



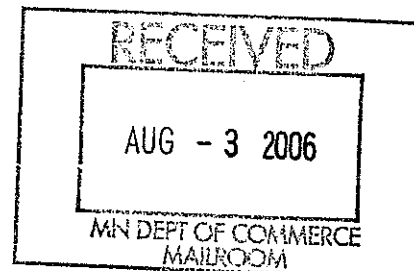
# Minnesota Pollution Control Agency

*Office of the Commissioner*

SENT VIA FAX

July 31, 2006

Mr. William Cole Storm  
Minnesota Department of Commerce  
Energy Facility Permitting  
85 7<sup>th</sup> Place East - Suite 500  
St. Paul MN 55155-2198



RE: Minnesota Pollution Control Agency Comments on the LEPGP Site, HVTL Route and Pipeline Route Permit Application, Mesaba Energy Project proposed by Excelsior Energy, Inc. PUC Docket No. 05-94-PPS-Excelsior Energy-Mesaba

Dear Mr. Storm:

Pursuant to agreements with the Minnesota Department of Commerce (DOC), the Minnesota Pollution Control Agency (MPCA) staff has reviewed the pertinent sections of the LEPGP Site, HVTL Route, and Pipeline Route Permit Application submitted by Excelsior Energy for the Mesaba Energy Project.

The site application was delivered to the MPCA on June 19, 2006. MPCA received the National Pollutant Discharge Elimination and State Disposal System (NPDES/SDS) Permit application and the Air Emission Permit application on June 28, 2006. These applications contain data and assumptions that are necessary for the MPCA to verify and validate the emission rates and other data provided in the site application. MPCA staff has reviewed much of the information, but continue to work with Excelsior Energy and their consultants to obtain data that will help MPCA staff continue to analyze and validate assumptions. The comments below are based on information the MPCA has received to date.

## **Comments regarding water issues (Appendix 6 of Site Application)**

**Staff contact: Katrina Kessler 651-296-7376**

### Section 3.2.1 Water Management Plan

According to the application, a pump station on the Canisteo Mine Pit (CMP) will pump water from the CMP to Holman Lake. One of justifications for this discharge is "mine pit water quality management." Once the facility begins discharging cooling tower blowdown to the CMP the discharge of water from the CMP to Holman Lake for water quality control purposes represents a discharge of pollutants to Holman Lake and therefore requires authorization under the NPDES program. As such this discharge point should be listed as a unique surface water

discharge station throughout the NPDES permit application. The application should also include the expected average and maximum discharge flow from the CMP to Holman Lake as well as information on the expected concentration of constituents of concern particularly phosphorus, mercury, total dissolved solids, hardness, sulfate, and specific conductivity, and chloride.

#### Section 4.0 Wastewater Generation and Discharge Outfalls

The application includes discharge points to both the CMP and Holman Lake. Please note that the MPCA has actively discouraged discharges to lakes for several decades. Recently several proposed discharges directly to lakes were denied NPDES permits. Holman Lake currently has excellent water quality (10 ug/L phosphorus according to the application). The discharge to Holman Lake from the facility and/or the CMP will significantly increase the volume of water leaving Holman Lake on an average year. Since the new discharge will represent such a large proportion of the lake's water budget, it is likely that the new discharge will increase the phosphorus concentration of the lake. The current load of phosphorus to Holman Lake based on very basic modeling is an annual phosphorus load of 68 kg/yr. Holman Lake is located in the Northern Lakes and Forest Ecoregion. The proposed phosphorus standard for lakes greater than 15 ft deep in this ecoregion is 30 ug/L. The standard for lake trout lakes in this ecoregion is 12 ug/L. The projected concentration of phosphorus in the discharge (30 ug/L - 70 ug/L) will likely increase the concentration of phosphorus in both Holman Lake and the CMP. Consequently, algal levels will increase and secchi depth (measure of transparency) will decrease. This could ultimately lead to the listing of these waters on the state's impaired waters list. At this time, the most desirable discharge point as far as phosphorus is concerned, is downstream of Holman Lake. If the CMP is considered a lake trout lake, then any additional phosphorus is likely to cause the lake to exceed the standard for lake trout lakes and likely make the lake unsuitable for lake trout.

