Minnesota Department of Natural Resources
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January 9, 2008

Bill Storm
Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

RE: Mesaba Energy Project Draft Environmental Impact Statement
Docket #E6472/GS-06-668

Dear Mr. Storm:

The Department of Natural Resources (DNR) has reviewed the Draft Environmental Impact Statement (Draft EIS) for the proposed Mesaba Energy Project in northeastern Minnesota. We offer the following comments for your consideration. The comments are categorized as general comments, comments on the proposed West Range Site, and comments on the proposed East Range Site.

**General Comments**

It is clear from this Draft EIS that water quality standards for the Canisteo Mine Pit (CMP) and Holman Lake would be exceeded and Mesaba Energy (Mesaba) intends to request a variance during permitting. In other words, the proposal is to use waters of the state (CMP, Holman Lake, and Swan River) as part of the power plant's water treatment facility in order to meet standards at some distant, downstream location.

Mesaba is proposing to discharge an average of 600 gpm to 825 gpm blowdown to Holman Lake, and the remainder (900 gpm to 3,500 gpm) to the CMP. The Final EIS should describe the reason for this difference in distribution of discharge. It seems apparent that the justification for release of blowdown water to the environment, and its distribution to CMP and Holman Lake, is to use waters of the state as treatment facilities to accomplish dilution. If Mesaba can propose enhanced zero liquid discharge (ZLD) treatment at the East Range Site, the Final EIS should describe the potential for ZLD to be used at the West Range Site. The DNR is concerned with the use of state waters for dilution, and the dependence on getting a variance from meeting water quality standards at the West Range Site.

The Draft EIS references the reduced flooding potential and increased bank stability that will result from reducing the water level in the CMP (p. 4.5-11). Public concern has been expressed that the CMP could suddenly breach (through soil piping and subsequent mass failure, or over-topping and rapid head-cutting), causing serious flooding in part of Bovey. The real potential for mass failure has not been evaluated or demonstrated. Further, the rate of water level rise in the CMP in recent years has been significantly less than modeled in 2005, even considering the recent dry conditions, suggesting that the pit water may never rise high enough to form a surface water outflow. Re-modeling of expected future water levels is presently being conducted by DNR. This re-modeling shows that substantially higher ground water outflow is occurring from the CMP than was modeled in 2005. Mesaba has not demonstrated that lower CMP water levels will result in greater CMP wall stability. Although wave action on the glacial pit walls has an accelerating effect on pit wall erosion, the lack of wave action does not eliminate pit wall erosion since direct precipitation, wetting and drying, and freeze-thaw cycles will eventually lay the pit walls back to their angle of repose, regardless of the water level in the pit. Mesaba has not demonstrated the basis for these claimed benefits.

The analysis of available water is inaccurate and draws incorrect conclusions, especially for the East Range Site. Mesaba is relying on many alternative water sources being available for their use, but has not addressed existing, competing water uses, has not demonstrated control of riparian land needed to allow permits to be issued for them to appropriate water, and in many cases, has not addressed significant impacts or left them for the permitting process.

The Draft EIS does not address remediation of residual impacts if plant operations shut down either permanently or for extended time periods. Procedures for an unanticipated closure, and the associated impacts, should be described in the Final EIS.

Surface and mineral ownership of the CMP is controlled by a variety of parties. There is always the potential that the CMP will be proposed for mining again and need to be totally dewatered. The Draft EIS does not address any contingency plans should mining be proposed again.

Many issues seem to have been oversimplified, or briefly stated with little discussion. Effects of expected increases in pollutant discharges should be addressed. The Final EIS should also address potential impacts from pit dewatering on nearby surface waters and wetlands.

**West Range Site**

Table 2.2-3. Process Water Requirements (p.2-29)
This table states that the East Site will use, on average, 1,100 gpm to 2,900 gpm LESS water than the West Site, yet pg. 2-70 and p. 4.5-31 state that "water appropriations (for the East Site) can be reduced by up to 700 gpm per phase" (1,400 gpm total) by using enhanced ZLD technology. The numbers (and associated impacts) are conflicting (2,900 gpm is more than twice 1,400 gpm.)

