used in the water balance model. This would be helpful in evaluating and confirming the estimated extent of indirect wetland impacts.*

RESPONSE: The wetland monitoring plan developed for the Proposed Project specifies the actions to be completed to evaluate the extent of future wetland impacts. The Project Proposer began in 2008 and continued in 2009 monitoring wetlands in areas with the potential for future wetland impacts. These monitoring reports for 2008 and 2009 establish the baseline for which to evaluate future wetland impacts. Future wetland impacts would require compensatory mitigation. With the Proposed Project 174.6 acres of wetlands would be monitored to determine if future impacts occur from Proposed Project related activities or post-closure hydrologic changes. The East Stockpile Alternative would require the monitoring of 275 acres of potential indirect wetlands.

EIS Modification No change.

Comment U-39: *Section 4.1.1.2 of the Draft EIS states that there is limited data for Hay Creek and West Swan River on water quality and the physical condition of those streams. Section 4.1.4.1 of the Draft EIS states that it is not known what potential impacts the additional flow into Hay Creek will have on existing high quality biotic communities. That section goes on to discuss possible monitoring and mitigation and options. We believe that this is a significant data gap. EPA recommends that the proposer either assess what the potential impact may be, or if that cannot be done, provide an explanation as to why modeling of that impact is not possible.*

RESPONSE: The FSDD identified special studies or assessments that would be conducted as data analysis or data gathering efforts for the EIS. The FSDD identified that macroinvertebrate and physical stream geomorphology assessments would be conducted on the upper portions of O'Brien Creek (north of Hwy 169) as part of the potential establishment of a new dewatering outfall. However, O'Brien Creek was not listed in the FSDD as one of the streams that would be included in the EIS for discussion of potential impacts related to the Proposed Project. The FSDD identified Hay Creek as one of the streams to be analyzed for potential impacts from the Proposed Project within the EIS but did not identify special studies or assessments of the physical habitat, macroinvertebrates or fish communities within Hay Creek. As a result, there were no special studies conducted by the Project Proposer to establish baseline conditions within Hay Creek or model potential project-related impacts. The DEIS used the best available data describing the existing conditions of Hay Creek in terms of water quality and the biological community. Based on what is known about the existing conditions in Hay Creek and the potential project-related impacts, it is estimated that small scale changes to aquatic habitat or the biological community are possible, but large scale impacts are not likely. After the EIS process is complete the MNDNR will consider amending an existing water appropriations permit for Keetac to include monitoring of fish and macroinvertebrate communities, because of a modeled increase in mean annual flows to Hay Creek.

EIS Modification No change.

Comment U-40: *At a minimum, we recommend that the Final EIS and Record of Decision for this project commit to biological monitoring along with water chemistry and physical assessments, for Hay Creek and the West Swan River prior to the initiation of mining activities in order to establish baseline conditions.*

RESPONSE: Text in Section 4.1.2.3.1 was modified to reflect that after the EIS process is complete the MNDNR will consider amending an existing water appropriations permit for Keetac to include monitoring of fish and macroinvertebrate communities, because of a modeled increase in mean annual flows to Hay Creek.

Monitoring for pollutants in the facility's effluent would be required by the NPDES/SDS permits for the facility, In accordance with applicable state and federal regulations. Effluent limitations will be assigned for parameters that indicate reasonable potential to exceed water quality standards as required by state and federal regulations. In the event that monitoring indicates exceedances of an effluent limitation, the MPCA would address appropriate corrective actions as necessary through enforcement of the NPDES/SDS permits for the facility.

EIS Modification Text additions in Section 4.1.2.3.1.

Comment U-41: *The mine pits closest to Keewatin (Mesabi Chief, Aromac, Perry, and Sargent) will experience pumping rates 59-118 percent greater than the No Action pumping rates. We recommend that the pumping data be evaluated along with draw dawn of the Keewatin municipal wells to proactively evaluate potential future impacts to the Keewatin wells under mining conditions.*

RESPONSE: MNDNR shares the commenter's concern regarding the potential impact to the Keewatin municipal wells. It is this concern that prompted the development of the monitoring and contingency plans completed between the proposer and the cities of Keewatin and Nashwauk early in the EIS process. These plans replace the need for estimates of future drawdown. Such estimates would be largely speculative, especially given the fractured nature of the aquifer, and the proposed dewatering scenario that does not have any known historical precedents. The contingency plans are included in Appendix F of the FEIS.