#### Section 5.2 Water Quality

The breakdown of constituents in Table 5.2-2 is confusing, particularly the hardness values included in the table. Please correct these values and resubmit a revised version of the table. Also, please include values for potassium and bicarbonate in the re-submittal. MPCA staff has concerns regarding the potential for major ion toxicity in the discharge to both the CMP and Holman Lake. In general the order of toxicity is  $K > HCO_3^- \sim Mg > Cl > SO_4$ . The omission of numeric values for potassium and bicarbonate make it difficult to fully characterize the potential for toxicity in the discharge.

The application estimates that the facility can operate for more than 30 years before the mercury water quality standard of 6.9 ng/L would be exceeded in the discharge. When considering the mercury water quality standard it is important to note that while the immediate receiving water is not listed as impaired, the downstream receiving water is listed as impaired for fish consumption advisory. The presumption is that the 6.9 ng/l water quality standard is the standard that will be applied to the discharge from the proposed facility. This may not necessarily be the case. This issue will need to be addressed further during the permitting processes.

#### Section 5.2.3 Impaired Waters

Please note that the MPCA has not allowed any new discharges that contain phosphorus upstream of Lake Pepin since the Maple Lake/Annandale appellate court decision. The proposal facility represents a new discharge that would contain phosphorus. Regardless of the fact that

the phosphorus in the proposed discharge is from water bodies already in the Lake Pepin Watershed, until a resolution is reached on the Maple Lake/Annandale case, it is unlikely that an NPDES permit will be issued to the facility as long as it includes measurable amounts of phosphorus.

How will turbidity discharges to CMP and Holman Lake be minimized?

Section 5.3 Thermal Discharges (Clean Water Act Section 316(a))

According to the application, the facility will require a mixing zone of approximately 100 feet in length in both the CMP and Holman Lake to comply with thermal discharge limits. While a mixing zone 100 feet in length appears to be minimal, MPCA staff will need to review the CORMIX model results in greater detail to determine whether or not the effort satisfies the intent of 316(a) of the Clean Water Act. Excelsior Energy may be required to complete field studies to support or calibrate the modeling effort prior to the establishment of a mixing zone for the thermal discharge into CMP and Holman Lake. Additionally, MPCA staff would like to know the volume water in a 100 foot long mixing zone in comparison with the volume of water in the CMP and Holman Lake.

Section 5.4 Water intake (Clean Water Act Section 316(b))

The facility plans to comply with 316(b) of the Clean Water Act using a Track I approach. As stated in the application, compliance with Track I requires that intake structures be designed such that the intake velocity is protective of aquatic organisms that have been identified in the source water. According to the Minnesota Department of Natural Resources, rainbow smelt inhabit the potential source water bodies above the thermocline. Page 51 of the application states that the source water intake will be located at least 50 feet below the water surface, below the thermocline. The application also describes the CMP as potentially being characterized by a meromictic layer above an anoxic zone. Excelsior Energy should clarify how the meromictic layer and anoxic zone look in relation to the thermocline in the the CMP. Additionally, Excelsior Energy should discuss any potential impacts the limnology layers may have on the CMP Lake Trout population. If they are available, MCPA staff would like to review the temperate and oxygen profiles for the CMP.

