UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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MAR 13 2014

REPLY TO THE ATTENTION OF:
E-19J

Brenda Halter
Forest Supervisor
U.S. Forest Service – Superior National Forest
8901 Grand Avenue Place
Duluth, Minnesota 55808

Colonel Dan Koprowski
Commander
U.S. Army Corps of Engineers – St. Paul District
180 5th Street East, Suite 700
St. Paul, Minnesota 55101-1678

Tom Landwehr
Commissioner
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4040

**Re: Supplemental Draft Environmental Impact Statement for the NorthMet Mining Project and Land Exchange, Hoyt Lakes, St. Louis County, Minnesota - CEQ No. 20130361**

Dear Ms. Halter, Colonel Koprowski, and Mr. Landwehr:

The United States Environmental Protection Agency (EPA) has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project and Land Exchange. This SDEIS was prepared by Environmental Resources Management (ERM), consultant to the U.S. Army Corps of Engineers (USACE), U.S. Forest Service (USFS), and the Minnesota Department of Natural Resources (MDNR). These agencies are collectively referred to as the "co-lead agencies." EPA conducted its review pursuant to its authorities and responsibilities under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act, Section 404 of the Clean Water Act (CWA), and its June 27, 2011 agreement to participate as a cooperating agency.



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The proposed project is the first non-ferrous hard rock mine on the Mesabi Iron Range and includes three new surface mine pits, permanent and temporary waste rock stockpiles, an overburden storage and laydown area, a wastewater treatment facility (WWTF), a water collection and conveyance system, a central pumping station (CPS), and a rail transfer hopper. Two processing facilities, one for beneficiation and one for hydrometallurgical processing, would be located on the old LTV Steel Mining Company (LTVSMC) site, and PolyMet (the company) proposes to use and expand the existing LTV tailings basin. The proposed land exchange anticipates that 6,650 acres of Superior National Forest will be exchanged for up to 6,722 acres of privately-owned lands. The proposed project is within land ceded by the Lake Superior Chippewa Tribe to the U.S. by treaty, known as the1854 Ceded Territory, upon which tribal members exercise reserved rights.

EPA reviewed the Draft Environmental Impact Statement (DEIS) and rated it as "Environmentally Unsatisfactory – Inadequate EIS (EU-3)" on February 18, 2010. EPA also reviewed the Preliminary Supplemental Draft Environmental Impact Statement (PSDEIS), and provided comments to the co-lead agencies on August 7, 2013. We appreciate the extensive improvements to the project and the clarity and completeness of the environmental review that are reflected in the SDEIS. The co-lead agencies have adequately addressed EPA's comments on the PSDEIS pertaining to well sample analysis methods, stormwater management controls, ground water flow calculations, water quantity impacts to Yelp Creek, wetland mitigation rates and mitigation bank locations, stream monitoring, ground water drawdown, asbestos-like fibers, implementation of an anti-idle policy, EPA's role as a cooperating agency, public availability of technical documents, material disposal during reclamation, financial assurance, bedrock fractures, wetland permitting, and use of organic amendments (peat). EPA retains oversight authority for permitting of wetland fill, National Pollutant Discharge Elimination System (NPDES) discharges, and water quality and aquatic habitat certification. We will work with USACE and the Minnesota Pollution Control Agency (MPCA) as necessary to address these issues during project permitting.

EPA has engaged in extensive discussions with the co-lead agencies while reviewing the SDEIS. As we recently discussed, there remain a number of areas where potential environmental impacts should be more effectively addressed, and where the project description and evaluation in the SDEIS should be improved. Accordingly, EPA has rated the SDEIS as "Environmental Concerns – Insufficient Information (EC-2)." This rating reflects environmental impacts that are identified in the SDEIS, and that can be avoided or further mitigated as necessary and appropriate. It also reflects the need for further analysis to fully assess and avoid or mitigate environmental impacts. Finally, it addresses areas where the FEIS should be more clearly written to inform decisionmakers and the public. A description of the assigned rating is enclosed.