Figure 2.3-1. West Range Plant Site (p. 2-51)
This figure shows water being pumped from the west end of the Gross Marble Pit (GMMP). This pumping location will not capture enough water to meet the stated Phase I and II combined demand (3,500 gpm). Further, there are conflicting numbers relating to the proposed amount of water anticipated to be pumped from the Hill Annex Mine Pit (HAMP). Figure 4.5-3 and Table 4.5-5 state 3,500 gpm, yet Table 4.5-2 states 2,000 gpm. Also, p. 4.5-14 states that there are no competing uses for the HAMP water. The Minnesota Steel (MSI) EIS concluded that MSI will need approximately 1,200 gpm from the HAMP by year 5 of their operation. The MSI EIS did not thoroughly evaluate potential impacts on Panasa Lake because there would still be at least 1,600 gpm available water after their use to be discharged to the lake. Even using the lower of the two stated water demands from the HAMP, it seems plausible that there will not be enough water for MSI and this project, let alone any surplus for Panasa Lake. The Draft EIS states (p. 3.5-7) that the HAMP can produce 3,230 gpm to 4,030 gpm, but does not show how these rates were determined. Again, the proposed pumping location in the Gross-Marble Mine Pit (GMMP) will not allow them to pump this much water on a continuous basis. Present DNR pumping from the HAMP does not support the high end of this range. Mesaba will need to work out a water use plan with MSI and should address impacts to Panasa Lake in the Final EIS. The DNR is concerned that the proposed plan relies on water that is not readily available to the project, and does not address all of the issues or impacts. For example, if less water is available from the HAMP, then it is probably that more water would have to be pumped from the Prairie River, further affecting water quality in the CMP.

3.5.1.1 Surface Water Sources – Canisteo Mine Pit Complex (p.3.5-6).
The Draft EIS states that there can be ground water outflow from the CMP in the area between the CMP and Trout Lake where the City of Coleraine has two municipal wells. These wells, and others for Taconite and Bovey (Pg. 3.5-11), are down-gradient of the CMP. Although the Draft EIS reasonably demonstrates that the use of the CMP will not affect the available water supply in any of these municipal wells, it has not addressed potential, long-term water quality impacts to these wells. Table 4.5-6. (p. 4.5-42) states that "lowering of the water levels in the CMP should limit any migration of mine pit water into the local aquifers." This statement is not defended with any data or analysis. In fact, page 3.5-13 states that the static water levels in all of the wells down-gradient of the CMP (1267 ft to 1290 ft) will be below the expected, normal operating elevation of the CMP (range of 1250 ft to 1300 ft, normal 1290 ft.), which strongly suggests that any of these wells could ultimately be pumping CMP water. Page 4.5-3 discusses mercury loading and concentration in the CMP. Present mercury concentration in the CMP is reported to be 0.9 ng/l (Table 3.5-4, Pg 3.5-9) while the estimated mercury concentration of the discharge water to the CMP is 4.7 ng/l for Phase I, and 6.6 ng/l for Phase II (Table 4.5-6, Pg. 4.5-16). The Draft EIS's mercury modeling for the CMP shows a progressively increasing concentration (Figure 4.5-4). The Final EIS should describe the model used to produce these results, including the assumed hydrologic input parameters. This should include the degree to which CMP water quality will have deteriorating long-term impacts on municipal water supplies and mercury accumulation in fish tissue. Table 4.5.6. (p. 4.5-41) states, "use of the CMP (by Mesaba) may prevent its current use as a recreation facility." The Final EIS should more fully describe what that statement means, including the circumstances under which this would happen and how Mesaba intends to keep people out of the CMP and prevent them from taking fish. This is an important public impact that is not addressed in the Draft EIS.

Table 3.5-4. Current Water Quality for West Range Water Bodies (p.3.5-9)
This table summarizes the current water quality of each water source; however, there was a lot of missing data in the table. To better evaluate impacts of the cooling tower blowdown (CTB) at both the West Range and East Range Sites, it is important that the Final EIS collect more base level water quality data from possible receiving waters. In addition to Figures 4.5-5, and 4.5-6 (*Chapter 4*), and Figures 3, 4,and 5 (*Appendix H*), more data is needed to model long-term discharges of mercury (and other water quality parameters) to Canisteo Mine Pit (CMP), Holman Lake, and Prairie River at the West Range Site. Collecting more water quality data from possible receiving waters will improve the accuracy of these graphs.

3.8.1.1 Biological Resources – West Range Site (p.3.8-8)
At the end of the "Wildlife Protected Areas" section, there is mention of an unnamed designated trout stream east of the proposed HVTL corridor. This stream is Pickerel Creek.

