U. S. Steel Keetac Mine Expansion Project

Final Scoping Decision Document

1.0 INTRODUCTION AND PURPOSE

1.1 BACKGROUND

The Minnesota Department of Natural Resources (DNR) in cooperation with the United States Army Corps of Engineers (USACE) will prepare a joint state and federal Environmental Impact Statement (EIS) for the proposed U. S. Steel Keetac Expansion Project (proposed project). The joint state and federal EIS will allow evaluation of the proposed project in accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. §§ 4321-4347), and the Minnesota Environmental Policy Act (MEPA; Minnesota Statutes, chapter 116D). The DNR is the responsible governmental unit (RGU) under Minnesota Rules, part 4410.4400, subpart 8, items B and C. United States Steel Corporation (U. S. Steel) is the proposer. The USACE is the lead federal agency. The DNR will engage the services of a consultant to assist in EIS preparation, however the DNR and USACE will retain responsibility for EIS content.

This Final Scoping Decision Document (FSDD) is a companion document to the Scoping Environmental Assessment Worksheet (EAW). The purpose of the FSDD is to identify:

- Potentially significant issues and impacts that warrant analysis in the EIS;
- Proposed project alternatives and mitigation;
- A tentative schedule for the EIS process;
- Studies that have been or will be completed; and
- Permits for which information will be gathered concurrently and ones that will require a record of decision.

The proposed project is located near the City of Keewatin, on the border of Itasca and St. Louis counties in northeast Minnesota. The proposed project is generally defined as the increment change beyond what is allowed under the existing permit to mine. The plant contains two production lines that concentrate and agglomerate magnetic iron particles derived from taconite. The older Phase I line is inactive. The newer Phase II line is in production. The proposed project would upgrade the Phase I concentrating and agglomeration processes and restart idle plant components. The Phase I indurating furnace is essentially complete and would be refurbished. One large or two small tailings thickeners (e.g., settlement tanks) would be added as part of this proposed project. The proposed project would also expand the iron ore mine pit and stockpile areas. The height of the existing tailings basin would increase. This would be made possible by modifying the basin's peripheral earthen dam structure. The footprint of the tailings basin would increase slightly. A new tailings basin is not proposed. New haul roads would be needed to transport materials to the new stockpiles. New haul trucks and other in-pit mining equipment would be purchased. Additional mine dewatering activities would be necessary as boundaries of the mine area expand. The existing ore crushers would not be replaced or modified. These changes would increase taconite pellet production from approximately 6 million tons a year to 9.6 million tons a year. The purpose and need of the taconite mine and plant infrastructure is to provide iron for use in domestic and world markets.

1.2 SELECTION OF APPROPRIATE ENVIRONMENTAL REVIEW DOCUMENT

The EIS for this proposed project is discretionary pursuant to Minnesota Rules, part 4410.2000, subpart 3. The rule states that an EIS may be pursued when the RGU and the proposer of the proposed project agree that an EIS should be prepared. The DNR is the RGU under Minnesota Rules, part 4410.4400, subpart 8C.

The EIS will meet applicable requirements of Minnesota Rules, parts 4410.0200 to 4410.7800 (Minnesota Environmental Quality Board [EQB] Rules) that govern the Minnesota Environmental Review Program. The EQB rules require a thorough but succinct discussion of potentially significant direct or indirect, adverse, or beneficial effects generated. Data and analyses shall be commensurate with the importance of the impact and the relevance of the information to a reasoned choice among proposed project alternatives and to the consideration of the need for mitigation measures.

The USACE is serving as co-lead agency in preparation of the EIS with the DNR. The USACE received an application from U. S. Steel to discharge fill material in waters of the U. S., including wetlands, to develop the Keetac Mine Expansion Project. The USACE has determined that its action on the permit would be a major federal action that could significantly affect the quality of the human environment, requiring the preparation of a federal EIS pursuant to the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321-4347) and its implementing regulations (40 C.F.R. parts 1500-1508).

1.3 PURPSOSE AND NEED OF THE PROJECT

The purpose and need of the proposed project is to mine taconite ore from an expanded Keetac open pit mine and to refurbish and operate the currently idle Keetac Phase I taconite processing line to increase taconite pellet production.

2.0 PROJECT ALTERNATIVES

According to Minnesota Rules, part 4410.2300, subpart G, the EIS shall compare the potentially significant impacts of the proposal with those of other reasonable alternatives to the proposed project. The EIS must address one or more alternatives of each of the following types of alternatives or provide a concise explanation of why no alternative of a particular type is included in the EIS: 1) alternative sites, 2) alternative technologies, 3) modified designs or layouts, 4) modified scale or magnitude, and 5) alternatives incorporating reasonable mitigation measures identified through comments received during the comment periods for EIS scoping or for the draft EIS.

Minnesota Rules part 4410.2300, subpart G directs that an alternative may be excluded from analysis in the EIS if "it would not meet the underlying need for or purpose of the project, it would likely not have any significant environmental benefit compared to the project as proposed, or another alternative, of any type, that will be analyzed in the EIS would likely have similar environmental benefits but substantially less adverse economic, employment, or sociological impacts." Selection or dismissal of alternatives will be documented in the EIS."

2.1 PROPOSED ALTERNATIVE

The EIS will describe the proposed project and the potential environmental and socioeconomic effects outlined in Section 3.0.