Attached to this letter are EPA's detailed comments and recommendations. Most of EPA's 37 comments recommend changes that will support a complete and easily understandable Final Environmental Impact Statement (FEIS), with an adequate level of detailed analysis to inform decisionmakers and the public. Also included are recommendations to further analyze potential impacts that have been raised by the SDEIS, with an expectation that avoidance or mitigation will be considered as necessary and appropriate.

EPA is committed to continuing to work with the co-lead and cooperating agencies to make sure that all relevant information is made available for public comment in the FEIS, and looks forward to discussing these comments to resolve any questions before issuance of the FEIS. Please contact me at 312-353-8894 or Kenneth Westlake of my staff at 312-886-2910 to schedule this discussion.

Sincerely,

Alan Walts, Director
Office of Enforcement and Compliance Assurance

Enclosures: Summary of Rating Definitions and Follow Up Action
EPA Detailed Comments

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## SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION[1]

### Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

### Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

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[1] See EPA Manual 1640: *Policy and Procedures for the Review of the Federal Actions Impacting the Environment.*

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**EPA DETAILED COMMENTS**
NORTHMET PROJECT – SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

## I. Water Quality

### A. Mine Site

*Comment # 1.* Spill prevention is an important part of the mitigation for this project. Using new or retrofit side dump rail cars (possibly with hydraulic air-operation conversions) should be considered as part of the mitigation package for the proposed action. Proactive mitigation through the use of updated rail infrastructure would help reduce spillage and subsequent environmental concerns, possibly including the need for additional long-term water treatment.

> **Recommendation:** Consider use of new or retrofit side-dump rail cars when producing the spilled ore plan.

*Comment # 2.* Pages 5-50 forward describe how the company has classified its waste rock and tailings into four categories based on their likelihood to generate acid rock drainage. We understand from discussion with the co-lead agencies that lime will be added to Category 1 waste rock, which is expected to result in neutral to slightly basic pH.

> **Recommendation:** The FEIS should indicate that Category 1 waste rock leachate is expected to have a neutral to slightly basic pH due to the addition of lime.

### B. Plant Site

*Comment # 3.* Page 5-157, Section 5.2.2.3.3, 2nd Paragraph: information on the design, operations, and monitoring plans for the hydrometallurgical research facility (HRF) is insufficiently detailed.

> **Recommendation:** The FEIS should provide information on the HRF's design and operations in sufficient detail for the reader to understand potential impacts associated with this facility and how those impacts will be avoided or mitigated. This includes explaining that a detailed Residue Management Plan for this facility will be required during permitting.

*Comment # 4.* Page 4-336 discusses the possibility of inundating an existing coal ash landfill located within the proposed tailings basin. Based on current knowledge of leachate concentrations found in groundwater at such landfills, inundation may lead to future water quality impacts.

**Recommendation:** The FEIS should discuss how constituents found in the coal ash landfill may impact water quality in the Embarrass River, how this landfill will be protectively managed, and how any impacts will be mitigated.

## C. Water Quality Standards

*Comment # 5.* CWA requirements for antidegradation ("nondegradation" in Minnesota's terminology) help ensure that a proposed project will not result in a loss of existing uses of surface waters, and preclude reduced water quality unless the State determines it is necessary to accommodate important social and economic development (see 40 CFR 131.12). This review must occur before project activity that may result in a new or increased discharge commences, and should not be deferred until NPDES permitting. EPA understands from discussion with MPCA that much, if not all, of the information needed for an antidegradation review is already contained in the SDEIS.

**Recommendation:** The FEIS should include an evaluation of which of Minnesota's nondegradation rules (7050.0180, 7050.0185, 7052.0300) apply to this project, and explain how the project complies with the applicable nondegradation rules.