EIS Modification No change.

Comment U-42: *The Final EIS should provide information about the presence of private wells in the area.*

RESPONSE: Figure 6.6.1 shows the locations of public and private wells that are field verified by the MDH County Well Index. There may be private wells not shown. The database used to create the map is not comprehensive. Known private wells in the area are relatively removed from the proposed expansion and draw from aquifers other than the Biwabik Iron Formation. Most private wells draw from glacial sediments or the Virginia Formation and are less likely to be impacted by increased withdrawals from the Biwabik Iron Formation. Information gathered was commensurate with potential environmental effects. For further information see FEIS Section 4.21.2.5 (DEIS Section 6.14.2.5) Water and Sanitary Sewer Services.

EIS Modification No change.

Comment U-43: *The Draft EIS did not include any information about the potential for seepage from the tailings basin, either from the bottom of the basin or through the walls. This is an important issue with potential impacts to surface water/groundwater and overall water quality in the tailings basin footprint. We recommend the Final EIS address this potential.*

RESPONSE: The DEIS discusses the potential for seepage in Section 3.1.4.1.4, and describes how groundwater flow is in the general direction of surface water in the inactive area of the tailings basin. Operation of the Keetac tailings basin changed in the mid-1990s, at which time the existing active tailings basin was created. Current operating practices (tailings deposition in active portion only), in conjunction with the outer clay-core perimeter dike, lead to groundwater mounding beneath the active tailings basin. As described in more detail in response to Comment S-6, groundwater mounding occurs because the seepage water is adding to the natural groundwater flow beneath the settling pond and needs time and distance to dissipate into the aquifer. There is no particular structural reason for this, there is simply more water added to the aquifer surface immediately beneath the basin.

The hydraulic head differential created between the active tailings basin and the surrounding land surface inside the outer perimeter dike results in groundwater outflow to surface water drainage routes in the non-active portion of the tailings basin. This water eventually flows to Reservoir 6 and is either recycled or discharged to Reservoir 2. This manner of operation also allows the quality of the flow from the tailings basin (both surface decant and seepage) to be routinely monitored at permitted monitoring locations. Due to the relatively low hydraulic conductivity of the subsurface soils surrounding the Keetac tailings basin and the quality of the tailings basin water projected into the future (see *Water Quantity and Quality Impacts Report*, Liesch 2009), minimal impacts to groundwater past the outer perimeter dike are expected.

Seepage through the walls of the containment dikes that affects surface water would be regulated as a permitted discharge under National Pollutant Discharge Elimination System/State Disposal System Permit MN0055948, and would therefore be required to meet both water quality and technology-based effluent limitations. FEIS Sections 4.4.1 (Water Quality) and 4.5 (Groundwater Resources) discuss surface water quality.

EIS Modification No change.

Comment U-44: *Generally, there is not enough water quality information provided in the Draft EIS to allow for any detailed review of water quality as a whole. Likewise, EPA did not have access to technical reports pertaining to water quality topics that might provide this information, most specifically, the "Water Quantity and Quality Report" or the "Water Quality Sampling Plan (Liesch, 2008)".*

RESPONSE: During the DEIS process and development of the EIS-related studies, agencies have had the opportunity to review various documents and text. The USEPA, through a third-party contractor, reviewed and provided comments on the *Predicted Water Quantity and Water Quality Cumulative Impacts Evaluation* R*eport*, the *Water Balance Mine Yield Study*, the *Final O'Brien Creek Stream Morphology Report* and *Macroinvertebrate Report* prior to the DEIS. Seven additional water resources EIS-related studies were requested by the USEPA after publication of the DEIS. All EIS-related studies are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification Added text to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request. Additional text was added to Section 4.4 to further discuss the water quality parameters evaluated for the FEIS.

