U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 417
Mt. Iron, MN 55768

CERTIFIED MAIL: 7012 1640 0000 6703 5680

July 9, 2013

Jill Bathke
Department of the Army
St. Paul District, Corps of Engineers
180 5th St. East, Suite 700
St. Paul, MN 55101

Re: MVP-2012-00415-JCB Response to Information Request

Dear Ms. Bathke,

U. S. Steel received a letter dated May 24, 2013 from Tamara Cameron requesting additional information on the Environmental Impact Assessment for the Minntac Extension project. In the letter the Corp outlined a number of information requests which would assist the Corp in completing the Environmental Assessment for the project as required under the National Environmental Protection Act (NEPA) and the Corp public interest review.

The information requested has been enclosed with this letter and is in a question and response format with additional information included as attachments. Because of the overall volume of the supporting information, the attachments have been included on a CD in electronic format. Two additional copies have been enclosed for USEPA and MDNR review. If you have any questions please feel free to contact me at (218) 749-7364 or clbartovich@uss.com.

Sincerely,

Chrissy Bartovich
Director – Environmental

cc: Tishie Woodwell – U. S. Steel
Eric Williams – U. S. Steel
Monica Gesk – U. S. Steel
Tom Moe – U. S. Steel
Josh Zika – U. S. Steel

provides a reasonable level of confidence in the factor. This model has been reviewed by both MPCA and MDNR.

To quantify the total amount of sulfate potentially discharged into the Sand River and Dark River watersheds, the total sulfate produced from the tailings deposition associated with the extension area mining was estimated using the tailings oxidation factor. It was assumed that the extension area would be contributing 100% of the tailings to the basin at the time of mining. Using a typical historical production level of 14 million long tons of pellets, the total annual sulfate generated from tailings would be:

$$\frac{(0.2\ \text{lbs sulfate/long ton pellets})(14\ \text{million long tons/year})}{(2000\ \text{lbs/ton})} = 1400\ \text{tons sulfate/year}$$

Previous mass balance modeling of conservative constituents, such as chloride, at monitoring locations downstream of the tailings basin in the Sand and Dark Rivers suggests that the amount of seepage is approximately equally split between the two watersheds. As such, sulfate loadings to the two watersheds are believed to be approximately equivalent. Therefore it is estimated that the incremental increase of sulfate load to each watershed would be approximately 700 tons per year. However, as discussed previously and in more detail below, the SC&R operating on the east side of the tailings basin is collecting approximately 50% of the total seepage reporting to the Sand River Watershed. Therefore, the incremental increase in sulfate load to the Sand River Watershed due to the Minntac Extension would be closer to 350 tons per year.

It is estimated that the extension project would add up to an additional eight years of pellet production to the facility at current rates.

Minntac has implemented and/or is in the process of implementing numerous sulfate mitigation efforts. These include the Sand River SC&R, a similar seep collection and return system on the west side of the tailings basin for surface seepage reporting to the Dark River, implementation of waste gas dry controls in place of the existing Line 6 once-through wet scrubber, addition of tertiary treatment of effluent from the Line 3 scrubber blow-down treatment system to improve in-plant sulfate and hardness removals, development of an alternative process makeup water source to reduce sulfate inputs to the facility (the #6 Sump Project), and a Groundwater Sulfate Reduction Plan focused on sulfate discharges to the Sand River Watershed via groundwater near MW12. Each of these projects is designed to reduce the concentration of sulfate within the facility's recirculating process water system and/or reduce the overall discharge of sulfate into the receiving waters downstream of the tailings basin. In total, the sulfate reductions produced by these projects will be much greater than the additional sulfate generated by the incremental additional tailings associated with the proposed Minntac Extension.

$$\frac{(0.2 \text{ lbs sulfate/long ton pellets}) * (14 \text{ million long tons/year})}{2000 \text{ lbs/ton}} = 1400 \text{ tons sulfate/year}$$

There are two main watersheds receiving seepage from the Minntac basin, the Dark River and the Sand River. Mass balance modeling of conservative constituents at monitoring sites in the Dark River and Sand River downstream of the tailings basin estimated approximately equal seepage volumes to those two watersheds. In order to estimate the amount of sulfate which could potentially affect the Sand River Watershed, the total must be split. Therefore, the sulfate total to the Sand River Watershed is:

(1400 tons sulfate/year) / 2 = 700 tons sulfate/year

The existing SC&R, installed along the east side of the tailings basin perimeter dike in 2010 and fully operational since June 2011, is collecting roughly one-half of the total volume of seepage estimated to be reporting to the Sand River Watershed and returning it to the tailings basin clear pool reservoirs. Therefore, approximately 50% of the total mass of sulfate that will be generated from mine extension tailings will be prevented from entering the Sand River Watershed. This equates to 350 tons of sulfate/year.

A proposed project which will have a considerable effect on the reduction of sulfate loading to the watersheds surrounding the tailings basin is the Dry Controls project. In August 2011 U. S. Steel submitted an application to the MPCA for an amendment to the facility Title V operating permit to allow the installation of a gas suspension absorber (otherwise known as a dry scrubber) for SO_2 control, activated carbon injection for mercury control and a dry electrostatic precipitator (ESP) for particulate control on Agglomerator Line 6. U. S. Steel has been working with the MPCA since that time on the permit application. Once the issues have been resolved to the MPCA's satisfaction, a draft permit will be placed on public notice. During the detailed engineering and design process it was found that a baghouse would be feasible and is being permitted in lieu of an ESP. The baghouse has additional benefits as compared to the ESP including reduced opacity during startup and operator familiarity with the equipment. Once the air permit is received, without appeal, the engineering process will move on for appropriation of funds and installation of controls. A combination of equipment lead times, construction season and maintenance outages will dictate when the ultimate startup of the installation will occur. A major water benefit of this project is the reduction of sulfate which enters the recirculating process water stream due to the scrubbing of SO_2 in the existing waste gas wet scrubbers.

Based on annual average analytical results from the existing Line 6 waste gas scrubber discharge from 2006 – 2010, the sulfate mass increase to the system is 708 tons per year. Installation of the dry controls system on Line 6 alone will offset the potential sulfate mass that is projected to be released to the Sand River Watershed from tailings generated by the proposed Extension project.