*Comment # 6.* The proposed project provides significant overall environmental improvements over the proposal in the DEIS through installation of seepage containment and other controls at the former LTV tailings basin. However, the SDEIS modeling predicts increases in aluminum (Al) and lead (Pb) in surface waters affected by the proposed project – including exceedances of evaluation criteria for Al and Pb at locations on four tributaries to the Embarrass River (p. 5-7 to 5-8). These predicted increases are based on a number of assumptions, including the contribution from remediation of the former LTV tailings basin. The SDEIS modeling also predicts other increases and exceedances of evaluation criteria based on the "Continuation of Existing Conditions" scenario. EPA understands that monitoring of receiving waters down gradient of the existing tailings basin is being carried out now. This monitoring data will be an important source of information to consider along with modeling results.

**Recommendation:** Available monitoring data should be used to inform NPDES permitting. Monitoring should continue throughout the life of the project to inform permitting, adaptive management, and additional measures to prevent or mitigate impacts to aquatic life as necessary.

## D. National Pollutant Discharge Elimination System

*Comment # 7.* The SDEIS anticipates that pollutants will be discharged from mine site features, travel via groundwater pathways and reach the Partridge River several years following the start of the mining project. See SDEIS Table 5.2.2-26. However, as EPA has stated previously, the pollutants originating from mine site features may discharge to jurisdictional wetlands and tributaries prior to reaching the Partridge River. CWA Section 301 prohibits any point source discharge of pollutants to waters of the United States, either directly or via directly connected ground water, unless the discharge complies with a NPDES permit. Waters of the United States include jurisdictional wetlands and tributaries. See 40 CFR 122.2.

**Recommendation:** The FEIS should reflect the fact that a NPDES permit is required before the pollutants from the mine site reach waters of the U.S. (including jurisdictional wetlands and tributaries). Statements in the SDEIS about when discharges will reach waters of the U.S. should be revised, and these changes should be reflected in the FEIS.

## E. Water Modeling

*Comment # 8.* The Tribal Cooperating Agencies Cumulative Effects Analysis (September 2013) included in Appendix C of the SDEIS states: "PSDEIS Table 4.2.2-18 reports Colby Lake as currently having an observed mean for Arsenic of 0.78 to 1.4 ug/L (depending on the data set), whereas Figure 5.2.2-35, the No- Action (continuation of current conditions)" P50 model for Colby Lake Arsenic shows annual maximum values of 0.5 ug/L." In addition, the SDEIS shows Colby Lake's current mean arsenic concentration as 0.78-1.4 ug/L on Table 4.2.2-18, with a range of 0.25 – 2.3 ug/L, while the modeled p90 maximum value in Figure 5.2.2-35 lists the maximum concentration of arsenic in Colby Lake as 0.70 ug/L. Comparing the modeled mean for arsenic in Colby Lake to existing site-specific data in the SDEIS, the model outputs underestimate arsenic concentrations by up to 100%. Colby Lake is currently modeled as a continuation of the Partridge River because there is insufficient data to model it as a lake, which may be causing this discrepancy. We understand that monitoring is ongoing, which may provide additional information on observed arsenic concentrations.

**Recommendation:** The FEIS should document an analysis that addresses this discrepancy between existing conditions in Colby Lake and modeling results, taking into account all necessary data. The FEIS should include any follow-up actions that will be necessary based on this analysis.

*Comment # 9.* Modeling using MODFLOW assumes no seepage through the berm on the east side of the tailings basin. The co-lead agencies have agreed to reexamine this assumption. MODFLOW outputs are used as an input to the GoldSim model, so changes to these outputs may require updated GoldSim modeling as well.

**Recommendation:** Recalibrate MODFLOW as necessary to reflect seepage on the east side of the tailings basin, and update GoldSim modeling as necessary. The FEIS should explain how this comment was addressed.

*Comment # 10.* Modeling of water quality parameters is subject to inherent uncertainties that call for ongoing evaluation. For example, acid rock drainage (ARD) in cold, wet climates raises uncertainty due to climatic factors including distinct freeze-thaw cycles, varying contributions from rain and snow, and a period of significant melting during the spring thaw.