Comment U-45: *There are multiple references in the Draft EIS where the statement is made that water quality won't be an issue, but there is no support in the Draft EIS for that statement. Typically, for a project of this size, we expect to see detailed water quality data or a summary of water quality values versus standards. This type of data was not included in the Draft EIS. This is particularly important, since Swan Lake and other waterbodies that will be directly imp acted by the project have the highest aquatic life designation and human health protection since they are designated for domestic consumption.*

RESPONSE: Historical water quality monitoring data indicates that water quality parameters of concern such as phosphorus, nitrogen, mercury, chloride, or trace metals are currently very low in the discharges from Keetac, with exception of sulfate and are expected to remain in the same concentration ranges as are currently being discharged. The concentration of these and all compounds in the discharge waters are anticipated to be below applicable water quality standards for the receiving waters now and for the duration of the Proposed Project. The *Predicted Water Quantity and Water Quality Cumulative Impacts Evaluation* report was used as a basis for this analysis. All EIS-related studies are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification Added text to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request. Additional text was added to Section 4.4 to further discuss the water quality parameters evaluated for the FEIS.

Comment U-46: *It appears that a determination was made that sulfate and mercury (see below) were the only contaminants of concern and thus concentration information was included for only these two parameters. It is important for the Final EIS to provide information about relevant water quality parameters, so that the reader can determine independently that no other contaminants are of concern. We recommend that the Final EIS provide a summary with enough detail to support any conclusions that are reached, including applicable Minnesota water quality standards that would be appropriate for the waterbodies in the project area.*

RESPONSE: Historical water quality monitoring indicates that water quality parameters of concern such as phosphorus, nitrogen, mercury, chloride, or trace metals are currently very low in the discharges from Keetac, with the exception of sulfate and are expected to remain in the same concentration ranges as are currently being discharged. The concentration of these and all compounds in the discharge waters are anticipated to be below applicable water quality standards for the receiving waters now and for the duration of the Proposed Project. The *Predicted Water Quantity and Water Quality Cumulative Impacts Evaluation* report was used as a basis for this analysis. All EIS-related studies are available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification Added text to EIS Related Studies section at beginning of FEIS to indicate all of the studies are available upon request. Additional text was added to Section 4.4 to further discuss the water quality parameters evaluated for the FEIS.

Comment U-47: *The project area already has waterbodies that are impacted with levels of mercury. This project will increase the levels of mercury in all those impacted waterbodies as well as the levels of mercury in fish tissue. Tables 4.7.19 and 5.5.2 show ambient fish mercury concentrations from all nearby lakes and the amount that these levels will increase due to the proposed project. It is not clear what form of mercury is being used here, but the existing levels are exceeding the current Minnesota methylmercury concentration to protect human health (fish consumption) of 0.2 ppm (the MPCA Total Maximum Daily Load (TMDL) goal for mercury concentrations in fish). The Final EIS should discuss how mercury impacts on aquatic life and human health will be covered under the National Pollutant Discharge Elimination System (NPDES) permits and a TMDL(s) since these waters are already impaired for mercury.*

RESPONSE: Fish mercury concentrations in the majority of Minnesota lakes, including the Keewatin area, are related to atmospheric deposition of mercury primarily from out-of-state sources (~90 percent of the mercury deposition in Minnesota is from out-of-state sources, Statewide Mercury TMDL, March 2007). The Statewide Mercury TMDL was developed specifically to address this situation. The Proposed Project is covered by the Mercury TMDL Implementation Plan (FEIS Section 4.9.7.4). As noted in the TMDL, point water discharges, which are covered under the NPDES program, are not a significant source of mercury. Of all point sources evaluated in the TMDL, taconite facilities represented the lowest average concentration (1.5 mg/L) and the smallest load (0.3 kg/yr). However, as noted in the TMDL, if it is determined that a point source is a significant factor the MPCA will assign a load limit through the NPDES program which will protect adjacent resources. Final permit conditions would be based on information available to the MPCA at the time of permit development, as well as applicable permitting policies and implementation plans at that time.