3.8.2.1. Aquatic Communities – West Range Site (p.3.8-12)
This section does not adequately describe the fisheries in Trout Lake, Holman Lake, or Panasa Lakes. The DNR has specific information for Swan and Prairie River in the vicinity of either the discharge or intake structures that could be included in the Final EIS. The DNR also has detailed information on the lakes in the vicinity of the project area. These are important resources and need to be considered with this project. This section of the Draft EIS references a publication BWCAW, 2007 but the citation is not listed in the reference section.

The connection with Trout Lake is very important. The Canisteo Mine Pit is hydrologically connected to Trout Lake through ground water. As the pit water level exceeds 1304 msl, this connection is more evident. Approximately 40% of the Canisteo watershed is also in the historic Trout Lake watershed. In the last two years there has been below normal precipitation. While other surface waters experienced declining water levels, Trout Lake was maintained near normal. The hydraulic residence time in Trout Lake is currently estimated at over 30 years. As some of the point sources of pollution have been eliminated and with the increased addition of pit water (through groundwater), the frequency, duration and severity of algal blooms has decreased. Severing the connection between the pit and Trout Lake because of water needs at the power plant has the potential for effects on Trout Lake that need to be studied in the Final EIS.

Canisteo Pit is currently managed for lake trout. The pit was stocked with marked yearlings annually from 1995 through 2005. Larger surplus broodstock from State hatcheries were also stocked. Evidence of natural reproduction is present and the current stocking plan is yearlings every other year.

Lake trout spawn in the fall in water depths ranging from 1 to 40 feet in inland waters (Scott and Crossman, 1973). The eggs incubate for four to five months and hatch in March or April. Significant water level reductions during this time period has the potential to interfere with lake trout natural reproduction.

3.13.3.1. Parks and Recreation – West Range Site and Corridors (p.3.13-2)
This section mentions an estimate of fishing pressure and recreational boating use on the pit. It is important to remember that the estimates are from summer 2001 and winter 2001-2002. This was at a time when the lake trout fishery was still developing. As this fishing opportunity has become more widely known, and a bass fishery has developed, there is likely more fishing pressure now than there was in 2001.

There is similar data on fishing and recreational boating pressure available for Trout Lake, Lower and Upper Panasa, Diamond, Oxhide and Twin. The DNR does not have any fishing pressure data from Prairie River or Holman Lake.

4.5.2.1. Industrial Wastewater Treatment/Discharges – Mercury and Phosphorus (p.4.5-1)
The Draft EIS states the generating station would not use any chemicals that would add phosphorus to the discharges of cooling or other waters. Introducing Prairie River water into the Canisteo Pit is a net addition of phosphorus. Based on available data, phosphorus concentrations in Canisteo are on the order of 5 ppb while the Prairie River is about 30 ppb. Over time, this will increase phosphorus levels in Canisteo and subsequently also Holman, Swan River and potentially Trout Lake. This is in contradiction to the final statement in this section, as it relates to the West Range Site.

Additionally, while the document states that mercury concentrations will stay below the threshold of 6.9 ng/l, there will be an increase that may lead to greater impairment and more restrictive consumption guidelines. This is directly related to Canisteo Pit, Holman Lake, Swan River and the Mississippi River as receiving waters, but also to other surface waters in the plume from the stacks. This impact should be more fully discussed in the Final EIS.

4.5.2.1. Industrial Wastewater Treatment/Discharges – Total Dissolved Solids (p.4.5-3)
TDS concentration in Holman Lake will reach the 700 mg/l standard within the first two years of operation and Mesaba is expected to request a variance for exceeding this threshold. CMP TDS concentration is expected to reach the standard in 26 years. The company should have a plan to mitigate for this and not be expecting to receive a variance.

Figures 4.5-2 and 4.5-3 Phase I and II Water Balance: West Range Site (p.4.5-8)
This figure illustrates the water balance under phases I and II. In phase I, there would be an augmentation flow of 700 gpm to Panasa Lake from HAMP, while in phase II augmentation would be 0 gpm. The Draft EIS does not describe potential impacts to water quality in Panasa Lake if the flow from HAMP is reduced to 700 gpm and then to 0 gpm. These should be described in the Final EIS.

4.5.3.1 Process Water Supply Systems – Water Resources Management Plan (p.4.5-11)
The Water Resources Management Plan includes dropping water levels in CMP to stabilize the rail line. The DNR asks that the Final EIS describe the method and efficacy of stabilizing that bank. A large amount of fill will likely be required and this connected action should be evaluated in the Final EIS.