**Recommendation:** The permit to mine should require water quality modeling throughout the life of the mine, assuring that the model uses input from actual monitoring discharge data as it becomes available, so this information can be used to support adaptive management. The model should accommodate specific climatic factors associated with the site.

*Comment # 11.* MDNR has collected new Partridge River flow data that vary from the base flow calculations used for modeling in the SDEIS. The co-lead agencies have explained that the

model accounts for this discrepancy, which is correlated with pit dewatering from the upstream Peter Mitchell Pit, a factor that was not present during the time period used for continuous flow data in the SDEIS (1978-1987). Details are provided in a technical memorandum from the co-lead agencies.[2]

While the flow data used in the SDEIS was appropriate, low-flow conditions may not represent the most conservative conditions, though they are conservative in that they assume less dilution of contaminants. However, dilution is the only variable considered. High-flow conditions, while increasing dilution, may mobilize contaminants to a greater extent than expected under low-flow conditions.

> **Recommendation:** The FEIS should evaluate how base flow affects variables other than dilution, taking into account high-flow as well as low-flow scenarios.

*Comment # 12.* There is insufficient detail to explain why "outlier" data were excluded from consideration in the GoldSim model.

> **Recommendation:** The FEIS should provide a specific justification to support excluding any such data from modeling.

*Comment # 13.* Page 5-61: the SDEIS shows that tailings leachate pH increases after 300 weeks, but does not show how leachate pH was extrapolated to the longer term, such as 50-100 years. We understand this data is already available.

> **Recommendation:** The FEIS should show how leachate pH was extrapolated to the longer term, such as 50-100 years, through a graph or chart.

*Comment # 14.* The SDEIS could be interpreted to imply that the plant site is expected to need water treatment for up to 500 years, and the mine site for up to 200 years. We understand from discussion with the co-lead agencies that this interpretation is incorrect.

> **Recommendation:** The FEIS should clearly explain the timeframe during which water treatment is projected, for both the plant and mine sites.

*Comment # 15.* Page 5-20: the SDEIS states that "mercury was not included in the GoldSim model, as insufficient data and a general lack of definitive understanding of mercury dynamics prevented modeling mercury like the other solutes." It also states that "regardless, the NorthMet Project Proposed Action would still need to demonstrate consistency with the mercury evaluation criteria (see Section 5.2.2.1)." Given the absence of modeling data for mercury, it is unclear how consistency with mercury evaluation criteria will be determined.

> **Recommendation:** The FEIS should either provide a supporting rationale that explains why elemental mercury does not warrant modeling, and how consistency with mercury

[2] See: *Baseflow Estimates Used in the NorthMet Mining Project SDEIS*, dated March 5, 2014.

evaluation criteria will be determined; or include modeling and evaluation of elemental mercury. If GoldSim is not suitable to model this pollutant, elemental mercury can be modeled using a different water quality model, such as the Water Quality Analysis Simulation Program (WASP)[3], which is commonly used by EPA to model elemental mercury.

*Comment # 16.* Page 5-509, Section 5.2.10.2.6, 5th paragraph: The SDEIS states that "increased mercury concentrations, and associated increases in mercury bioaccumulation in fish tissue could therefore constitute an environmental justice impact for Band members and other subsistence consumers of fish;" and that "deposition of mercury from the NorthMet Project Proposed Action would cease at closure, but mercury bioaccumulation in fish tissue and existing fish consumption limits could persist beyond the mine's operational life." Table 5.2.2-51 shows how much elemental mercury is expected to leave the project site under currently-proposed control measures. Further consideration of mercury impacts is needed.

**Recommendation:** The FEIS should refine the quoted statement to more clearly characterize the risks associated with mercury releases. Based on this risk characterization, the FEIS should explain what has been and will be done to avoid, minimize, and mitigate mercury releases from the project.