EIS Modification Additional text was added to Section 4.4 to further discuss the water quality parameters evaluated for the FEIS.

Comment U-48: *Section 5.4 includes a good discussion of wild rice located in the project area water bodies. The Draft EIS leaves no doubt that wild rice stands are present in Swan Lake, Swan River, Hay Creek and Hay Lake, and that these water bodies have documented harvesters, despite the MDNR conclusion that the yields range from poor to moderate.*

RESPONSE: The FEIS describes the current presence of wild rice stands in various water bodies within the Proposed Project vicinity.

EIS Modification No change.

Comment U-49: *As a result of the information provided in the Draft EIS, we understand that the MN sulfate standard of 10 mg/L for the protection of wild rice is applicable. The Draft EIS appears to indicate uncertainty as to whether the 10 mg/L standard is applicable by providing a discussion of other acceptable sulfate ranges of 50 mg/L to 282 mg/L for wild rice growth. The discussion at section 5.4.2 on page 5-46 under "Regulatory Framework" also leaves some doubt as to what standard is applicable by stating, "The current state rule establishes pollutant standards to be used as a guide for determining the suitability of waters for such uses, including the production of wild rice." EPA recognizes the uncertainty in sulfate impacts on wild rice, and supports the gathering of more monitoring and research. However, the current applicable Minnesota water quality standard for sulfate in these waterbodies is 10 mg/L.*

RESPONSE: Minnesota Rules Chapter 7050.0224 Subpart 1(i) ensures that the propagation and maintenance of wild rice plant species is not materially impaired or degraded. Minn. R. 7050.0224 Subp. 2 includes a 10 mg/L sulfate standard to be used as a guide to protect waters used for the production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels. NPDES/SDS permits related to the Proposed Project will evaluate discharges with regard to this standard to ensure protection of wild rice.

EIS Modification No change.

Comment U-50: *The Final EIS would be strengthened by including a more detailed discussion addressing the following concerns: An affirmative statement that the 10 mg/L sulfate criterion is applicable for the four water bodies;*

RESPONSE: MPCA staff has reviewed and considered the currently available information for the Proposed Project, including site specific wild rice data and water quality data. Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by these projects. The FEIS has been modified to include a project-specific section discussing the environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been slightly modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project.

EIS Modification Text modifications to Section 5.4 and creation of Section 4.7.

Comment U-51: *The Final EIS would be strengthened by including a more detailed discussion addressing the following concerns: A discussion of the past monitoring data and exceedance of the 10 mg/L sulfate standard;*

RESPONSE: The existing Keetac facility permit does not include a standard for sulfate, and therefore no violations of sulfate standard exceedances have occurred from the facility. The sulfate concentration levels in the affected water bodies currently exceed the state sulfate standard of 10 mg/L. MPCA staff has reviewed and considered the currently available information for the Proposed Project, including site specific wild rice data and water quality data. Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by these projects. The FEIS has been modified to include a project-specific section discussing the environmental consequences to wild rice from the Proposed Project. The cumulative effects section on wild rice has also been slightly modified in the FEIS to only discuss water bodies that would potentially be cumulatively affected by the Proposed Project.

EIS Modification Text modifications to Section 5.4 and creation of Section 4.7.

Comment U-52: *The Final EIS would be strengthened by including a more detailed discussion addressing the following concerns: A discussion of state antidegradation rules and whether an expanded discharge of this pollutant could occur in the NPDES permit, given that the standard is already exceeded;*

RESPONSE: The Proposed Project will be subject to nondegradation rules pursuant to Minnesota Rule 7050.0185, since the Proposed Project will be considered to have a "significant discharge" since it would increase by more than 200,000 gpm and would result in sulfate concentrations increasing in Swan Lake by more than 1 percent over existing conditions. Through the NPDES permit process, nondegradation concerns will be addressed and incorporated into the permit.

The MPCA is currently undergoing a thorough stakeholder process to update the nondegradation policy in the state to not only address point sources but also non-point sources of pollution.

EIS Modification No change.