**The following comments on water issues were included in the original set of comments to the Draft Site Application (dated May 4, 2006) and were not addressed in the resubmitted Final Site Application.**

Section 1 Table 1.10 List of Permits Potentially Required to Construct and Operate

According to the Table 1.10 which was also included in the draft application, Excelsior Energy will be applying for a 404 Clean Water Act Permit from the Army Corps of Engineers to cover the “discharge or dredged or fill material to waters of the U.S”. It is important to note that the while the 404 Permit covers the physical act of dredging that the disposal of any dredged material is covered under the NPDES/SDS program and therefore the applicant will have submit the NPDES/SDS permit application attachment form for the disposal of dredged material to the MPCA in addition to the already submitted NPDES permit application. The form can be found at <http://www.pca.state.mn.us/publications/forms/wq-wwprm7-26.doc>

Section 3 West Range Site Process Water Discharge Outfalls

The draft and final application indicate that the both the Canisteo Mine Pit and Holman Lake surface water discharge points will be submerged. How will discharge samples required for compliance with the NPDES/SDS program be collected if the outfall points are submerged?

Section 3.6 West Range Domestic Wastewater System and  
Section 7.6.5.3 Adequacy of Taconite-Bovey-Coleraine WWTF

Excelsior Energy proposes to dispose of domestic wastewater generated at the facility at the Coleraine-Bovey-Taconite (CBT) WWTP. The facility would be connected via 10,000 foot of 12-inch gravity sewer pipeline, a pump station, and 2,400 feet of force main to the City of Taconite's main pump station, located in the northeast corner of the City. According to the draft application, the existing CBT WWTP has the capacity to treat the 7,500 gallons per day that Excelsior Energy estimates it may generate. The draft application acknowledged that the CBT collection system struggles with excess flow as a result of inflow and infiltration (I/I). Since 1999 the City of Taconite's main pump station has experienced six unique flows events that resulted in bypass conditions. Bypass flows at the main Taconite pump station discharge to a settling basin formerly used by the Cleveland-Cliffs Iron Company and eventually to Holman Lake. Bypass events are direct violations of the CBT NPDES/SDS permit MN0053341. While it is true that the additional 7,500 gallons per day that Excelsior Energy would add to the collection system would not result in a significant burden to the existing WWTP under normal operating conditions, it is clear that the CBT collection system (particularly the collection system upstream of the main pump station in the City of Taconite) is in need of attention. At the very least it is prudent to recommend that Excelsior Energy in conjunction with the City's of Coleraine, Bovey, and Taconite undertake an I/I study to determine the most urgent need for upgrades to the collection system and what resources are needed to complete the identified upgrades. In addition to completing an I/I study and upgrades assessment, Excelsior Energy needs to cooperatively engage the towns of Coleraine, Bovey, and Taconite in a discussion regarding the need to construct additional sludge treatment capacity at the WWTP. The CBT WWTP has historically had to haul some of their wastewater sludge to wastewater treatment plant in Grand Rapids due to limitations at their own WWTP. The additional flow and subsequent solids load at the CBT WWTP underscores the need to invest in upgrades to the existing solids treatment infrastructure.

**Comments regarding air dispersion modeling**

**Staff contact: Chris Nelson 651-296-7750**

The Class II (near field) air dispersion modeling methodology appears sound and the results are much less than National Ambient Air Quality Standards (NAAQS), Minnesota Ambient Air Quality Standards (MAAQS), and Prevention of Significant Deterioration (PSD) Increments. Future updates or corrections to the emission rates or modeling parameters are not anticipated to change the conclusions of the Class II modeling analysis. MPCA staff must review the emission rate calculations before a detailed review of the modeling can be completed.

MPCA typically collaborates with Federal Land Managers (FLMs) from the National Forest Service and National Park Service on the review of Class I (far field) air dispersion modeling

analyses. Class I areas potentially affected by the Mesaba project are the Boundary Waters Canoe Area Wilderness (BWCAW), Voyageurs National Park (VNP) and Rainbow Lakes Wilderness (RLW). Excelsior Energy analyzed Class I Increments and pollutant deposition at BWCAW, VNP, and RLW. The preliminary results of the Class I Increments and deposition analyses are below levels of concern. However, the FLMs have not yet received copies of the analyses, so MPCA staff has not discussed the predicted impacts with them.