2.2 NO ACTION ALTERNATIVE

The EIS will describe the expected condition if the proposed project is not developed, with respect to the potential environmental and socioeconomic effects outlined in Section 3.0. The "no action" or "no build" alternative will include the operation of the previously permitted Keetac Mine activities.

2.3 SITE ALTERNATIVES

The EQB rules allow the RGU to exclude alternative sites if other sites do not have any significant environmental benefit compared to the project as proposed, or if other sites do not meet the underlying need and purpose of the proposed project. The EQB's *Guide to Minnesota Environmental Review Rules* lists a number of factors for the RGU to consider when deciding whether alternative sites would meet the underlying need for or purpose of the proposed project.

2.3.1 Mine Pit

The DNR and USACE do not propose to evaluate alternative mine pit sites for this proposed project. An alternative mine site would not meet the underlying need or purpose of the proposed project. The mineralization of the desired elements within a geologic deposit dictates the location of the mine.

2.4 ALTERNATIVE TECHNOLOGIES

2.4.1 Air Emissions Technologies

2.4.1.1 Best Available Control Technologies (BACT)

The EIS will evaluate air pollution control methods and/or technologies on sources of air pollutants. The evaluation will be limited to BACT where applicable. U. S. Steel will submit a BACT review as part of its air emissions permit application.

2.4.1.2 Mercury Emissions Controls

The EIS will identify all sources of mercury emissions, review the mercury control technology proposed by U. S. Steel, and summarize other potential mercury control technologies including those evaluated and rejected by U. S. Steel.

2.4.1.3 Greenhouse Gas (GHG) Emissions

The EIS will compare GHG emissions from several project alternatives and discuss the conclusions from this analysis.

2.5 MODIFIED DESIGNS OR LAYOUTS

2.5.1 Plant and Pit Location on Site

The DNR and USACE do not propose to evaluate alternative mine plant sites for this proposed project. An alternative processing plant site would not have significant environmental benefit over the proposed

project. The new processing line would be located on the existing Phase I plant footprint. A new plant location would alter land cover types and terrestrial habitats. Moreover, it would not meet the underlying need and purpose of the proposed project that includes re-using existing mining plant infrastructure that is currently positioned for use on the proposed project site.

2.5.2 Tailings Thickener Location

The DNR and USACE do not propose to evaluate tailings thickener(s) sites for this proposed project. An alternative tailings thickener(s) site would not have significant environmental benefit over the proposed site because the proposed tailings thickener(s) is adjacent to the existing plant on previously disturbed ground. No other sites have significant environmental benefit over the proposed site.

2.5.3 Tailings Basin Location

The DNR and USACE do not propose to evaluate alternative tailings basin sites for this proposed project. The proposed project intends to essentially maintain the existing area of the tailings basin and build the basin vertically as tailings are produced. A taller tailings basin may generate more fugitive dust, without mitigation, because of a greater exposure to wind. A taller basin may also increase erosion without mitigation. However, these possible adverse effects are offset by the land disturbance a new tailings basin would create. A new tailings basin location would therefore have no environmental benefit compared to the existing basin.

2.5.4 Stockpile Location and Design

Positioning of stockpiles is crucial to minimizing impacts to wetlands and potentially other natural resources. The EIS will evaluate the potential environmental effects of the proposed stockpile locations as well as alternative stockpile locations. In addition, the EIS will evaluate in-pit stockpile opportunities; in-pit stockpiles can help create future shallow-water habitat when pits are abandoned and reclaimed. This stockpile location evaluation will consider not only potential wetland impacts, but also air emissions from haul trucks and wind erosion, haul road location, lease fee-holder requirements, in-pit stockpile opportunities, and other operational and environmental issues.

2.5.5 Haul Roads

The EIS will not evaluate new haul roads locations. Haul road location and length are primarily dependent on stockpile areas. Therefore haul roads will be evaluated within the stockpile location alternative with wetlands and other factors. Potential air quality impacts and impacts to wetland or other natural features will be evaluated in other areas of the EIS.

2.5.6 Trails

The proposed project will likely affect snowmobile trails. If adverse impacts to trails are identified, new trail locations will be included and evaluated in the EIS.

2.6 MODIFIED SCALE OR MAGNITUDE

The DNR and USACE do not propose to evaluate proposed project scale or magnitude alternatives. The infrastructure requirements to mine and process the ore are such that alternative scale or magnitude changes would not meet the underlying need for or purpose of the proposed project.

2.7 INCORPORATING REASONABLE MITIGATION MEASURE IDENTIFIED THROUGH PUBLIC COMMENTS

The EIS will consider all mitigation measures suggested through public comment. Those mitigation measures that were identified, but not carried forward for analysis, will be discussed briefly as well as the reasons for their exclusion.

3.0 EIS ISSUES

The purpose of scoping is "to streamline the [EIS] document, to identify only potentially significant and relevant issues and to define alternatives," (EQB *Guide to Minnesota Environmental Review Rules*, page 10). Issues have been identified and described in the Scoping EAW and are categorized below by significance and amount of additional analysis required in the EIS. Mitigation measures that could reasonably be applied to eliminate or minimize adverse environmental effects will be identified in the EIS in both the section describing environmental effects and in a separate chapter for permitting reference.

3.1 TOPIC HAS BEEN ADEQUATELY ANALYZED IN THE SCOPING EAW

Several topics are not relevant or so minor that they will not be addressed in the EIS. They are listed below. The relevant Scoping EAW item number is provided in parentheses after each topic. The Scoping EAW will be appended to the EIS for reference.