Comment U-53: *The Final EIS would be strengthened by including a more detailed discussion addressing the following concerns: How several of the mitigation options discussed on page 5-50, at Section 5.4.6, will be used to meet the standard (e.g. sulfate removal technologies, alternate discharge locations, etc.), rather than reserving these options only for mitigation if adverse changes are detected in wild rice stands during the proposed project.*

RESPONSE: There are now two sections in the FEIS that discuss potential impacts to wild rice, both Proposed Project specific (Section 4.7) and cumulative effects (Section 5.4). Based on the information and data received to date, MPCA staff has determined that it cannot at this time support a sulfate value other than 10 mg/L as the applicable ambient standard for waters used for the production of wild rice that may be impacted by these projects. A schedule of compliance with the state water quality standard would occur in the permit and would remain in place for the duration of the Proposed Project. Monitoring data would be used to ensure that the Project Proposer is adhering to the schedule of compliance as part of the permit requirements. Mitigation and operational measures would be taken as necessary to satisfy the permit requirements.

EIS Modification Text modifications to Section 5.4 and creation of Section 4.7.

Comment U-54: *Based on a review of the information included in the Draft EIS, it isn't clear what type and configuration of mercury emissions control will be installed and implemented at Keetac.*

RESPONSE: Text in the FEIS has been revised to clarify that the Proposed Project would use activated carbon injection for its mercury control technology.

EIS Modification Text additions to Section 4.9.7.

Comment U-55: *Throughout the Draft EIS, the mercury emissions control is described differently. For example, on page 3-24, the Draft EIS includes a statement, "the Project Proposer has chosen to install activated carbon injection (ACI) to control mercury emissions for the new line." However, on page 4-125 and 4-126 there is a statement "…the proposed pollution control system consists of a circulating fluidized bed (CFB) scrubber for control of sulfur dioxide, followed by a dry electrostatic precipitator (ESP) for control of particulate emissions. The ESP would also provide some mercury control for mercury associated with particulate" with no mention of the ACI technology. Later on page 4-126, a statement is made that ACI "is viewed by the MPCA and the Project Proposer as having the highest potential for controlling mercury emissions from the proposed furnace. Because ACI technology has not been demonstrated on taconite facilities and the efficiency is yet undetermined; impact analyses have been conducted by evaluating just the spray dryer adsorber (SDA)-ESP system and assuming that this proposed air pollution control system would provide 30 percent mercury control."*

RESPONSE: Text in the FEIS has been revised to clarify that the Proposed Project would use activated carbon injection for its mercury control technology.

EIS Modification No change.

Comment U-56: *The statements made in Chapter 3 of the Draft EIS seem to indicate that ACI will be used, but statements made in Chapter 4 do not. Assuming that ACI will be utilized, it would be useful to describe the whole control configuration (the order of CFR, ACI, and ESP technologies) and which components contribute what level of control/removal, because it isn't ACI alone that achieves mercury control. We recommend that the Final EIS be explicit and consistent about what mercury emission controls will be used.*

RESPONSE: Text in the FEIS has been revised to clarify that the Proposed Project would use activated carbon injection for its mercury control technology.

EIS Modification Revised text in Section 3.3.5.1.1.

Comment U-57: *Section 5.5 provides a good analysis of cumulative impact analysis for mercury. In most places in the United States, mercury deposition does not come primarily from a few local sources, but rather from a mix of many sources, national and international, natural and anthropogenic. Therefore, while the impacts modeled in Table 5.5.2 may seem relatively small, they actually constitute a large impact from just a couple of facilities.*

RESPONSE: The cumulative modeling analysis conducted for several projects within 15 miles of the Proposed Project was used to estimate the likely impact of the cumulative mercury emissions. The MPCA is pursuing reductions in mercury emissions that would mitigate the modeled impacts. The emissions from the Proposed Project already reflect an assumed 30 percent control of mercury. Additional mercury control would be achieved through the use of activated carbon, which has never before been used at a taconite facility. Activated carbon achieves much greater mercury control than 30 percent when utilized at coal-fired electric units, therefore the goal for control at the Proposed Project would be to approach or exceed 80 percent. In addition, Minnesota's implementation of the statewide mercury TMDL includes a goal of reducing total mercury emissions from taconite facilities by 75 percent by 2025. U.S. Steel has agreed to perform research and development with the intent of reaching that goal before the deadline. If these goals are met, the mercury content of fish in lakes near the facilities would likely decline, even if short term emission increases occur.

