Faribault Energy Park, LLC

200 South Sixth Street, Suite 300
Minneapolis, MN 55402
612.349.6868
612.349.6108 facsimile

October 29, 2003

Bill Storm
Department of Administration
Environmental Quality Board
658 Cedar Street
Room 300
St. Paul, MN 55155

Dear Mr. Storm:

Subject: Response to Citizen's Comments

On behalf of Faribault Energy Park, LLC, we have prepared additional information in response to the comments from Mr. Edwards.

Ammonia Slip

In accordance with the Federal regulations for Prevention of Significant Deterioration (PSD), Faribault Energy Park determined that Selective Catalytic Reduction (SCR) was the Best Available Control Technology (BACT) for mitigating nitrogen oxides emissions from the combustion turbine exhaust. SCR requires the injection of ammonia into the turbine exhaust at a point that is upstream of a metal catalyst. The metal catalyst then activates a reaction between the ammonia and nitrogen oxides to form water and diatomic nitrogen. In ideal conditions, the reaction requires one part ammonia to one part nitrogen oxide. Technology advances in the activation catalysts and ammonia injection system have improved the mixing and reaction efficiency. However, there still remains some unreacted nitrogen oxide and unreacted ammonia that is exhausted from the stack after the application of SCR. The unreacted ammonia that is exhausted is called ammonia slip. Faribault Energy Park has proposed to maintain the nitrogen oxide emissions to 3 ppmv from the exhaust with a 10 ppmv ammonia slip. A lower nitrogen oxide concentration could be achieved with the concession of a higher ammonia slip. Similarly, a lower ammonia slip could be achieved with the concession of higher nitrogen oxide emissions. The nitrogen oxide and ammonia slip limits proposed by Faribault Energy Park are consistent with the limits established as BACT for other combined cycle combustion turbines across the country.

Guidance for assessing health impacts of ammonia exposure has been established by EPA and MPCA. EPA and MPCA have not identified any long-term chronic health effects from exposure to ammonia. However, EPA and MPCA have identified upper respiratory affects and eye irritation from short-term ammonia exposure. As part of the air toxics review, a site-specific analysis of health effects from the ammonia slip was performed. The analysis

determined that the maximum one-hour ammonia concentration that any person may be exposed to from the facility's operations is 1000 times below the threshold that would create any adverse health affects.

Emergency Generator and Fuel Oil Use

Low sulfur No. 2 fuel oil will be the primary fuel for the 670 hp emergency generator and the 250 hp fire pump engine. It will also be used as a back-up fuel supply to the combustion turbine and to the auxiliary boiler. The emergency generator and fire pump engine are each limited to 500 hours of operation per year. The combustion turbine and the auxiliary boiler will be limited to 2500 hours per year of operation on fuel oil. The emergency generator will only be used to provide electricity at the facility should normal power be disrupted; it will not be used to produce electricity that will be sold. The emissions from the emergency generator were included in the PSD Air Quality Permit Application. As such an analysis of BACT was performed and emissions from the emergency generator were included in the air dispersion modeling and the air toxics review that were performed. Table 1 shows the emissions from the emergency generator as described in the PSD Air Quality Permit Application.

Table 1
Emergency Generator Emissions

Pollutant	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)	Projected Actual Emissions (tons/yr)
PM	0.0007	0.469	0.117	0.117	0.0117
PM10	0.0573	0.279	0.070	0.070	0.007
SO_2	0.00041	0.271	0.068	0.068	0.01
NO_X	0.024	16.092	4.023	4.023	0.4023
VOC	0.00071	0.473	0.118	0.118	0.012
CO	0.0055	3.688	0.922	0.922	0.09
Lead	0	0	0	0	0

Moisture Emissions and Icing

While it is true that changing weather conditions sometimes occur with southeast and east winds, and that there are times in the winter that winds do blow from the east and southeast direction, there needs to be specific atmospheric conditions to produce vapor plumes that travel extensive distances in either a visible form or a concentrated form. The proposed cooling tower will be located over 1000 feet from the nearest lanes of Interstate 35.

There are numerous factors that cause a visible plume to dissipate including humidity and turbulence. For a plume to be transported intact for a distance of 1000 feet, little evaporation (relative humidity near 100 percent) and minimal turbulence (nearly calm winds and stable atmospheric condition) must occur, and a mechanism to maintain the plume near the ground must be available. For ice to form, temperatures must be at or below 32 degrees F. The best formation and transport of visible water vapor plumes occur at temperatures between 30-35 degrees F and a humidity approaching one hundred percent. Obviously, at one hundred percent humidity, fog will form and any water vapor from the plume will be dispersed in the fog and be visually undetectable.

The two sources of water vapor plumes at this facility are the main stack and the cooling towers. The cooling towers will produce the most significant water vapor plumes. Because of the heat associated with cooling towers, these plumes will naturally rise, and remain aloft unless buildings or terrain features cause a downwash. This may occur with the facility directly east of the cooling towers, however the turbulence caused by the wind flow around these structures, will tend to enhance mixing with ambient air and increase the evaporation of the plume. Normal atmospheric dispersion also tends to erode the plume's characteristics with distance and time and thus plumes are diluted and dispersed within relatively short distances.

A final factor in the equation is historical meteorological conditions necessary for the perfect conditions to occur. If you examine the occurrences of light east winds, with temperatures at or just below freezing, and humidity near 100 percent, you will find relatively few, if any, that occur. Couple this with the plume dispersion characteristics that must occur to retain the plume characteristics near the surface for a distance of 100 feet and you will find that this situation is very unlikely.

Most icing concerns from adjacent industrial facilities occur with sources within a few hundred feet and elevated roadways. This will not be the case for the proposed Faribault location.

Noise Impacts and Attenuation

A noise study of this facility was conducted and provided in the Site Permit Application. The study evaluated the noise impact at the facility boundaries using monitored background levels the proposed site and accepted mathematical equations for noise propagation. Although these are theoretical levels and constructed conditions may alter the acoustics of the area, they are the best estimates of anticipated noise levels available at this time.

The combustion turbine is anticipated to be enclosed to reduce noise levels. Adequate attenuation will also be designed to minimize the noise impact. While there is an anticipated increase in ambient noise levels near and surrounding the facility location, levels will be below Minnesota standards.

We hope that this information meets your needs. Please contact me at (612) 349-6868 with any other questions that you might have.

Sincerely,

Faribault Energy Park, LLC

Tim Hunstad