- Water surface use (Item 15)
- Vehicle-Related Air Emissions (Item 22)
- Compatibility with Plans and Land Use Regulations (Item 27)

3.2 SIGNIFICANT IMPACTS ARE NOT EXPECTED, BUT ADDITIONAL INFORMATION WILL BE PROVIDED IN THE EIS

3.2.1 Project Description (Item 6)

The EIS will include a complete project description, including the timing of all phases of construction and operation. The status of all project-related mineral rights will be presented in the EIS. The EIS will show the location of permitted and proposed mine pit, stockpile, plant and tailings basin locations. A cross-section of the final tailings basin configuration will also be shown.

3.2.2 Project Magnitude Data (Item 7)

The EIS will provide updated calculations of project magnitude data that are available as project-related designs are further developed.

3.2.3 Permits and Approvals (Item 8)

The EIS will identify project-related permits and approvals (see section 7.0).

3.2.4 Land Use (Item 9)

The EIS will discuss potential land use conflicts with nearby residences and waterbodies. The EIS will include a map of nearby potential environmental hazards and discuss their proximity to and potential impacts from the proposed project. Potential land use conflicts will be addressed with respect to other environmental considerations of the proposed project, including physical alteration of water resources, noise blasting impacts, new haul roads and automobile traffic.

3.2.5 Cover Types (Item 10)

3.2.5.1 Project-Specific Analysis

Specific mining and plant site details will be addressed in the EIS. The EIS will include updated cover type information, "before and after" cover type maps, and will describe the conversion of existing land cover types that will result from project implementation and reclamation.

3.2.5.2 Cumulative Effects Analysis: Biomass

The EIS will define a procurement area and evaluate the viability of using woody biomass as a fuel at the Keetac facility. Studies and monitoring data will be reviewed.

A screening-level analysis will be done to determine those resources that should be considered in the cumulative effects analysis. It will consider the environmental attributes of the procurement area, monitoring data, studies, land ownership, and the market analysis. Where potentially adverse environmental effects are identified, these resources will be included in a cumulative effects analysis.

The cumulative effects analysis will include existing, proposed and reasonably foreseeable future woody biomass projects that currently use or intend to use woody biomass from the procurement area. This includes the U. S. Steel Minntac facility. The UPM/Blandin Paper Mill Thunderhawk Project EIS may provide a template for the resources analysis.

3.2.6 Water-related land use management district (Item 14)

The proposed project's relationship to water-related land use management districts will be discussed briefly in the EIS. Each municipality's shoreland zoning ordinance will be reviewed and compared to the project's proposed land use within the shoreland zone.

3.2.7 Erosion and Sedimentation (Item 16)

U. S. Steel will prepare a detailed facility water balance that will be used to evaluate Keetac's potential need to discharge additional water from the facility. If necessary, the EIS may address runoff to downstream sensitive areas as part of the larger issue of surface water runoff and overall water quality impacts of the project. Mitigation measures for adverse impacts will be described.

3.2.8 Water Quality: Surface Water Runoff (Item 17)

Stormwater flow from the plant site is not expected to change as a result of the proposed project. Hydrologic studies to determine the volume of stormwater runoff from new waste rock stockpiles will be conducted prior to completion of the draft EIS.

3.2.9 Geologic Hazards and Soil Conditions (Item 19)

The EIS will discuss the potential for groundwater contamination from process chemicals and hazardous materials used or stored at the project site and seepage from the tailings basin. Measures to prevent and contain spills from processing materials and maintenance/repair of mining equipment will be identified in the EIS.

3.2.10 Solid Wastes, Hazardous Wastes, Storage Tanks (Item 20)

The EIS will characterize solid wastes, including dust emissions, and discuss the potential impacts of available disposal options. The EIS will describe liquid materials to be stored on site as well as spill prevention and containment measures. The EIS will include an inventory of tanks and major process consumables.

3.2.11 Traffic (Item 21)

The EIS will analyze potential traffic pattern and congestion impacts due to employees involved in the construction and on-going operation of the proposed project. Daily and peak-hour rates will be calculated and potential intersection impacts along Trunk Highway 169 and within the City of Keewatin will be evaluated. Traffic loads from other facilities will be considered.

3.2.12 Odors, Noise and Dust (Item 24)

Odor is not expected to be a significant impact. Noise production is not anticipated to be significant, but will be discussed. If adverse impacts are identified, mitigation will be discussed. Dust (particulate matter) will be generated during construction of the proposed project and plant operations. Particulate matter will be evaluated as a part of stationary air emissions (see section 3.3.6). A noise study will also be done.

3.2.13 Nearby Resources (Item 25)

The EIS will include the results of a Phase I archeological survey for the area that will be coordinated with both the State Historic Preservation Office (SHPO) and the USACE. The Phase I archaeological study will address historic mine landscapes in the project vicinity. The EIS will include the review of any potential impacts on existing historical resources identified in the archival literature review completed for the Scoping EAW.

Prime farmland exists within the project area. The EIS will include a soil map of the project area and will discuss impacts to prime or unique farmlands.

The EIS will include a map of the snowmobile trails and Mesabi Trail and discuss the impacts of the proposed project on their use.

3.2.14 Visual Impacts (Item 26)

No local or immediate visual impact is anticipated to be significant; however, limited information beyond what is provided in the Scoping EAW will be used to identify potential lighting impacts. If adverse impacts are identified, mitigation will be discussed.