"Several pits" are filled, overflowing, being pumped or threatening to overflow. There should be a discussion on the specific pits, the receiving waters of each pit and whether or not receiving waters do or will benefit from the discharge. Water may be discharging not from just the surface of pits, but also subsurface discharge may be occurring which may benefit nearby receiving waters.

Unknown flow from CMP pumped during mining to Holman Lake is "expected" to exceed the amount to be pumped during Phase I & II. This statement should not be made when the amount of flow pumped to Holman Lake during mining is "not known."

4.5.3.1 Process Water Supply Systems – CMP Pumping Station (p.4.5-12)
The Draft EIS states that the intake structure would be located at least 200 feet below the water surface and below the thermocline to prevent the inadvertent transfer of smelt to Holman Lake. The figure on page 4.5.5 shows a conceptual design of the caisson structure with a caisson bottom at elevation 1215 msl with the intake tunnel just below the emergency buffer elevation, not 200 feet below the surface. Based on our dissolved oxygen/temperature profiles there is a rapid drop in temperatures between about 20 and 35 feet but dissolved oxygen is sufficiently high to support fish. While the length of cable on our probes extends to only 200 feet, there is still adequate dissolved oxygen at that depth in mid-August. Wenck and Associates was hired by the Western Mesabi Mine Planning Board to develop engineering designs for a conveyance system from CMP to Swan River. They worked with Alden Research Laboratory to investigate fish exclusion strategies for the intake. One strategy was to have a deep intake, however, it was concluded that this did not provide adequate safeguards against the transfer of smelt and was rejected. The Final EIS should also more fully discuss construction techniques for a 10-foot diameter, horizontal shaft through bedrock below 200 feet of water.

Table 4.5-5. Discharge Flow Rates for the West Range Site (p.4.5-15)
This table provides estimated average and peak flows to CMP as 3,500 gpm and 6,000 gpm during Phase I and II, respectively. Discharge flows to Holman Lake are listed as 6,000 gpm at peak for Phase II. Thermal impacts were modeled using a flow rate of 2,400 gpm. In the Final EIS, thermal impacts should be modeled using the higher anticipated flows to more accurately describe the size of the mixing zone.

It is difficult to determine the actual location of the discharge point in the figures, but it appears to be in an embayment very near a spot used as an access point. Additional detail is necessary in the Final EIS to describe the impact to the actual location. This description should cover the biological impacts as well as potential impacts to angler access from a safety perspective if winter discharge is to occur. Also, it might be possible to pump a sustained 2,000 gpm from the HAMP (as previously suggested, the Draft EIS misnames the GMMP as the HAMP - since Mesaba is not proposing to install a pump in the HAMP) for Phase I, but the GMMP will not yield 3,500 gpm needed for Phase II. The Final EIS should state how much water could be pumped continuously from the GMMP. Also, on pg. 4.5-15 it is stated that water will be pumped from the CMP in order to keep the concentration of solids from building up in the pit. Since Mesaba will not be able to pump as much water from the GMMP for Phase II as they need, it seems probable that water quality within the CMP will exceed standards quicker and more frequently than the Draft EIS anticipates. According to the proposed plans, this problem will be transferred downstream to Holman Lake. These water availability numbers and plans should be re-run in the Final EIS.

4.5.3.2. Process Water Discharges and Water Quality Criteria (p.4.5-15)
The Draft EIS states that water hardness, TDS, sulfate and conductivity are expected to exceed water quality standards. The company questions whether MPCA would apply the standards to CMP and Holman Lake because they believe these standards do not apply to these "unlisted" waters. If these standards do apply, the company would have to apply for a variance. As mentioned earlier, the company should propose other water treatment options instead of requesting a variance.

There is research that suggests high sulfate levels may have some influence on the methylization of mercury, especially in wetlands. Since the Swan River and Mississippi River are already listed as impaired because of mercury in fish tissue, some analysis of the effect of raising sulfate levels on mercury needs to be included in the Final EIS.