Excelsior Energy examined the impacts of the proposed Mesaba Energy project on visibility at the BWCAW and VNP. Initial modeling results predict adverse impacts on visibility at BWCAW and VNP. Because of this adverse impact, additional air pollution controls or emissions mitigation may be required. Excelsior proposed modeling refinements to address those impacts but neither MPCA nor the FLMs have reviewed the proposal. MPCA staff has been told that Excelsior Energy is sending needed information to the FLMs.

**Comments regarding air emission risk analysis**

**Staff contact: Vanessa Niemi 651-296-7597**

General Comments:

MPCA staff is aware that updates and improvements to the data are being made continuously and the latest documentation submitted may not reflect the most current data that the facility has on hand. The detailed comments contained in Attachment 1 are to ensure that the final risk product reflects all comments and to show the progress of the analysis. Therefore, there may be repetitive comments and clarifications noted and asked for here that have previously been discussed with the company.

The methodology used by the facility for the various exposure scenarios has been reviewed and approved by MPCA. Three separate methodologies were used to assess risk from the Mesaba Energy Project. The Industrial Risk Assessment Program using EPA algorithms was used to assess site specific chronic risks. MPCA derived methodologies were used for assessing mercury fish consumption and acute and subchronic inhalation risks. The latest submittal received by MPCA showed improvements to the models and inputs. However, specific and detailed problems are still unresolved. For instance the data explained in the text documentation does not match the electronic submittals. For additional comments on the submittals, please see Attachment 1.

Comments on the final risk results of the analysis are not provided in Attachment 1. Until all data inputs are validated, the final risk assessment values cannot be assumed correct. Emission estimation data is still being updated by Excelsior Energy and therefore cannot be validated to meet the contract deadline between MPCA and DOC. Additional comments on the risk assessment will be forthcoming during public comment periods specified in the EIS and permitting processes.

**Comments regarding Best Available Control Technology (BACT)**

**Staff contact: Toni Volkmeier 651-297-7708**

Since the proposed facility will be a major source under federal New Source Review regulations, a BACT analysis is required for each pollutant that will be emitted in excess of the significant emissions thresholds listed in 40 CFR 52.21(b)(23). Therefore, a BACT analysis is required for SO<sub>2</sub> (emissions greater than 40 tons per year), NO<sub>x</sub> (emissions greater than 40 tons per year), VOC (emissions greater than 40 tons per year), CO (emissions greater than 100 tons per year), PM<sub>10</sub> (emissions greater than 15 tons per year), and PM (emissions greater than 25 tons per year). MPCA comments on Excelsior Energy's BACT analyses are below.

#### Combustion Turbines/Heat Recovery Steam Generators

NO<sub>x</sub> – Analysis is satisfactory for diluent injection, other options are technically infeasible.

SO<sub>2</sub> – Excelsior Energy identified two options: chemical solvent (MDEA) and physical solvent (Selexol). Excelsior Energy chose MDEA as “baseline control” and did an economic analysis on Selexol only considering the incremental control after application of the MDEA. MDEA process is not a baseline; it's presented as a control *option* on page 111. This is consistent with EPA's Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies (EPA-403/R-06-006, July 2006) (IGCC report).

<http://www.epa.gov/airmarkets/articles/IGCCreport.pdf>.

To complete the BACT analysis, Excelsior Energy needs to:

- Do economic analysis of Selexol based on total SO<sub>2</sub> removal from baseline state (NSPS limit) to Selexol-controlled state (from 2800 tons at NSPS level to 133 tons for Selexol controlled, for a total removal of 2667 tons); not the incremental removal from the MDEA controlled state to the Selexol controlled state (for a total removal of only 200 tons).
- Include the entire economic analysis, showing all costs, interest rates, etc.

VOC – The analysis is satisfactory with good combustion practices; other options are technically infeasible.