EIS Modification No change.

Comment U-58: *The Minnesota Mercury TMDL sets a goal of reducing Mercury emissions from statewide taconite production from 735 pounds in 2005 to 210 pounds in 2025, so clearly Minnesota plans to get significant emissions reductions even in the absence of the Proposed Project, and the Project would not seem to result in emissions below this baseline. EPA notes that the projected emissions reductions are less than would be required under the Minnesota TMDL. On page 5-57, the Draft EIS states, "By adding 218 pounds per year of mercury emission from the proposed future projects, Minnesota's emissions would increase by about 6.5 percent at the time that Minnesota's TMDL implementation plan contain an ultimate statewide mercury emission goal of 789 pounds in 2025." Therefore, we recommend that the Final EIS describe how mercury emissions are expected to decrease, in spite of the project, rather than to state that emissions will be lower as a result of the project.*

RESPONSE: The Mercury TMDL Implementation Plan allows for near term mercury emission increases, while the state seeks to reduce emissions overall. The Proposed Project would adhere to the guidelines outlined in the Mercury Air Emission Reductions Schedule of Compliance for the ferrous mining and processing industry. Details for the Proposed Project on achieving reductions in mercury emissions are addressed in the Mercury Reduction Agreement between U.S. Steel and MPCA signed in August 2010. A copy of the Mercury Air Emission Reductions Schedule of Compliance is available by contacting Erik Carlson at the MNDNR, email: erik.carlson@state.mn.us or phone: (651) 259-5162.

EIS Modification No change

Comment U-59: *Section 4.7.7.3.1 provides a project proposal under the new and expanding source guidelines of the mercury reduction strategy. However, the information presented is confusing.*

RESPONSE: FEIS text has been revised to assist the reader.

EIS Modification Text added to Section 4.9.7.4.

Comment U-60: *The Final EIS should specify what mercury controls will be used and clarify what the baseline is (what year is being used to compare emission levels).*

RESPONSE: Text in the FEIS has been revised to clarify that the Proposed Project would use activated carbon injection for its mercury control technology.

EIS Modification Revised text in Section 3.3.5.1 and 4.9.7.

Comment U-61: *The Final EIS should include a conceptual mercury reduction plan for the Keetac project and show how that plan is consistent with the Minnesota TMDL.*

RESPONSE: MPCA has negotiated with U.S. Steel a Mercury Air Emission Reductions Schedule of Compliance for conducting trials at existing U.S. Steel indurating furnaces. The Mercury Air Emission Reductions Schedule of Compliance requires identifying technologies for short and long term trials. The assessments of the mercury technologies will be provided to the MPCA and to extent that they do not contain confidential business information, are available for review by interested parties. At this time the success of any control technology is unknown until further research is completed.

EIS Modification No change.

Comment U-62: *We appreciate that the Draft EIS includes projected annual emissions for CO_2 and discusses the general effects of greenhouse gas (GHG) emissions and global climate change. The analysis provided in the Draft EIS includes a carbon footprint of the proposed project with and without proposed GHGs reductions. The analysis looked at fuel mix alternatives and included a discussion of producing iron pellets in another country with weaker emissions control requirements. This information is useful to the general public in understanding the project.*

RESPONSE: Comment has been noted.

EIS Modification No change.

Comment U-63: *While the greenhouse gas emissions of any single project may be small when compared to global emissions, any additional greenhouse gases emitted contributes to the global concentrations of gases. EPA agrees with this statement. The Draft EIS includes an analysis of several options to minimize the GHG contributions it makes.*

RESPONSE: Comment has been noted.

EIS Modification No change.