## II. Wetlands

*Comment # 17.* The SDEIS describes current site conditions, including the acreage, type, and quality of the wetland resources at the tailings basin and mine sites. The SDEIS also describes the proposed direct impacts remaining after measures to avoid or minimize direct impacts. However, the SDEIS does not quantitatively assess indirect impacts or measures to minimize and mitigate these impacts, except with respect to wetland losses due to fragmentation. The SDEIS also omits all indirect impacts from the cumulative impacts analysis for wetlands (Section 6.2.3.4).

**Recommendation:** The FEIS should quantitatively assess all indirect impacts. The FEIS should more clearly describe the proposed mitigation plan, including mitigation for indirect impacts. The monitoring and mitigation plans in the CWA Section 404 permit should clearly explain proposed measures to minimize and mitigate indirect wetland impacts during the project.

**Recommendation:** The FEIS should include indirect impacts in the analysis of cumulative impacts to wetlands.

*Comment # 18.* The SDEIS uses wetland assessment sites as an approach for evaluating impacts. The location of these assessment sites is discussed in the SDEIS, and Figure 4.2.3-2 shows locations of wetland assessment sites as points in a diagram. There are few wetland assessment

[3] See: http://www.epa.gov/athens/wwqtsc/html/wasp.html for more information on the WASP Model.

site locations north and south of the mine site, and those shown on Figure 4.2.3-2 are far from the site boundary. The SDEIS does not sufficiently explain the assessment approach.

> **Recommendation:** The FEIS should describe in more detail the wetland assessment protocol and the assessment sites used, including the assessment methods used at those locations, why these locations were chosen, and how will they be used (e.g., for monitoring future wetland conditions).

*Comment # 19.* Section 5.2.3 states that 26.9 acres will be impacted by fragmentation, and that these losses will be mitigated. The criteria used to determine fragmentation are broadly described in Section 5.2.3.1.2, but lack sufficient detail.

> **Recommendation:** The FEIS should describe in more detail the criteria used to determine fragmentation losses.

*Comment # 20.* Figure 5.2.3-4 highlights wetland areas at the mine site where the proposed mine features would indirectly impact wetlands by fragmentation. Fragmentation is defined in the SDEIS as causing a change in the watershed area by greater than 20%. The SDEIS (Page 5-226) briefly describes how fragmented wetlands were identified, but does not explain the method for determining the 20% threshold. Indirect impacts from fragmentation at the mine site will also include habitat fragmentation, divisions in vegetative communities, and the general loss of functions in wetlands that are divided from adjacent wetlands and made smaller by mine features. Wetland areas that are surrounded on all sides by mine features will be fragmented because their ecological functions will be impaired.

> **Recommendation:** The FEIS should explain how the 20% threshold was determined. The FEIS should also recognize that the term "fragmentation" may define indirect impacts other than changes in watershed size. These other factors should be included when estimating fragmentation impacts. Compensatory mitigation should also be proposed for all losses of wetland functions due to wetland fragmentation (in addition to adverse impacts from changes to a wetland's watershed).

*Comment # 21.* Section 5.2.3 describes the proposed wetland mitigation plan. EPA previously commented on the proposed mitigation ratios, and supports the mitigation ratios proposed in USACE's May 29, 2013 Draft Memorandum on *The Application of the Federal Mitigation Rule and St. Paul District Policy Guidance on Compensatory Mitigation,* as described on page 5-316. The SDEIS describes the proposed ratios, but also states, "The determination of final mitigation credits ...would be determined during permitting" (p 5-224).

> **Recommendation:** The FEIS should provide a status update on development of final wetland mitigation credits.EPA will work with USACE during CWA Section 404 permitting to determine the final wetland mitigation credits needed, including mitigation for indirect impacts.

*Comment # 22.* The proposed mitigation plan includes post-mining on-site wetland mitigation. Restoration of wetlands on the site as part of reclamation is positive and important, but EPA and

USACE have agreed that mitigation credits are not appropriate given how long it will be before this mitigation is carried out. The SDEIS contains inconsistent statements regarding whether or not on-site mitigation is proposed to generate mitigation credits.

