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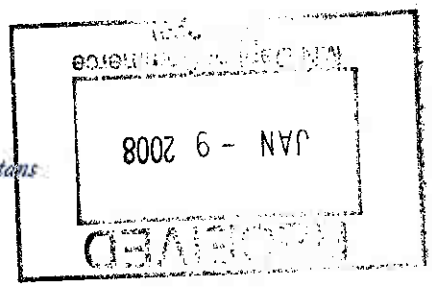

January 7, 2008

Mr. Bill Storm
Minnesota Department of Commerce
85 Seventh Place East - Suite 500
St. Paul, Minnesota 55101-2198

Dear Mr. Storm:

This is in response to your request for comments on the Draft Environmental Impact Statement (DEIS) for the Mesaba Energy Project (PUC Docket E6472/GS-06-668). I have arranged my comments into two categories, general and specific.

General Comments:

The proposed West Range project might entail the discharge of cooling/blowdown water to the Canisteo Mine Pit Lake (CMP). As indicated in Sections 3.5.1.3 and 4.5.3.5 of the DEIS, the CMP is a potential source of recharge to aquifers that it penetrates. These aquifers include those tapped by the municipal wells for Bovey, Coleraine and Taconite. Bovey and Coleraine obtain their drinking water supply from wells completed in a buried glacial sand and gravel aquifer that is exposed in the southern wall of the CMP, whereas the City of Taconite obtains its drinking water from wells completed in the Biwabik Iron Formation bedrock aquifer that is also exposed in the CMP.

The Minnesota Department of Health (MDH) has been working on the development of a wellhead protection plan for these three communities for the past several years. The wellhead protection program is designed to protect sources of public drinking water by determining the recharge areas for wells and then protecting those areas to minimize the risk of contamination. Wellhead protection plans consist of two parts. Part 1 entails the delineation of the wellhead protection area (WHPA - the scientifically calculated well capture zone or recharge area), drinking water supply management area (DWSMA - the area bounding the WHPA that is based on readily identifiable physical features such as roads), and an assessment of the vulnerability of these areas to contamination. Part 2 consists of an inventory of potential sources of contamination within the delineated areas and strategies for managing those sources. Part 1 of the wellhead protection plans for the communities of Bovey, Coleraine and Taconite were completed in 2007. A copy of each report is included for your reference; additional copies are available upon request. The second part of the wellhead protection planning process for these communities has commenced and will likely continue for an additional two to three years. Wellhead protection plans must be renewed on a 10-year cycle. As a result, the WHPAs for the communities of Bovey, Coleraine and Taconite will likely be revisited on or before the years 2019-2020 (the actual date depends on the completion date of the original plan, which is still pending).

WHPAs are delineated based on a time-of-travel criterion over which the flow of groundwater to a pumping well must be simulated. Minnesota Rules, parts 4720.5100-.5590, require that a WHPA be based on a minimum 10-year time-of-travel period. The WHPAs for Bovey, Coleraine and Taconite were determined using a 10-year time-of-travel criterion. The Bovey and Coleraine WHPAs were generated using a modified version of an existing groundwater flow model developed by the United Sates Geological Survey (USGS) to investigate groundwater relationships in the vicinity of the CMP. The report that describes the model and its results is entitled "Characterization of Ground-Water Flow Between the Canisteo Mine Pit and Surrounding Aquifers, Mesabi Iron Range, Minnesota. This publication is referenced in Section 3.5.1.1 of the DEIS and can be accessed on-line at http://pubs.usgs.gov/wri/wri024198/. The WHPA for the City of Taconite was determined using a volumetric calculation, consistent with MDH guidelines for fractured bedrock aquifers (2005).

The results of the Part 1 wellhead protection analysis show that the municipal wells for Bovey and Coleraine are expected to receive a significant amount of recharge from CMP water within the next 5 to 10 years if the water level in the pit remains at or above its current level, which is approximately 1,310 feet above sea level. As a result, the CMP and its surface watershed have been included in the WHPAs for the communities of Bovey and Coleraine. The vulnerability of the CMP area is considered very high, because the aquifer is exposed in the pit wall and is not protected by overlying geologic materials at that location. At this time it appears that the Taconite city wells are not likely to capture water from the CMP within a 10-year time period; however, there is considerable uncertainty in this analysis related to the complexity of groundwater flow simulations in fractured bedrock aquifers.