Comment U-64: *In Section 3.5.2, the Draft EIS discusses how the proposed project has avoided potential GHG emissions relative to standard projects through various means including fuel mixes, furnace improvements, heat recycling, motor efficiency, and logistical changes. We support these efforts because of their potential to reduce overall facility GHG emissions. EPA is in favor of proactive measures to address GHG emissions, including the development GHG reduction plans.*

RESPONSE: Comment has been noted.

EIS Modification No change.

Comment U-65: *Because the regulatory environment for GHGs is uncertain and dynamic at this time, the applicant should consult with EPA and the State of Minnesota during and after the air permitting process. We encourage the proposer to develop and implement plans to mitigate GHG emissions associated with this project and include that information in the Final EIS and Record of Decision for the project.*

RESPONSE: Project Proposer will continue working with MPCA, MNDNR, and USEPA to properly address issues associated with GHGs and climate change. Any further actions have been presented in the FEIS as needed. Updated summaries of regulations and initiatives associated with GHG and climate change have been added to appropriate sections of the FEIS as available at the time of public notice.

EIS Modification Updated regulation and other initiatives summary in Section 5.2.1.4.

Comment U-66: *Financial assurance is not discussed in the Draft EIS. Long-term post-closure care may be necessary to protect water quality, and a financial instrument will be needed to ensure adequate funds are available as long as necessary for this purpose. The need for, and cost of, reclamation and closure activities and post-closure controls and/or treatment should be addressed in the Final EIS.*

RESPONSE: Financial assurance is a mechanism that the State uses to make sure that a project proposer or company complies with its Permit to Mine requirements. Financial assurance consists of a project proposer setting aside money or other security as an indication that permit requirements, such as mineland reclamation after the mine closes, will be completed. Minnesota Rules, part 6130.6000 sets forth the circumstances for requiring a performance bond, or other security acceptable to the Commissioner, on a mining operation.

EIS Modification Text additions to Sections 2.1.1, 2.2.1, and 2.2.4.

Comment U-67: *Because the amount and viability of financial assurance are critical factors in determining the effectiveness of these instruments, EPA believes it is necessary to analyze and disclose these factors in the Final EIS to determine the significance of the impacts and inform a decision about whether the project is cost-effective. EPA believes this information is essential for an adequate analysis of the proposed project because it could make the difference between a project sufficiently managed over the long-term by the site operator that will protect the environment versus an unfunded/under-funded contaminated site that becomes a liability for the Federal government, e.g., under the Comprehensive Environmental Response, Compensation, and Liability Act. We recommend that the proposer include financial assurance information, including that required by the State of Minnesota, in the Final EIS.*

RESPONSE: Financial assurance is a mechanism that the State uses to make sure that a project proposer or company complies with its Permit to Mine requirements. Financial assurance consists of a project proposer setting aside money or other security as an indication that permit requirements, such as mineland reclamation after the mine closes, will be completed. Minnesota Rules, part 6130.6000 sets forth the circumstances for requiring a performance bond, or other security acceptable to the Commissioner, on a mining operation.

EIS Modification Text additions to Sections 2.1.1, 2.2.1, and 2.2.4.

COMMENT LETTER RECEIVED FROM: **Rosemary Berens, Tribal Historic Preservation Officer, Bois Forte Band of Ojibwe, January 26, 2010 (V)**

Comment V-1: *I have reviewed the cultural resource section and feel it is inadequate as the bands have not been approached in regards to a survey of the areas to identify plants significantly important to the Bois Forte Band not has there been any inventory on traditional cultural properties (TCP's).*

RESPONSE: On March 22, 2010, representatives of the Army Corps of Engineers, the 1854 Treaty Authority, and the Grand Portage and Bois Forte Bands met to discuss plans to complete a vegetation survey and other work as part of a draft Programmatic Agreement under Section 106. The draft Programmatic Agreement was completed prior to publication of the FEIS and is included as Appendix N. Text was revised in the FEIS to reflect the outcome of the draft Programmatic Agreement.