3.2.15 Impact on Infrastructure and Public Services (Item 28)

The EIS will discuss the ability of the City of Nashwauk and the City of Keewatin to accommodate future infrastructure demand due to population growth, socioeconomic issues, including demographic and employment trends. The potential impact to nearby water supply systems is discussed in section 3.3.4.

3.2.16 Other Potential Environmental Impacts (Item 30)

3.2.16.1 Mineral Fibers

The EIS will include a summary of existing mineralogical data and studies for the west end of the Mesabi Range. Information will be sourced from Minnesota state agencies, research institutions, and U. S. Steel files. The EIS will present an analysis of the existing mineralogy and petrology data for the ore body to be mined and identify the presence/absence of amphibole minerals. In addition, samples will be obtained from U. S. Steel's ore bulk sample and analyzed to confirm the presence/absence of amphibole minerals (Method for bulk sample analysis: Environmental Protection Agency [USEPA]/600/R-93-116; Polarized Light Microscopy). Further evaluation will be required if deposits of asbestos-like or fine mineral fiber bearing materials are discovered.

3.2.16.2 Tribal Rights

The EIS will discuss tribal rights within the area of the proposed project including any usufructuary rights. Fisheries, wildlife and ecologically sensitive resources will be evaluated in the context of tribal treaty-protected resources related to the 1855 and 1854 Ceded Territories.

3.2.16.3 Cumulative Effects: Climate Change

Background information on climate change will be discussed. The EIS will assess project-related effects in the context of global climate change. The proxy for defining all the existing, proposed and reasonable foreseeable projects (such as is the normal practice with a cumulative effects analysis) is the existing and projected GHG level in the air worldwide and nationally. Predicted environmental effects due to climate change will be discussed at the state level. The assessment will be primarily qualitative, although some quantitative analysis will also be present. Options for GHG reductions will be considered.

3.3 POTENTIALLY SIGNIFICANT IMPACTS MAY RESULT

3.3.1 Fish and Wildlife (Item 11a)

3.3.1.1 Project-Specific Analysis

The EIS will include a qualitative description of fisheries resources and angling activity in the Swan Lake, Welcome Lake, Hay Lake, and the four unnamed lakes, as well as Hay Creek and West Swan River. The EIS will discuss the potential impacts to fisheries and angling that could result from varying water levels and flows. The EIS will suggest mitigation strategies where warranted, and will describe long-term mine pit reclamation strategies to provide fisheries habitat when mining ceases.

U. S. Steel will provide a report summarizing the potential impact of the proposed project on stream geomorphology in O'Brien Creek from the Perry Pit to the O'Brien Reservoir, as well as a summary of macro invertebrate species population survey data for that area. These data will be used to establish a

baseline for evaluating future stream geomorphology impacts and macro invertebrate monitoring. Mitigation strategies will be evaluated.

A project-specific qualitative analysis will discuss any sulfate air emissions and water discharges from the Keetac plant as a result of the proposed project and any terrestrial and aquatic system changes that release mercury and/or create sulfate. The sulfate analysis will be considered with the cumulative mercury deposition analysis in section 3.3.1.2.2. It is not expected that sulfate in rivers and lakes near the proposed project would increase as a result of the proposed project.

The EIS will also discuss potential impacts to wildlife. The EIS will include a qualitative description of wildlife species present in the project area and describe potential project impacts. The EIS will discuss mitigation, as warranted, through long-term mineland reclamation strategies and preservation of available wildlife corridors within or near the mining area. U. S. Steel will provide a report on the cumulative effects of this proposed project and other nearby proposed projects on wildlife habitat loss and travel corridor obstruction (see sections 3.3.1.2.3 and 6.0). Additional mitigation will be discussed if warranted.

3.3.1.2 Cumulative Effects Analysis

3.3.1.2.1 Aquatic Habitat and Fisheries

Results from the proposed cumulative effects analysis on water quality and water flow changes and associated stream channel changes will be used to evaluate cumulative effects to aquatic habitat and fisheries. Any significant impacts identified in these analyses will be considered with respect to chemical or physical barriers that affect aquatic ecosystems. No additional past, present and reasonably foreseeable future actions will be included for this cumulative effects analysis besides the actions that are included in the water quality, water flow and associated stream channel change analysis. If adverse impacts would occur as a result of the project, mitigation will be discussed

3.3.1.2.2 Mercury Deposition and Evaluation of Bioaccumulation in Fish in Northeast Minnesota

The goal of this analysis is to determine if the potential local deposition of mercury from the project will significantly increase mercury contamination of fish, either alone or as a result of the cumulative local deposition with other nearby, new or proposed emission sources. The completion of the analysis will fulfill the Total Maximum Daily Load (TMDL) Implementation Strategy requirement that new and expanding sources with a net increase in mercury emissions at the proposed site provide an analysis of cumulative local impacts.

This assessment will be conducted using the Minnesota Pollution Control Agency (MPCA) Mercury Risk Estimation Method (MMREM) for the Fish Consumption Pathway. MMREM is a simplified screening method to assess the effect of an emission source by calculating the potential incremental increase in mercury deposition contributed by a source above the statewide background deposition rate to a watershed from a facility's modeled average air concentrations due to local dispersion.

Sources to be included in this cumulative effects analysis include those sources with significant mercury emissions near the project area. The planned assessment will consider all existing and proposed facilities within a yet-to-be-determined radius of the proposed project. This analysis will assess potential impacts to fish and the potential risks to recreational and subsistence fishers that consume locally caught fish.

