Minnesota Pollution Control Agency

RANDY

RDS-2

December 13, 1996

Mr. David Kee, Director
Office of Air and Radiation Division
U.S. Environmental Protection Agency
Region V (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Subject: Combined Model Evaluation Study for Northshore Mining Company in Silver Bay, Minnesota.

Dear Mr. Kee:

The purpose of this letter is to request your approval of the combined model evaluation study for Northshore Mining Company in Silver Bay, Minnesota, which has been sent to Mr. Randy Robinson, of your staff, under separate cover:

> "Combined Model Evaluation Study for the Northshore Taconite Facility Located at Silver Bay, Minnesota," prepared by W. Gale Biggs Associates, October 1996.

The study was conducted to determine the best performing model to establish emission limits for sulfur dioxide (SO2) and nitrogen oxides (NOX) at Northshore's pelletizers and power plant. The study was later expanded to include particulate matter less than ten microns (PM-10 and smaller). The model will be used to establish emission limits that demonstrate modeled attainment of National Ambient Air Quality Standards, Prevention of Significant Deterioration increments, and other state and federal programs as appropriate. The U.S. Environmental Protection Agency (EPA) reference models will continue to be used for Northshore Mining Company emission sources other than the pelletizers and power plant.

The model evaluation study compared two versions of the Industrial Source Complex model (ISC2 version 93109):

> Reference ISC2 model with terrain and building downwash
> Candidate ISC2 model without terrain but with limited building downwash

The candidate ISC2 model considers building downwash for stacks subject to the current Huber-Snyder algorithm, but it ignores building downwash where it does not apply or where the Schulman-Scire algorithm is currently applied.

Because the candidate model underpredicted SO2 concentrations, future 1-hour, 3-hour, and 24-hour SO2 modeling results will be multiplied by 1.7, 1.7, and 1.2, respectively, plus an additional 10 percent regulatory safety factor per the modeling protocol.

Because the candidate model underpredicted NOX concentrations, future 1-hour and 24-hour NOX modeling results will be multiplied by 1.8 and 1.0, respectively, plus an additional 10 percent regulatory safety factor per the modeling protocol.

Because the candidate model underpredicted SO2 and NOX concentrations, use of the candidate model for other pollutants including current and future PM-10 (and smaller) standards will apply the following under-prediction factors: For averaging periods less than 3 hours, between 3 hours but less than 24 hours, and 24 hours or greater, candidate modeling results will be multiplied by 1.8, 1.7, and 1.2, respectively, plus an additional 10 percent regulatory safety factor.

We request your written approval of the model evaluation study for SO2 and NOX, as well as its application for current and future PM-10 (and smaller) ambient standards.

Mr. Dennis Becker, of my staff, has been in contact with Mr. Randy Robinson, of your staff, regarding these matters. If you or your staff have any questions, please fell free to contact Dennis Becker at (612) 297-7364.

Sincerely,

Michael J. Sandusky
Acting Division Manager
Air Quality Division

MJS:jmd

cc: Randy Robinson, EPA
W. Gale Biggs, WGBA Associates
Dennis Wagner, Northshore Mining Company
MPCA/AQD File# 27A (Northshore Mining Company, Silver Bay, MN)
J. David Thornton, Air Quality Division
John Seltz, Air Quality Division
Dennis Becker, Air Quality Division
Patrick O'Neill, Air Quality Division