Because of uncertainty in future CMP water levels and modeling results, the MDH recommends that the communities of Bovey, Coleraine and Taconite implement a water sampling program at their wells. The sampling program will allow for a determination of whether pit lake water has reached their wells. This information, along with groundwater flow modeling results, can be used to make future revisions to the WHPAs. As a result, it is possible that the CMP could be added to the Taconite WHPA in the future, for example.

The Mesaba Energy DEIS indicates that the CMP water level would likely be maintained within an operating range of 1,290 to 1,300 feet above sea level. The USGS report (Jones, 2002) and subsequent modeling conducted by the MDH suggest that, at the least, the Coleraine city wells will likely continue to receive a significant contribution of CMP water even at a pit lake elevation as low as 1,300 feet above sea level. However, the travel time between the pit lake and the city wells will likely exceed 10 years at and below that pit water level. As a result, the CMP and its surface watershed could eventually be removed from the WHPAs for Coleraine and Bovey if pit lake elevations are maintained at or below 1,300 feet above sea level and the 10-year time-of-travel criterion is maintained.

Because of the connection noted between the CMP and the municipal water supplies for Bovey and Coleraine, it is important to ensure that the quality of the water in the pit lake is maintained so that seepage from it does not degrade adjacent aquifer quality. Although the DEIS indicates that the power plant effluent would consist primarily of pit water concentrated by evaporation, other potential sources are noted, such as 1) boiler feed water demineralizers, 2) stormwater from the oil/water separator, and

3) treated domestic wastewater (Alternative 1 - Section 4.5.3.3). In addition, the simple evaporative concentration of some natural CMP water parameters, including sulfate, hardness, and total dissolved solids (TDS), could result in exceedences of secondary drinking water standards (Section 4.5.3.2).

The MDH would support those mitigation options that eliminate power plant discharge to the CMP. Those include Mitigation Alternatives 1, 2B and 3 listed in Section 5.3.2.1. However, if discharge is to occur to the CMP, then the MDH recommends that any discharge permits related to this facility acknowledge the linkage between water contained in the CMP and that consumed by the residents of Bovey and Coleraine. We recommend that a stringent monitoring strategy be established that provides verification of water quality at several points. This would include "end-of-pipe" discharge where the power plant effluent enters the CMP, and several locations within the CMP to verify reduction in discharge parameter levels via processes such as mixing and dilution. It would be prudent to include a pit water monitoring station located near that portion of the CMP where the aquifer used by Bovey and Coleraine is thought to surface. Monitored parameters should include all potential contaminants in the discharge stream for which a primary or secondary federal drinking water standard exists.

We also recommend a contingency strategy to deal with water quality exceedences. For example, if contaminants were found to exceed federal primary or secondary drinking water standards in CMP water over successive monitoring periods, then groundwater quality monitoring in the Bovey-Coleraine aquifer should be triggered. This would be particularly important when pit water levels are relatively high (1,300 feet above sea level or more) because of the increased likelihood of capture by the city wells at higher pit water levels.

Groundwater monitoring should be accomplished via a small network of wells completed in the Bovey-Coleraine aquifer and situated between the CMP and the city wells along the corridor where groundwater seepage is expected, based on the modeling of Jones (2002). Monitoring wells should be placed far enough from the city wells so that, should water quality degradation be noted in the aquifer, sufficient time is allowed prior to impacting the city wells so that a remediation strategy can be employed. Such remedial strategies might consist of 1) decreasing the CMP water level to minimize leakage to the aquifer, 2) installation of a groundwater extraction well or wells that could provide a barrier to groundwater flow, 3) enhancement of municipal water treatment capabilities, or 4) replacement of existing wells with other sources, such as new wells completed in the deeper, Biwabik Iron Formation Aquifer. We recommend that the details of any monitoring or remedial strategy be agreed upon by the permitee, the permitting agency, and the municipalities that may be impacted.

Specific Comments:

Sections 2.3.1.3 and 2.3.2.3 discuss the possibility of constructing an on-site water treatment facility to provide potable water to the Mesaba Generating Station (Alternative 2). This section correctly notes that the Mesaba Generating Station would likely be classified as a non-transient non-community public water supply system. As a result, the plans and specifications for any water treatment facility must be approved by the MDH prior to construction.