3.3.1.2.3 Wildlife Habitat

Wildlife and wildlife habitat at the mine site and greater surrounding area may be affected as a result of the proposed project. An appropriate scale of analysis will be identified along with a baseline time and condition. Past and current cumulative habitat loss will be assessed on the baseline condition. Landscape barriers to the movement of animals and corridors will be evaluated. Previous studies will be used to inform the discussion. If adverse impacts are identified, mitigation will be discussed. U. S. Steel will provide a report on the cumulative effects of this project and other nearby proposed projects on wildlife habitat loss and obstruction (see section 6.0). Mitigation will be discussed if warranted.

3.3.2 State-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources (Item 11b)

3.3.2.1 Project-Specific Analysis

The EIS will evaluate potential impacts to state and federally threatened and endangered species and state species of special concern. Existing information will be evaluated and additional information collected, if necessary, to support state and federal regulatory requirements for threatened and endangered species and species of special concern.

The EIS will include the results of the rare plant survey and database search results, describe potential impacts to listed species, and suggest mitigation if warranted. Field studies will be conducted in late 2008 to early 2009 to determine the presence of Canada lynx in the project area. The gray wolf has been re-listed as a federally listed endangered species; the EIS will assess potential effects consistent with this status. Potential mitigation strategies and alternatives will be evaluated to avoid or minimize any identified impacts. U. S. Steel will provide a report on the potential impact on lynx in the project area (see section 6.0).

3.3.2.2 Cumulative Effects Analysis: Threatened and endangered species and species of special concern

Potential cumulative effects to state and federal threatened and endangered species as well as species of special concern will be discussed in the EIS. Effects related to past, present, and reasonably foreseeable future actions will be evaluated through a semi-quantitative summary of the number of populations of each species that may be affected. The magnitude of those effects based on the knowledge of the species within the state will also be considered. This evaluation will include determining whether the various species are particularly vulnerable to decline. The magnitude of the effects will be evaluated within the context of the state, affected region and the DNR regulatory program. If adverse impacts are projected, mitigation will be discussed.

Relevant information for assessing cumulative effects on sensitive species will be reviewed. After this review additional work may be completed. This work could include additional lynx surveys, botanical surveys and coordination with U. S. Fish and Wildlife to determine needs for gray wolf compliance. Losses from other proposed projects with the potential to affect the species of interest will also be included in the analysis if information is available. In addition to providing a report on the potential impact on lynx in the project area (see section 6.0), U. S. Steel will provide a report summarizing the currently known threatened and endangered plant species in the project area as well as the results of a recent detailed survey completed in the project area.

The Natural Heritage database will be reviewed as well as the U. S. Steel survey results and report. Potential impacts will be evaluated and summarized. Mitigation will be discussed if warranted.

3.3.3 Physical impacts on water resources (Item 12)

3.3.3.1 Project Related Analysis

The proposed project has the potential to significantly affect surface and groundwater resources in the project area both during and after mining. A detailed project water balance and watershed yield will be conducted to help quantify impacts on stream flow and lake water levels during mining operations and after mine closure. The EIS will include a major discussion of this topic including:

- Impacts to lakes, rivers, other open water and wetlands; and
- Dam safety issues.

U. S. Steel will complete a Level 1 Rosgen analysis of stream geomorphology for O'Brien Creek between the Perry Pit and O'Brien Reservoir to identify any potential stream reaches that may be sensitive to changes in stream flow. This information will be compared with the stream flow change information (described in Item 13) to identify any stream reaches that require further evaluation for impacts. If this further evaluation identifies any significant adverse impacts due to changes in water flow, monitoring and mitigation will be developed. Macro invertebrates will also be surveyed on O'Brien Creek and a macro invertebrate monitoring program discussed.

Wetland delineations, mitigation sites, and feasibility of wetland mitigation will be evaluated in the EIS. The potential for indirect wetland impacts due to the project will also be evaluated in the EIS. These studies will include a discussion of wetland function and values.

The EIS will suggest monitoring and mitigation where necessary to better define potential impacts and avoid or minimize known impacts. The EIS will also describe the rationale for inclusion/exclusion of waterbodies in the analysis.

3.3.3.2 Cumulative Effects Analysis

3.3.3.2.1 Stream flow and Lake Level Changes

A quantitative assessment of cumulative effects due to changes in flow will be performed for the upper Swan River and Swan Lake. Possible impacts will be determined using a computer model. This computer model would evaluate changes to the long-term flow regime of waterbodies. This model would incorporate land use and land cover information generated from other analyses within the EIS. Past and present actions will also be considered. The EIS will also describe the rationale for inclusion/exclusion of waterbodies in the analysis.

3.3.3.2.2 Inter-basin Transfer of Water

The EIS will discuss the potential for an inter-basin transfer of water between the Lake Superior and Mississippi River watersheds. The footprint of current and future mining pits associated with the Keewatin Taconite and Hibbing Taconite operations will be evaluated to identify key future pit water runouts. Runouts are those locations within a mine pit where water will overflow its rim, once the post-mining pit fills, according to its lowest pit rim elevation. This EIS will validate and update information for runouts identified in Herr and Gleason (2007) within both mine pit complexes on either side of the watershed divide. This information and subsequent protection of identified areas under a Permit to Mine will set the stage for mine closure evaluation and intended compliance with the State of Minnesota's Mineland Reclamation Rules, part 6130.2200. The protection of runout locations and elevations within each watershed on either side of the Lamberton Fault will be critical to assuring equal distribution of

flows to both the Lake Superior and Mississippi River watersheds and reduce the likelihood of the inter-basin transfer of water. Downstream impacts will not be evaluated because water quantities stemming from this issue are not expected to change due to mitigation. Policies and regulation relating to the inter-basin transfer of water will be summarized.