CO – The analysis is satisfactory with good combustion practices; other options have shown to be technically infeasible under the NO<sub>x</sub> and VOC analyses.

PM/PM<sub>10</sub> – The analysis is inadequate for the following reasons:

- Add-on controls were dismissed as technically infeasible because they “have never been applied to commercial gas-based CTGs” and because no particulate limits were proposed under NSPS subpart GG (Subpart GG doesn't apply, subpart Da does, and does include PM limits). An economic analysis of why these are cost prohibitive for the level of control achieved would be a more convincing argument.
- Did not compare proposed BACT emission rate to the NSPS requirement (Subpart Da).

TankVent Boiler

NO<sub>x</sub> – The analysis should list control options which it did not. The analysis discussed why dry low NO<sub>x</sub> burners are technically infeasible, but did not discuss technical feasibility for any other control options. It also stated that SCR is economically infeasible, but did not provide analysis. In addition, \$13,000/ton is not automatically considered cost prohibitive.

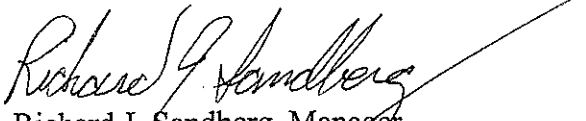
SO<sub>2</sub> – This analysis refers to section 5.5.2, which is inadequate as described above (SO<sub>2</sub> controls for combustion turbines).

VOC, CO and PM/PM<sub>10</sub> – The analysis is adequate with good combustion practices. The analysis only looked at sources in Minnesota and should have looked at all sources in the RACT/BACT/LAER Clearinghouse. However, for this analysis, the MPCA is satisfied with the result.

BACT analyses for the following pieces of equipment are satisfactory: flare, fugitive equipment leaks, material handling, cooling tower, diesel engines, and auxiliary boiler.

Please contact Susan Heffron at (651) 297 1766 if you have questions regarding our comments. We would be happy to meet with you regarding these comments and MPCA's further evaluation of the Mesaba project.

Sincerely,

  
Richard J. Sandberg, Manager  
Air Quality Permits Section  
Industrial Division

RJS/SH:ah

cc: David Thornton, MPCA-6h  
Vanessa Niemi, MPCA-6th  
Chris Nelson, MPCA -6th  
Toni Volkmeier, MPCA-5th  
Jenny Reinertsen, MPCA, Duluth Regional Office  
Katrina Kessler, MPCA-5th  
Richard Newquist, MPCA-4th  
Shelly Burman, MPCA-6th  
Don Smith, MPCA-5th  
Susan Heffron, MPCA-3<sup>rd</sup>  
Bob Evans, Excelsior Energy

# ATTACHMENT 1

## Comments on June 27, 2006 submittal

### **Air Emissions Risk Analysis**

*Excelsior Energy Inc.  
Mesaba Energy Project*

Taconite, Itasca County, Minnesota

SEH No. A-EXEENR0502.03

June 2006

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#### Page 3:

The Q/CHI methodology assesses chronic noncancer effects and cancer risks. It should be clearly stated that Q/CHI was still a screening method and additional site specific risk analyses were done using IRAP. The risk thresholds exceeded using Q/CHI should be explained in more detail because the final conclusion is that no risk is exceeded (from IRAP).

There are chemicals not assessed in IRAP because they are VOCs, so those chemicals are only assessed in the Q/CHI analysis. Would the addition of these chemicals have increased the resident inhalation risks and/or hazard indices from IRAP?

#### Page 5:

Not just HAPs are assessed. How was the COPC list compiled?

The emission rate source list, as well as estimation data, should follow the Emission Estimating Guidance found on MPCA's website.

AGR systems were not explained and the acronym was not defined in the AERA document.

Clarify and explain, with references, the assumption of mercury emissions will be less than 10% of the mercury present in the feedstock.