Sections 2.3.1.3 and 4.5.3.3 discuss the possibility of constructing an on-site wastewater treatment facility system, with possible discharge to CMP via the cooling tower blowdown pipeline. The MDH recommends against discharging wastewater effluent to the CMP because of the linkage with the Bovey and Coleraine drinking water supply, as noted above.

Section 3.5.1.1 discusses the location of modeled outflow between the CMP and Trout Lake and indicates that the wells used by the City of Coleraine are within this area. It should be noted that the well used by the City of Bovey is also within this zone.

Section 3.5.1.3 indicates that groundwater flow is directed toward mine pit complexes. The water flow relationship between a mine pit lake and adjacent aquifers is dependent on the difference in hydraulic head between these features at a given point in time. For example, outflow from the CMP to adjacent aquifers is expected to locally occur when pit water elevations exceed 1,292 feet above sea level, as indicated in Section 3.5.1.1.

Section 3.5.1.3 also states that groundwater recharge to the Biwabik Iron Formation is largely by vertical infiltration through Quaternary deposits where the formation is not covered by other bedrock. We add that a significant amount of recharge to this formation can occur where it is exposed in mine pits. Recharge potential in such settings will depend on the hydraulic head in the iron formation relative to that in the mine pit lake.

Section 3.5.1.3 also states that the wells used by the Cities of Bovey and Coleraine receive some recharge from Trout Lake. This was probably true for both communities when the CMP was dewatered for mining purposes, because the hydraulic head at Trout Lake would have greatly exceeded that of the CMP and forced groundwater flow towards it. More recent data suggests that the Coleraine city wells continue to receive some recharge from the lake, but the Bovey city well does not. This is a dynamic relationship that is prone to change depending on the stage of Trout Lake relative to that of the CMP.

A number of inaccuracies were noted in Section 3.5.1.3 with respect to well construction information, as currently understood by the MDH and Minnesota Geological Survey. These inaccuracies are as follows:

- The Coleraine city wells are numbered 1 (241430) and 4 (110457), not 1 and 3.
- Coleraine Well 1 is 121 feet deep and Well 4 is 120 feet deep, not 75 and 100 feet as indicated.
- The 2004 reported pumping volume for the City of Coleraine was 52.2 million gallons for both wells. The wells are not individually metered, but do operate on an alternating basis so the individual well output is essentially equivalent to the system total divided by two.
- Marble Well 1 (228842) is 500 feet deep, not 300 feet as indicated.
- Calumet Well 2 (228839) is 495 feet deep and Well 3 (228838) is 500 feet deep, not 155 and 203 feet deep as indicated.
- Taconite Well 1 (241489) was constructed in 1926, not 1936 as indicated.
- The City of Coleraine wells are not open to the Biwabik Iron Formation bedrock aquifer, as indicated in the final paragraph of page 3.5-13.

Sections 4.5.2.1 and 4.5.3.2 discuss possible water quality standards that might be applied to the discharge of TDS and sulfate. Because of the linkage between CMP water and the drinking water of adjacent communities, the MDH recommends that the more stringent, federal secondary drinking water standards of 500 mg/l and 250 mg/l be applied to these parameters. In addition, we would recommend that federal drinking water standards (primary or secondary) be applied for any potential contaminant that might be related to the power plant discharge.

Section 4.5.2.5 discusses stormwater management. It is stated that stormwater that could be contaminated with oil (such as parking lot runoff) would be routed to an oil/water separator and then on to the cooling tower blowdown sump. We would recommend against discharge of potentially contaminated stormwater into the CMP.

Section 4.5.2.6 indicates that no adverse impacts to groundwater resources are anticipated. Water quality degradation of the CMP could impact adjacent groundwater resources, depending on the stage of the pit water with respect to the hydraulic head in adjacent aquifers. While it is true that impacts would be unlikely at sufficiently low CMP water levels, consideration must be given to potential scenarios that could result in a groundwater impact. These include periods of relatively high pit water levels related to operational or climatic circumstances, or to post-closure scenarios.

Thank you for the opportunity to comment on this DEIS. If you have any questions about my comments, please contact Mr. Jim Walsh of my staff at 651-201-4654 or james.f.walsh@state.mn.us

Sincerely,

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JLS:JFW:kmc
Enclosures
cc: Doug Benson, MDH, Metro Office