3.3.3.2.3 Loss of Wetlands

A semi-quantitative analysis of cumulative effects on wetlands will be performed. This analysis will be done on a watershed basis. The National Wetlands Inventory along with other considerations will establish the baseline. Wetlands will be mapped. Wetlands impacted from the proposed project will be identified. Losses from other proposed projects with the potential to affect wetland resources in the affected watershed will also be included in the analysis if wetland impact information is available at the time of the analysis. The magnitude of the effects will be evaluated within the context of overall wetland resources within the watershed. Alternative configurations of the project may be evaluated to determine if the projected impacts can be minimized. Unavoidable wetland impacts will be mitigated in accordance with state and federal wetland permitting programs. U. S. Steel will provide a wetland inventory report and functional analysis as well as a wetland hydrology study and mitigation plan. Reports will be reviewed, wetland impacts summarized and mitigation options discussed if warranted including those considered by U. S. Steel.

3.3.4 Water Use (Item 13)

It is not anticipated that groundwater modeling will be necessary or effective to evaluate potential hydrogeologic impacts of the proposed Keetac mining operation on the City of Keewatin municipal water supply wells. Instead, the EIS will discuss a contingency plan and monitoring program to mitigate potential impacts to the municipal wells in the City of Keewatin. The plan will identify mitigation measures that U. S. Steel will agree to implement. Mitigation may include replacing water to ensure the City's water supply pursuant of Minnesota Rules, part 6115.0730.

The EIS will also discuss a monitoring program to track LaRue Pit complex and Perry Pit water levels. If impacts to the City of Nashwauk wells are recorded, monitoring data from the LaRue and Perry pits can help identify a hydrologic connection, if any, between the Perry Pit (which will be dewatered by U. S. Steel), the LaRue Pit and the City of Nashwauk wells. A well interference resolution with the Nashwauk could be explored if an impact occurs which is linked to the proposed project.

U. S. Steel will conduct further mine site hydrologic evaluation to analyze the potential mine dewatering rates required to conduct mining operations in the future. U. S. Steel will evaluate the hydrologic impacts of increasing water volumes to O'Brien Creek due to the proposed project. High and low flows of this creek will also need to be determined. U. S. Steel will prepare a detailed facility water balance to evaluate the anticipated volumes of makeup water necessary for taconite processing operations. This information will provide more accurate accounting of water management and use during the life of the project. This information will be available for use by DNR to conduct evaluations that will be included as part of the EIS.

3.3.5 Water Quality: Wastewaters (Item 18)

3.3.5.1 Project-Specific Analysis

U. S. Steel will conduct a water chemistry balance for processing water and tailings basin operation that will evaluate potential water quality changes to Welcome Creek, Reservoir Two, and the discharge from the tailings basin through the life of the proposed project. The EIS will include a discussion of impaired

waters that may be affected by the project and how the project will affect these parameters, including but not limited to phosphorus. Potential water quality changes due to potential increases in the use of chemicals in facility water treatment and to control kiln slag will be evaluated in the EIS and considered during permitting.

3.3.5.2 Cumulative Effects Analysis

A quantitative assessment of cumulative water quality effects will be performed using a computer model for the Upper Swan River and Swan Lake. A baseline will be established that includes various sources. The model will then be modified to include future actions.

3.3.6 Stationary Air Source Emissions (Item 23)

3.3.6.1 Project-Specific Analysis

The EIS will describe air emission sources, potential control technologies and impacts and opportunities for mitigation. An air emissions inventory will be completed for all air pollutants.

The following studies and analyses will be included:

- A demonstration of the application of BACT for Potential for Significant Deterioration (PSD) pollutants for which the project exceeds the significant emission rates will be done. Based on the current emission inventory, the pollutants for which a BACT analysis will be performed include sulfur dioxide (SO_x), particulate matter less than 10 and 2.5 micrometers in diameter (PM_{10} and $PM_{2.5}$), and carbon monoxide (CO). BACT analysis will not be necessary for Nitrogen oxides (NO_x) because U. S. Steel currently expects to limit NO_x emissions below PSD thresholds.

- Class II increment analyses ("fence line" dispersion modeling) will at a minimum be required for PM_{10}. A Class II increment analysis will also be required for any other pollutants exceeding major modification thresholds and modeled significant impact levels. This include $PM_{2.5}$ for which PSD permit thresholds were promulgated by USEPA on May 16, 2008 and for which MPCA issued guidance on July 18, 2008.

- An additional impacts analysis for impacts of criteria pollutants on soils and vegetation will be conducted;

- Class I Area impacts analysis evaluating potential long-range transport of visibility-impairing pollutants will be conducted. Class I areas are national parks and wilderness areas. For this project, the Class I areas of concern include Voyageurs National Park (VNP), Boundary Waters Canoe Area Wilderness (BWCA), Isle Royale National Park, and Rainbow Lakes Wilderness Area. If adverse effects from the proposed project are identified, mitigation will be discussed.