Page 4.5-17 of the Draft EIS states that the "Generating Station would not add mercury, phosphorus or other pollutants that are associated with impairment concerns to the receiving waters." This is a misleading statement, as blowdown from the Generating Station would concentrate certain constituents, including mercury and certain salts, in addition to substantially reducing the volume of water in the CMP, further concentrating certain constituents to the point of potentially exceeding state water quality standards. Further, on this page it is stated, "the proposed operation of the Phase I Mesaba Generating Station would not increase the mass of mercury or phosphorus over that currently permitted from the HAMP complex under NPDES Discharge Permit MN0030198. Mesaba is apparently concluding that project discharge would not send any greater load of mercury or phosphorus to the Swan River than is presently permitted under the DNR's NPDES permit for the Hill Annex State Park. This is another misleading statement. First, the NPDES permit held by the Hill Annex State Park will soon expire. The MN Pollution Control Agency has concluded that the permit is not necessary since the Park does not discharge any water resulting from industrial processing, as described in the Mesaba plans. Second, the discharge from the HAMP flows to Panasa Lake and has no hydrologic connection with the CMP or Holman Lake. Finally, the implication of "no increased loading = no impact" is misleading since Mesaba is concentrating constituents of concern in the CMP water, which has a direct connection to the Biwabik Iron Formation (an important regional aquifer for municipal water use), and Holman Lake, which is a designated public water.

Page 4.5-18 of the Draft EIS states: "at the expected discharge flow to Holman Lake, the annual phosphorus loading would be less than currently permitted from the Hill-Annex Mine Pit." This is another misleading statement since the DNR's dewatering of the Hill Annex Pit does not flow through Holman Lake and the DNR's NPDES permit will soon expire.

Table 4.5-9. Chemical Additives Used Per Year (p.4.5-21)
The Draft EIS states, "[chemical additive] quantities are preliminary estimates only and are subject to revision when the specific water chemistry program for the facility is developed for submission to appropriate regulatory agencies." Water chemistry programs should be fully described in the Final EIS in order to understand the associated environmental impacts.

4.5.3.3 Domestic Wastewater Treatment – Alternative No.2 (p. 4.5-24, 25)
It appears that the data used to establish average flows to the Coleraine-Bovey-Taconite wastewater plant was taken from a five-month period in 2005. Is this a representative sampling? It is stated the design capacity is 499,000 gpd and during the wettest 30-day period the flow increased to 444,000 gpd. The Final EIS should describe the likelihood of exceeding plant capacity and cause an increase in the frequency, duration and magnitude of bypassing raw sewage to surface waters due to the proposed addition of 30,000 gpd during construction.

4.5.3.4. Surface Water Resource Permits – MPCA NPDES/SDS Permit (p.4.5-27)
The Draft EIS states in this section that recreational use of the CMP may be discontinued. The Final EIS should explain the basis for this statement. The CMP is developing into a significant lake trout and bass fishery and provides recreational opportunities for many people, both from within and outside the local area. Opportunities to fish for lake trout are very limited in this area and significant State funding has been spent to develop this fishery. This section also states that "increased flows through Holman Lake would potentially benefit recreational users of the Gibbs Park swimming beach as any instances of stagnation in the lake would be reduced" The DNR is not aware of any stagnation problems in this lake. It is again stated on this page that water quality standards for certain parameters would be exceeded in the CMP and Holman Lake, and that "Excelsior would have to apply for a waiver to exceed standards for these parameters and be granted the waiver by MPCA during the permitting process in order to operate the generating station" The East Range Site, because of the stricter mercury standard, could be built with an enhanced ZLD facility. It seems apparent that an enhanced ZLD facility could also be constructed at the West Range Site to avoid contamination of the CMP and Holman Lake.

Table 4.5.6. Summary of Impacts (p.4.5-41)
This table states, "Cumulative effects on receiving water (for the West Range Site) would be monitored to ensure parameter concentrations do not exceed water quality standards." This statement is contradicted in numerous other locations in the EIS (e.g., pg 4.5-27).

4.7.7.1 Wetland Regulatory and Policy Considerations (p.4.7-33)
Although the Draft EIS states that the DNR, Lands and Minerals Division has indicated that it may become the designated local government unit administering the Wetland Conservation Act (WCA), WCA is clear that the DNR, Land and Minerals Division is the designated LGU approval authority for wetland replacement plans only when there is a Permit to Mine involved. Because there will be no Permit to Mine issued for the Mesaba Energy Project, Itasca County SWCD would be the WCA LGU for the West Range Site, near Taconite; and the St. Louis County Planning Department should be the WCA LGU for the East Range site, near Hoyt Lakes.