#### Page 6:

Where in the gas stream/process was testing conducted for chlorine emissions? Provide additional discussion and references from the dioxin paper sent to MPCA. Incorporate that data into the AERA documentation to support your rationale for the absence of dioxin emissions.

Incorporate additional discussion and data on chromium emissions, reference paper sent to MPCA.



Page 7:

In first paragraph on page make sure that it is clear that the fisher scenario in IRAP does not include mercury.

The June 27, 2006, electronic submittals seem to reflect the use of MPCA toxicity values. However the AERA documentation does not reflect the use of MPCA toxicity values. MPCA toxicity values should be used in all analyses, including IRAP. There appear to be some chemicals and toxicity values in IRAP that do not have MPCA approved values, e.g., acetophenone.

Page 10:

Acute and subchronic values listed for Q/CHI in documentation do not match the electronic submittal.

NO<sub>2</sub> was not assessed for acute hazard.

Please list risk and hazard values at the property boundary and at the fenceline.

Page 12:

It might be helpful to explain why Big Diamond Lake was chosen in this section, referring to this part later in the document.

Page 13:

It was very useful to have the IRAP inputs with references laid out in the document.

Use average annual data from the nearest airport for wind velocity.

Why is the hobby farm not evaluated as a farming scenario? Provide narrative and data that support your assumptions.

Receptors should also include a maximum concentration for all exposure scenarios. There should be a worst-case scenario that is located at maximum concentration.

How were receptors chosen? Receptors should reflect 'potential future land use,' meaning that a receptor may not occur at that location at this specific time, but may potentially occur there in the future.

Manganese should be evaluated in IRAP. Regarding the additional chemicals that were not included, please list why those were not included, e.g., MTBE is a VOC and therefore will not have a multi pathway risk associated.

Page 15:

A final version of the Hg fish consumption model has been approved by MPCA. The final version includes updates that MPCA staff feel improve the model's accuracy. MPCA staff accepts the version submitted to eliminate the need for "hitting a moving target." However, if

the facility would like to use the final version of the Hg fish consumption model MPCA will provide the updated version.

Has it been confirmed that northern pike are in Big Diamond Lake? Would this fish species be the worst case?

Where assumptions or inputs vary from MPCA guidance for inputs into the Hg model, please provide references.

Page 19:

Why is the child fisher risk less than the adult? Is there a difference in the subsistence fisher scenario?

Page 20:

What is the "hole" in the property boundary to the northern section of the property?

Page 21:

There is a ¼ mile buffer between the nearest residential building and the fenced area. How much distance is between the residential building and the property boundary? What is meant by a residential 'building?'

Page 22:

What are the HQs of the sensitizers and developmental toxicants?

The acute ceiling value for arsenic is exceeded, in the AERA documentation. The Q/CHI spreadsheet does not show an acute threshold exceeded for arsenic. Why are these different? What changed between the submittals?

Page 23:

Documentation reiterates that thresholds are at acceptable levels. See previous comments for conflict.

Is there a reason why the chemicals under Miscellaneous Chemicals are separated into two groups?

Page 24:

Fish consumption risk results for mercury need to be added to fish consumption results for chemicals other than mercury, from IRAP. The total of these represent the risk to fishers from the Mesaba facility.

For the chronic exposure scenario from IRAP, are the cancer and noncancer risks and His inhalation or multimedia as well?

MPCA staff does not understand what is meant by the last sentence on page 24.

Tables

Provide data why hobby farm does not include the farming scenario.

The resident receptors should include the chicken and egg. Other details from Table 3 are still undergoing discussion by MPCA staff.

#### IRAP

Mercury input and plot files are needed

The base map file type is not supported and cannot be input into the IRAP model.

Emission .csv file is necessary before any additional comments can be made on the IRAP submittal.

#### Q/CHI and Mercury Fish Consumption

Emission files need to be agreed upon by the MPCA and facility and validated by MPCA before further comment on the Q/CHI submittal can be made.