> **Recommendation:** The FEIS should be clear that post-mining, on-site mitigation will not be used for mitigation credits. The mitigation plan in the CWA Section 404 permit should exclude mitigation credits for post-mining, on-site wetland mitigation.

*Comment # 23.* Page 6-36, Table 6.2-8 and Pages 6-40 to 6-42, Table 6.2-11: There appear to be some inconsistencies between Table 6.2-8 and Table 6.2-11with respect to reported future wetland and water resource numbers, including the bullet summaries for the Partridge River (Page 6-40) and Embarrass River (Page 6-42). For the Partridge River, Table 6.2-11 and bullet summary text note future condition with 3,516 acres of deepwater resources, while Table 6.2-8 indicates 1,922 acres.

> **Recommendation:** The FEIS should resolve or explain these inconsistencies.

## III. Cumulative Impacts

*Comment # 24.* Page 6-21, Section 6.2.3.3.2: the "Contributing Past, Present, and Reasonably Foreseeable Actions" section, lists twelve foreseeable future actions with potential cumulative effects on surface water hydrology and quality in the Partridge River and Embarrass River watersheds. There is some inconsistency between this list and Table 6.2-1 (Page 6-7). "Cliffs Erie, LLC – Hoyt Lakes Area (former LTVSMC)," and "Cliffs Erie, LLC – Area 5 NW Pit" are not included in the table, at least not by these names.

> **Recommendation:** The FEIS should resolve or explain these inconsistencies, and use consistent names for foreseeable future actions to simplify cross-referencing by the reader.

*Comment # 25.* Page 6-26 states: "In summary, the maximum cumulative effects of the NorthMet Project Proposed Action, plus present and reasonably foreseeable future actions on the hydrology of the Partridge River, would be expected to reduce average annual flow in the Lower Partridge River at any time during operations by no more than 8.4 cubic feet per second (cfs) and 2.4 cfs (2 percent) during closure of the NorthMet Project Proposed Action, based on average annual flow of 112 cfs at USGS gauging station 04016000 downstream of Colby Lake." In some cases, this effect is well above the mean recorded flow of the Upper Partridge River during certain times of the year. The SDEIS does not address how flow reductions will affect the Partridge River and its resources.

> **Recommendation:** The FEIS should include a total or net effect calculation for each table in the water resources section, similar to that provided for the wetlands analysis in Table 6.2-8, (Page 6-36) which shows total and incremental cumulative effects. The FEIS should add a row for the total or net effect to Table 6.2-2.

**Recommendation**: The FEIS should discuss the magnitude and significance of these flow reductions, including additional analysis or information as necessary. Potential impacts caused by these reductions should be discussed in section 6.2.3.3.3.

*Comment # 26.* Pages 6-22 to 6-25 and 6-27 to 6-28, Section 6.2.3.3.3: This text does not reference sources of hydrological effects data for each action.

**Recommendation:** The FEIS should reference sources of hydrological effects data for each action.

*Comment # 27.* Table 6.2-15 shows the direct effect of other actions in terms of populations of each plant species affected. However, the SDEIS notes that for 4 out of 9 potentially contributing actions, "The NHIS data and MDNR take permit data were reviewed and no vegetation records were available for these actions. As a result, these actions are not considered in the cumulative effects analysis for vegetation."

**Recommendation:** The FEIS should indicate whether the lack of vegetation records indicate no cumulative effects on vegetation, or simply lack of data on the subject.

## IV. Other Topics

Financial Assurance

*Comment # 28.* We understand that MDNR will not calculate detailed financial assurance until the Permit to Mine process, although it may have additional information before the FEIS is issued.

**Recommendation:** The FEIS should include additional information on financial assurance as available.

Least Environmentally Damaging Practicable Alternative

*Comment # 29.* The SDEIS does not identify the least environmentally damaging practicable alternative (LEDPA). This information will be required for CWA Section 404 permitting under CWA Section 404(b)(1).

**Recommendation:** The FEIS should describe the process that will be used to determine the LEDPA, and should provide LEDPA information to the extent it is available.