4.8.2.1 Impacts of construction on wildlife and 5.2.6.3 Summary of environmental consequences
These two sections do an inadequate job addressing the issue of forest fragmentation brought about by the construction of the power plant and open corridors through a forested landscape for rail roads, transmission lines, pipelines, and access roads. They need to address the issue of forest bird species that are in decline and how this project will affect them. There's little mention about impacts to birds and other resources caused by the construction and maintenance of the 230 kV powerlines and associated 130-foot, high-voltage transmission towers. Some potential long-term, adverse impacts include: wetland type conversions, invasive plant species introductions, vegetation management needs, access road needs, OHV traffic, bird & bat strikes, and forest fragmentation. The Final EIS should elaborate on these impacts, and how they can be mitigated.

4.8.3.2 HVTL, Pipeline and Transportation Corridors – Aquatic Communities (p.4.8-19)
The Draft EIS states that the construction and operation of the cooling tower blowdown outfall pipeline is expected to have minimal impact on lake trout in CMP. However, there are no data or analysis presented to substantiate this. Recycling blowdown water to the pit will have effects on water quality, which could impact lake trout. Of particular concern is increasing the concentration of phosphorus. The addition of Prairie River water which has approximately 6 times the concentration, and the further concentration through evaporation over time, could make the pit less suitable for lake trout. A more detailed analysis is necessary to fully understand and quantify the impacts.

5.2.4.1 Cumulative Effects on Water Resources – West Range Water Quantity (p.5.2-14)
This section fails to discuss cumulative impacts to Panasa Lakes, Holman Lake, CMP and Trout Lake. Cumulative effects to the water quantity among these water resources should be described and analyzed in the Final EIS.

5.3.2. Additional Mitigation Options – Wetland Resources (p. 5.3-11)
In the first paragraph on this page it states that flows from the Prairie River would go to Lind Mine Pit, then to Canisteo and discharged to Holman Lake and Swan River then back to Prairie River. The Swan River discharges to the Mississippi River, not Prairie River.

5.3.2. Mitigation Alternative 2a – Thermal Impacts (p.5.3-13)
The Swan River provides marginal summer habitat under low flows for many species of fish. Placing an additional stressor on this resource may tip the balance unfavorably. While additional flow at low water periods may be desirable for some species, low flows are a natural occurrence and the additional flow would be an artificial augmentation. Additionally, the "cost" of water that is too warm may not be worth the "benefit" of additional volume.

Appendix D3
The Cumulative Water Resources Effect Assessment presents Table 4 and lists phosphorus concentrations <0.1 mg/l. There are accepted water quality tests that can provide resolution to below 0.01 mg/l. Concentrations of phosphorus on the order of 0.03 mg/l can have negative effects on water quality. A finer level of resolution should be presented in the Final EIS so that a more realistic assessment of effects can be completed.

Appendix D5
This section states that no known populations of endangered plant species have been identified that would be affected by the project. Aside from endangered plant species, are there other biological resources that could be affected? This section needs additional analysis, interpretation and discussion of data to make that claim.

The issue of bird strikes on smoke stacks and transmission lines and towers is only discussed in this appendix. This topic is important enough to be discussed in the main part of the document. The Draft EIS assumes the impact of bird strikes as minimal stating that there probably will be millions of birds migrating past this site without any substantiation of this number. Use of bird strike data from wind turbines placed on Buffalo Ridge is not an analogous application of the research. Buffalo Ridge is a grassland area in southwestern Minnesota with different topography and habitat than forested land in northeastern Minnesota.

The Draft EIS states that the West Range Site will restrict use of one of the migration corridors through the iron formation, yet dismisses the issue stating that there are no known "mass migrations of large mammals." The Draft EIS does not discuss the fact that large mammals do move and disperse and this project will obstruct that movement.

Appendix H
The document identifies Holman Lake and the Swan River as the only two reasonable receiving waters for the cooling tower blowdown (CTB) on the West Range Site, and "dismisses" the Prairie River as a third option to receive CTB discharge. Reasons given for not including the Prairie River alternative are: added costs, the need for a variance, and locating the discharge site upstream of Prairie Lake. For example, the 7-day Q10 flow of the Swan River is just 800 gpm; whereas, the 7-day Q10 flow of the Prairie River is 9,880 gpm---twelve times greater than the Swan River. The additional flow of the Prairie River can better dilute the CTB discharged to it. Since Mesaba proposes to withdraw water from the Prairie River, some of the impacts from pipeline infrastructure construction could be mitigated. In addition, because additional daily discharges from the IGCC Power Station could have adverse physical effects on receiving streams (e.g., increased bank erosion, higher flood levels, stream channel widening, or streambed down cutting, and other potential cumulative effects downstream), the higher hydraulic capacity of the Prairie River channel should more easily accommodate added flows, compared to the Swan River. The Prairie River, below the Prairie Lake Dam, appears to have better ability to dilute and flush the CTB discharge; therefore, it should also be evaluated as a CTB discharge alternative, amongst others, in the Final EIS.