EIS Modification Text revisions in Sections 4.17 and 4.18

COMMENT LETTER RECEIVED FROM:	**Brandy Toft, Air Quality Specialist, Leech Lake Band, February 4, 2010 (W)**

Comment W-1: *On page 6-53 of section 6.11.1.2 Keetac DEIS the paragraph above section 6.11.2 should reflect the following underlined changes: "approximately 32 miles west of the proposed project, placing it within the 1855 Ceded Territory and Leech Lake Band of Ojibwe's Treatment as an Affected Sovereign/State (TAS) for air quality. The Leech Lake Reservation encompasses over 864,000 acres within the Reservation boundaries." "This department enforces natural resources regulations within the Reservation boundaries." We are unsure of where the 80 miles came from….even driving that number doesn't make sense. You can also see the reworded language regarding the acreages and boundaries.*

RESPONSE: Text has been revised in the FEIS text in Section 4.18.1.2 to reflect LLBO suggested text changes. Additionally, it has been confirmed that Leech Lake Band of Ojibwe (LLBO) has Treatment as an Affected Sovereign/State (TAS) status from the USEPA and are within 50 miles of the Proposed Project. This gives LLBO the authority to review and comment on the air permit application, along with other state agencies. Text regarding the TAS status of LLBO has been added to FEIS Sections 4.18.1.2 and 6.1.6.

EIS Modification Text changes to Section 4.18.1.2 and 6.1.6.

COMMENT LETTER RECEIVED FROM:	**Claudia Modich, February 5, 2010 (X)**

Comment X-1: *I live extremely close to the Keewatin tailings basin on Old Highway 169, and, as a result, am directly affected by the present mining operations as well as future mining operations. My concerns are twofold. First, in the past I have been subjected to relentless clouds of taconite tailings, both in my residence and outside my residence. I, of course, have been angry and frustrated by the situation of which I have no control. Yet I am not the only one concerned. Friends who have had their cars parked in my driveway have been appalled at the amount of residue on their vehicles. Friends who have been guests in my home have been surprised as the black dust covering my furniture, ledges, and other areas of my home. My question: What will be done for those individuals living near the basins who find the dust not only unsightly but, most importantly, unhealthy?*

RESPONSE: The Tailings Basin mitigation measures are described in DEIS Section 4.1.2.1.2 under Existing Conditions. The No Action Alternative and Proposed Action Alternative were intended to reference the mitigation measures in the existing conditions section because the same mitigation measures would occur in the No Action Alternative and in the Proposed Action Alternative. However this reference was not made clear. The No Action Alternative and Proposed Action Alternative sections have been revised to discuss the Tailings Basin mitigation measures. The MPCA reported on February 11, 2010 that based on the lack of complaints received an that there have not been any violations in seven quarters of ambient air monitoring at three sites near the basin, the mitigation measures describing in the existing conditions section appear to have reduced fugitive emissions from the basin. Additionally, no violations of ambient PM_{10} standards or fugitive dust rules were reported in 2010 as of May 20, 2010.

EIS Modification Text revisions and additions to Section 4.9.2.

Comment X-2: *My second greatest concern in the safety of the drinking water in the areas close to the basin. Were you to talk to retired miners of the plant, they would relate stories of the common past practice of dumping barrels of oils, wastes, and similar products on the basin. I have tried unsuccessfully for years to have the water tested by the State of Minnesota or by the taconite company so as to determine its safety. What assurances do the neighbors of the plant have that their water is safe to drink?*

RESPONSE: Dumping of hazardous waste or other waste materials into the basin is illegal. Modern waste handling regulations carry steep penalties for illegal dumping and following the proper handling and record keeping practices is taken seriously by good corporate citizens. Moreover, the proposed use of the basin and the chemistry of the tailings do not indicate water quality problems for private wells. MDH does not require testing of private wells, but encourages periodic testing by owners especially if they are concerned about their water quality. MDH provides guidance for conducting water testing. See also response to Comment S-6 regarding groundwater flow.

EIS Modification No change.

COMMENT LETTER RECEIVED FROM: Tom Sampson, Mayor, City of Keewatin, January 28, 2010 (Y)

Comment Y-1: *I am writing to you in strong support of the proposed U.S. Steel Keetac expansion project.*

RESPONSE: Comment has been noted.

EIS Modification No change.