Noise

*Comment # 30.* The Noise section and page 5-370 of the SDEIS does not sufficiently describe potential noise impacts from blasting and vibrations on wildlife. A cited Federal Highway Administration technical document in Appendix C of the SDEIS provides information on the sound threshold and frequency range for four biologic classes (mammals, birds, reptiles, and amphibians).

**Recommendation:** The FEIS should contain analyses of noise and vibration impacts to wildlife based on the above biologic classes' sound threshold and frequency range, based on information included and cited in the SDEIS. Any impacts and/or mitigation measures should be noted in the FEIS.[4]

Land Exchange

*Comment # 31.* On pages 1-14 and 1-15, the SDEIS notes that the USFS must determine that "the public interest will be well served" before it can enter into a discretionary, voluntary real estate transfer (36 CFR 254.3(b)). This analysis is included in the SDEIS, but should be made clearer and more focused.

**Recommendation:** The FEIS should clearly and concisely summarize the analysis of the proposed land exchange (Alternative A) and Alternative B under 36 CFR 254.3(b), including a clear explanation of the rationale and criteria for selecting the preferred land exchange alternative, and of how protecting cultural resources is included in the public interest determination.

Ground Water Capture Efficiency

*Comment # 32.* The SDEIS states that modeled groundwater capture system efficiency at the tailings basin is at least 90%. However, it does not explain the basis for this estimate.

**Recommendation:** The FEIS should provide the specific model assumptions that were used to make this determination.

**Recommendation:** The FEIS should indicate that any discharge not captured by the proposed capture systems and entering waters of the U.S. (e.g., jurisdictional wetlands, the Partridge and Embarrass Rivers and their tributaries) is subject to NPDES permitting.

Cultural Resources

*Comment # 33.* Pages 4-261 through 4-264 refer to cultural resources/Section 106 resources solely as historic properties.

**Recommendation:** The FEIS should make it clear that cultural resources include archaeological resources.

*Comment # 34.* Moose is a culturally-important species that has traditionally been subsistence hunted by the Chippewa Tribe. The SDEIS does not adequately describe how the proposed project will impact moose population and habitat of moose. Based on information in the SDEIS, it appears that there are unconsidered impacts to moose population and habitat, such as the proposed impacts to two local wildlife corridors, moose reliance on wetlands during warm weather, and impacts on foraging.

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[4] *Synthesis of Noise Effects on Wildlife Populations*, USDOT Publication No. FHWA-HEP-06-016, September 2004. <http://www.fhwa.dot.gov/environment/noise/noise_effect_on_wildlife/effects/effects.pdf>

**Recommendation:** The FEIS should more completely explain how the proposed action will impact moose population and habitat.

Environmental Justice

EPA's environmental justice comments are included in Comment # 16.

Wild Rice Rulemaking

*Comment # 35.* On March 13, 2014, MPCA released preliminary findings on the effects of sulfate on wild rice growth.

**Recommendation:** The FEIS should provide the most current available information on MPCA's findings, and on next steps based on these findings.

Geotechnical Stability

*Comment # 36.* Section 5.2.14 addresses geotechnical issues at the mine. Reasonable stability analyses were conducted for the permanent waste rock pile, but it is unclear if the company has committed to designing this unit so it meets conservative static stability Factors of Safety (FOS) (static FOS of 1.5 and seismic FOS >1). The company has committed to meeting conservative FOS for both the tailings basin and the HRF.

**Recommendation:** The FEIS should clarify the company's commitment with respect to design of the permanent waste rock pile.

*Comment # 37.* Liquefaction analyses were not conducted for the HRF, based on the assumption that those wastes could compress and that the likelihood of liquefaction is remote. However, liquefaction and liner leakage could occur at the HRF because the HRF is proposed to be located above a hydraulically-active seep, which will place inward hydraulic pressure on the HRF liners.

**Recommendation:** The potential for liquefaction should be analyzed. The FEIS should clearly summarize the results of this analysis, including next steps in response to this analysis.