The Draft EIS states that thermal impacts to Holman Lake and the Swan River could become very significant during low flows, and would most likely introduce the need for a variance for the temperature of the discharge---especially if cooling ponds are unable to mitigate adverse thermal concerns. Because heated discharges could have adverse effects on receiving waters (e.g., increased biota metabolic activity, disruptions to reproduction, metamorphosis, and migration, increased sediment biological oxygen demand, decreased gas solubility, increased pollutant synergism, increased algae and aquatic plant growth), the higher flows of the Prairie River should more easily mitigate these potential impacts and offset the need for a thermal variance.

**East Range Site**

The DNR has noticed some inconsistencies in the Draft EIS that make review difficult, particularly Figure 3.5-4, which shows the East Range process water sources. The Final EIS should clarify the locations of mine pits 5N, 5S, and 3. It should clarify whether the Donora Pit is the same as Mine Pit 9 (or 9N). It should also clarify whether Stevens Pit is the same as Stephens Pit.

2.2.2.3. Process Water Requirements (p.2-29)

The Draft EIS states that "Abandoned mine pits would be the primary source of water at either the West Range Site or the East Range Site." Table 2.3-5 and various others, however, state that the sustainable flow from these pits is uncertain, and show that the majority of the available water is from the Mesabi Nugget effluent, Polymet dewatering, and Colby Lake appropriations (a total of 7,900 gpm) rather than the local mine pits from which direct appropriations would be made (a total of 4,675 gpm).

Table 2.3-5. Process Water Sources – East Range Site (p. 2-71)

This table quantifies numerous sources of water for the East Range Site. The Draft EIS does not demonstrate, however, that any of this water is actually available for their use. For example, water appropriation permits cannot be issued for taking of water from any of the listed sources without Mesaba first demonstrating "control" of riparian land (this same point applies to the West Range Site). Steel Dynamics, Inc., and Mesaba Nugget Delaware have purchased much of the riparian land around many of the pits and they have existing or conceptual plans for use of the water. Further, Table 2.3-5 shows 4,000 gpm available pit dewatering water from Polymet's operation; Table 4.5-12 shows up to 8,000 gpm available from Polymet. Polymet will have no available pit dewatering water for the proposed project since this plan is to use all of the available water. Further, Polymet is not an existing operation and therefore cannot be counted on to provide water for this project. Assuming Polymet is constructed, this project will require - in addition to their own dewatering - an average of approximately 4,000 gpm from Colby Lake, and up to 8,000 gpm during drought conditions. The appropriation permit (49-0135) referenced in Table 2.3-5 is currently held by Cliffs-Erie (CE) and is applicable only to the past, and now inactive, CE taconite operation. Mesaba cannot assume that any "excess" water previously-authorized for use by CE is available to them without adequate consideration of competing uses and evaluation of impacts. For example, ME could need up to 10,000 gpm for the East Range Site. Since most, if not all, of this water may have to come from Colby Lake/White Water Reservoir, the combined demand from Polymet and Mesaba could reach 18,000 gpm during critical dry conditions. The Draft EIS has not demonstrated the riparian control needed for legal access to any of the water bodies listed, nor has it evaluated the impacts associated with the identified water needs.

3.8.2.2. Aquatic Communities – East Range Site (p.3.8-13)

Characterization of the fish populations of Colby Lake is from a 2000 fish population assessment. A more recent (2005) fish population assessment is available on the DNR Web site that continues to show generally low fish populations but also shows a recent increase in bluegill sunfish and channel catfish numbers.

4.5.4. Impacts on the East Range Site and Corridors (p.4.5-31)

The Draft EIS states that use of the enhanced ZLD system "allows the Generating Station to play a synergistic role with the industrial mining operations seeking to locate on the East Range industrial site", and that "the majority of the water available at the East Range (site) is from other industrial activities in the area (mine pit dewatering or industrial effluent)". Although there is some, as-yet unidentified potential for Mesaba to use pit dewatering from some future mining operation(s), this statement is not

supported by factual information or agreements between Mesaba and existing mine pit land owners to access the riparian land needed to make the water available to Mesaba. And, as previously noted, Polymet is planning to use all of their pit dewatering water for processing.