- Class II NAAQS (National Ambient Air Quality Standards) analysis for CO, SO_2, NO_X, PM_{10}, $PM_{2.5}$ and Pb will be completed for the EIS. In addition, an increment analysis for $PM_{2.5}$ may be completed pending if regulations become applicable before completion of the EIS. The Class II NAAQS modeling will include existing sources in the area and Minnesota Steel Industries and Excelsior Energy projects thus eliminating the need for a cumulative Class II analysis.

- A MACT compliance study will be completed as necessary.

- The EIS will show how this proposer will comply with the Total Maximum Daily Load implementation plan. The EIS will show a range of impacts reflecting the range of control efficiencies

- A mercury mass balance and local impact analysis will be completed. A preliminary mercury mass balance has been prepared for this project.

- The EIS will evaluate mitigation of any net increase in modeled visibility impacts resulting from the project. Mitigation of fugitive dust from the project will also be discussed.

- A $PM_{2.5}$ emission inventory and fugitive dust control plan will be developed and an applicability determination based on the inventory will be completed. Based on preliminary estimates, it is anticipated that the project will trigger PSD and will require application of BACT and modeling to demonstrate compliance with ambient air quality standards.

3.3.6.2 Risk Assessment

The EIS will evaluate the potential risk to human health posed by the proposed project through the preparation of a human health risk assessment. This will be a screening-level multi-pathway human health risk assessment. A detailed list of emissions of chemicals of potential concern will be developed for the assessment using MPCA Air Emissions Risk Analysis (AERA) Guidance and toxicity values and USEPA Human Health Risk Assessment Protocol. The Risk Assessment will consider air emissions and water discharges, which correspond to inhalation and ingestion of toxics. The MPCA will approve the risk assessment protocol. An ecological risk assessment will be completed for cumulative effects only (see section 3.3.6.3.3).

3.3.6.3 Cumulative Effects Analysis

3.3.6.3.1 Class I Areas – Potential Impact to Air Quality (PM_{10} Air Concentrations and Visibility Impairment) in Class I Areas in Minnesota

Federally administered Class I areas (e.g., BWCA, VNP) may be impacted as a result of the proposed project. A semi-quantitative assessment will be conducted for the EIS process that is based on monitoring data, emissions inventory data and the potential for actual impacts. A detailed modeling analysis is not needed. The assessment of potential impacts will be completed through statewide SO_2, NO_x, and PM_{10} emission trend analyses using existing statewide emission inventory data. Regulatory actions and their impacts statewide and nationally will also be considered in the analysis. The assessment will summarize the potential for the projects to contribute to PM_{10} air concentrations and visibility impairment in the BWCA and the VNP.

3.3.6.3.2 Ecosystem Acidification Resulting From Deposition of Air Pollutants

A semi-quantitative analysis will be conducted updating information from previous EISs and accounting for currently proposed projects in northern Minnesota, including projects on the west end of the Mesabi Iron Range. Detailed modeling does not need to be completed for this element because it has already been done.

Background information on acid deposition in Minnesota will be summarized, including the long-range transport of pollution and out-of-state source contributions, and findings from state-funded studies and the study conclusions. Findings from the deposition trend analysis and emissions trend analysis conducted for the Minnesota Steel and PolyMet Mining EISs will be summarized. Updated information on sulfate deposition in Minnesota will be provided, and a qualitative assessment conducted as to whether the

additional projects would affect the previous findings and whether the projects would exceed the statewide emission cap and the deposition standard.

Additionally, the potential for cumulative effects from the proposed projects will be based on the potential increases/decreases in sulfate and nitrate deposition to Minnesota ecosystems from reasonably foreseeable voluntary and/or regulatory actions. The specific voluntary and regulatory actions to be included in the analysis will be discussed with the Minnesota state agencies and documented in a scope of work.

Results will be summarized in a report to be submitted to the MPCA and the EIS contractor. Description of air emissions control technologies is expected to be a significant section of the report. The results will be verified by the MPCA (this may be delegated to the EIS contractor).

3.3.6.3.3 Cumulative Effects on Human and Ecological Health

The inhalation portion of the screening-level, multi-pathway human health risk analysis for the proposed project will be supplemented with a cumulative effects analysis for potential receptors at the Keetac facility's property boundary. This analysis will include results from computer models and monitoring data to estimate potential cumulative human health risks.

U. S. Steel will develop a work plan for the human health cumulative risk analysis in conjunction with the DNR, MPCA, and the Minnesota Department of Health (MDH). A report will be submitted to the agencies and the results summarized in the EIS.

The cumulative ecological risk assessment will focus on potential changes to water quality in Swan Lake resulting from the proposed project and the Minnesota Steel Industries, LLC project. For each project, contributions of pollutants to Swan Lake in tailings basin discharges and deposition related to air emissions will be estimated. As part of the environmental review and permitting process for both the Expansion project and the Minnesota Steel Industries project, tailings basin discharge chemistry and volume are estimated. This information will be used to estimate the concentration of pollutants reaching Swan Lake via Hay Creek and O'Brien Creek, respectively. With regard to deposition of air emissions from each project, the respective human health risk analyses provide estimates of deposition to Swan Lake and the incremental concentration in Swan Lake. The incremental concentration of each air pollutant deposited to Swan Lake from each project can then be summed. Overall, the estimated contribution of a pollutant from tailings basin discharge and atmospheric deposition can be summed to provide an estimate of potential cumulative incremental concentration.

The potential incremental changes in Swan Lake water chemistry associated with the estimated pollutant contributions from the two projects will then be assessed. The potential change in water quality will be evaluated by comparing estimated chemical concentrations to respective available water quality standards and ecological benchmark concentrations.