4.5.4.1. Process Water Alternatives (p.4.5-32)
The Draft EIS states that "water supplies from any of the individual East Range pits (listed in Table 4.5-12, pg. 4.5-32) can be over-pumped as necessary to meet the demands of Phases I and II", that "mine pit 2WX would serve as the reservoir from which the plant would appropriate water to meet its needs", and that "water would be pumped from Colby Lake into 2WX" to further help meet the plants needs. Again, Mesaba has not demonstrated "control" of any riparian land around any of these pits or Colby Lake, as is necessary for them to acquire appropriation permits for taking of the water. Further, the Draft EIS does not describe the term "over-pumping." Over-pumping, from a hydrologic perspective, implies that more water will be taken from the pit(s) then the pit(s) yield. This cannot be done on a continuous basis without depleting the pit(s) of water, resulting in an inadequate long-term supply for the plant. Also, Polymet will not have 2,000 gpm to 8,000 gpm mine dewatering water available for Mesaba that is noted in Table 4.5-12. And finally, the EIS provides no documentation of impacts to Colby Lake or White Water Lake, from which Mesaba would likely need several thousand gallons per minute in order to operate. Pg. 4.5-33 also states, "the amount of water to sustain Phases I and II over the long term (at the East Site) is reasonably assured". As noted in the previous comment, this statement is not supported by documentation of riparian land control, impact analysis, or mitigation strategies, and likely is not a correct statement for the noted water sources.

5.2.4.2 Water Resources, East Range
The Draft EIS states that Mesabi Nugget has a permit to withdraw 5,000 gpm from Mine Pit 1, and an additional 5,000 gpm from Mine Pit 2WX as a standby source. Mesabi Nugget withdrawals from Mine Pit 2WX would be in direct conflict with the process water needs for Mesaba Energy, which plans on using Mine Pit 2WX as its primary source.

Appendix D3 Cumulative Water Resources Effects from new sources/appropriations
This section states the minimum flow allowed in the lower Partridge River is 13 cfs or 5,835 gpm, to be controlled by augmentation from Whitewater Lake through a control structure to Colby Lake. The "flashy" nature of the Partridge River means that there may be little flowing water during midsummer droughts. Area Fisheries staff in recent years have observed several instances of no or barely perceptible flow in the lower Partridge River where it passes under the Co. Rd 110 bridge. In these instances, the damp cobble of the riverbed was fully exposed and any flow, where it existed, was limited to a trickle through the cobble. One of these instances was during the Fish Population Assessment fieldwork on 07/11/2006. On this day, 101 F discharge water from the Laskin generating plant was recirculating back into the main body of the lake, creating surface temperatures of 100 F at the bridge east (upstream) of the discharge pipe, and 80.6 F at the deep spot of the lake in the narrows just south of Little Lake.

The DNR is concerned that the East Range Site relies on water sources that may not be available at all times of the year, or may be in competition with other users. In the case of the mine pits, their watersheds are quite small and annual precipitation may not provide adequate recharge over the long term given the proposed withdrawals.

In the case of maximizing appropriations from Colby Lake, it's primary water source (the Partridge River) is very flashy with very low flows at times during midsummer and midwinter. This could require

additional use of Whitewater Lake as a reservoir to augment the level of Colby Lake and maintain minimum flows in the Partridge River, which in turn would result in larger water level fluctuations in Whitewater Lake. Whitewater Lake is promoted by the City of Hoyt Lakes (which operates a large campground on Fisherman's Point) as a recreational lake with excellent populations of walleye, northern pike, and yellow perch. These fish populations are currently self-sustaining, but natural reproduction would likely be adversely affected by large fluctuations in water levels, particularly in April and May when walleye eggs are incubating on gravel shoals and northern pike and perch eggs are incubating on shallow submerged vegetation. A fish population assessment was conducted on Whitewater Lake in the summer of 2007, and the report is in process. In addition to these concerns, a number of permanent homes have recently been built on lakeshore lots sold by Minnesota Power. Large fluctuations in the water levels of Whitewater Lake may conflict with the interests of these riparian home owners.

Thank you for the opportunity to review this document. We look forward to receiving your Final EIS. Please contact me with any questions regarding this letter.

Sincerely,

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