U. S. Steel will develop an ecological risk assessment work plan in conjunction with the DNR. The consultant to be selected by the DNR will conduct the cumulative ecological risk assessment. The ecological risk assessment report will be summarized in the EIS.

3.4 Economic and Social Impacts

U. S. Steel will acquire information and analyze possible general social and economic impacts of the proposed project in the EIS. This will include the direct and indirect effects on local economic development, tax base and demand for public services. The DNR and USACE will review this analysis.

4.0 IDENTIFICATION OF PHASED OR CONNECTED ACTIONS

There are no known connected or phased actions associated with this project as defined in Minnesota Rules, part 4410.0200, subpart 9, item B.

5.0 EIS SCHEDULE (TENTATIVE)

Date	Action
September – October, 2008	Scoping EAW comment period (includes public meeting)
October, 2008	Final Scoping Decision Document
November, 2008	EIS preparation notice published
April – May, 2009	Draft EIS issued for public review (includes public meeting)
July, 2009	Final EIS issued
August, 2009	RGU renders EIS adequacy determination

6.0 SPECIAL STUDIES OR RESEARCH

Lynx Survey—U. S. Steel will provide a report on Canada lynx habitat in the project area and the potential for lynx in the area. This report will summarize existing information and include results from a lynx survey with field tracking and scat analysis.

Cultural Resource Survey—U. S. Steel, under SHPO and USACE oversight, will complete a Phase I archaeological survey in the project area, and the results will be summarized in the EIS. The survey will include a review of documented and undocumented historical landforms and buildings within the project's area of potential effect.

Project Water Balance and Watershed Yield Model—U. S. Steel will provide a process water balance that will describe the major consumptive uses of water and the net appropriation required for project operation.

Dissolved Solids Balance and Chemical Mass Balance—U. S. Steel will provide the results of an agency-approved model of dissolved solids accumulation in process water and tailings basin runoff for use in the EIS. It will estimate concentrations of highly soluble ions including calcium, sodium, magnesium, SO_4, and chlorine, as well as total dissolved solids. Concentrations of flotation chemical reagents will also be estimated.

Wetland Inventory Report with Functional Analysis—U. S. Steel will provide a report describing wetlands affected by the project for use in the EIS. It will include general statistics on wetland type and quality and individual data sheets for wetlands giving general assessments of functions and values using the Minnesota Routine Assessment Methodology (MnRAM) for Evaluating Wetland Functions format.

Indirect Wetland Effects—U. S. Steel will provide a report describing potential indirect effects to wetlands resulting from potential effects to mining activities and to waterbodies hydrologically connected to wetlands.

Wetland Hydrology Monitoring Study—U. S. Steel will install shallow monitoring wells in wetlands located adjacent to the proposed pits or pit expansions and the proposed stockpile areas. Water level readings will be available for use in the EIS. The hydrology monitoring will provide a baseline for evaluation of future impacts and will help evaluate the current wetland hydrology for prediction of impacts.

Wetland Mitigation Plan—U. S. Steel will provide a wetland mitigation plan to be submitted as part of the joint state-federal application for wetland impacts. It will be available for use in preparing the EIS. The plan will describe specific areas proposed mitigation and the conceptual plans for accomplishing the restoration or enhancement of wetlands at the restoration sites. It will describe a long-term strategy for mitigating wetland impacts over the project life and in project closure and reclamation.

Air Quality Studies—U. S. Steel will submit the following analyses as part of the application for an air emissions permit and for use in preparing the EIS.

- PSD Class I Area Impacts Analysis
- PSD Class II Area Impacts Analysis
- BACT Review for all pollutants above PSD thresholds (currently estimated to include SO_X, PM_{10}), $PM_{2.5}$ and CO)
- Taconite MACT and MACT Compliance
- Mercury mass balance and local impact analysis

Fugitive Dust Control Plan—This plan will detail methods to control fugitive dust generated from the mine pit and the tailings basin and decrease impacts on adjacent land uses sensitive to dust.

Well Water Contingency Plan—A water supply contingency plan will be developed to prepare for any possible future impacts to well water quantity impacts.

Human Health Risk Assessment Report—U. S. Steel will prepare a report on the potential health risk to humans, if any, stemming from project emissions.

Macro Invertebrate Survey for O'Brien Creek—U. S. Steel will complete a baseline study of the geomorphology and invertebrate populations in O'Brien Creek between the Perry Pit and O'Brien Reservoir. U. S. Steel will submit the results of this baseline survey as well as a study assessing the potential impact of the project on stream geomorphology and macro invertebrate species populations.

Wildlife Habitat Loss/Fragmentation & Travel Corridor Obstruction Cumulative Effects Study— This study will describe habitat fragmentation and loss caused by the proposed project and any impacts to wildlife travel corridors. The study, "Cumulative Effects Analysis on Wildlife Habitat and Travel Corridors in the Mesabi Iron Range and Arrowhead Regions of Minnesota," (May 2006) including references used in the study, is a necessary data need to understand potential environmental effects to wildlife.

7.0 GOVERNMENTAL PERMITS OR APPROVALS

The EIS will identify all permits and approvals required for this project. While some permit application review may occur concurrently with EIS preparation, the EIS will not necessarily contain all information required for a decision on those permits. No permits have been designated to have all information developed concurrently with the preparation of the EIS. The USACE will prepare a Record of Decision as part of the Clean Water Act, Section 404 permitting process after the Final EIS is issued.