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September 16, 2005

James O'Mara, Director
Environmental Assessment & Approvals Branch
Ontario Ministry of Environment
2 St. Clair Avenue West, Floor 12A
Toronto, ON M4V 1L5

Subject: Environmental Review Report for Greenfield South Power Project

Dear Mr. O'Mara:

This letter offers comments on the Air Quality Impact Study of the Environmental Review Report (ERR) prepared for the proposed Greenfield South Power Project in Mississauga, Ontario.

I support the province's commitment to phase out coal-fired electricity generation in Ontario. As part of this process, I had hoped to support the resulting proposals for new efficient, natural gas power plants in and around the GTA. Unfortunately, I have questions and concerns about the Greenfield South proposal and its ERR, so I am unable to support the Greenfield South proposal at this time. I recommend that the Ministry of Environment (MOE) require the proponent to provide the information requested in the appendix to this letter, before deciding whether to allow the facility to be built. **I request that the proposed Greenfield South Power Project be elevated to an individual EA so that the potential environmental and health impacts of the facility may be more thoroughly assessed.**

Overall, the Greenfield South ERR needs to be improved before I can have confidence that it realistically describes the environmental impacts of the facility. Given the many questions that remain, it is not possible for Toronto Public Health to fully assess the proposal with the time and information available.

My major concerns about the Greenfield South ERR are attached. I also provide recommendations on how the Ministry of Environment can improve the EA process for power generation proposals to ensure that ERRs for future projects contain the information necessary for analysis.

To accept the ERR as it is currently written would mean accepting an unclear environmental assessment for the Greenfield South power project and for any other power plants proposed for the GTA in the future. I recommend that the Ministry require a higher standard of quality for Environmental Review Reports than was demonstrated by the Greenfield South ERR.

My staff would be pleased to discuss these concerns with Ministry staff or members of the Greenfield South project team.

Sincerely,

Original signed by Dr. David McKeown

David McKeown, MDCM, MHSc, FRCPC
Medical Officer of Health

cc: The Honourable Dwight Duncan, Ontario Minister of Energy
Dr. Hanif Kassam, Medical Officer of Health, Peel Region
Hubert Vogt, Vice President, Eastern Power Limited
Christopher Morgan, Senior Air Quality Specialist, Technical Services, City of Toronto

Attach: Appendix 1. Detailed comments on Greenfield South Environmental Review Report Air Quality Impact Study

Appendix 1.

Detailed comments on Greenfield South Environmental Review Report Air Quality Impact Study

My major concerns about the Air Quality Impact Study of the Greenfield South Environmental Review Report (ERR) are listed below, along with recommendations to the Ministry of Environment on improving the EA process for power generation proposals.

1) Impact on Toronto

The proposed site for the Greenfield South facility lies on Etobicoke Creek, the border between Mississauga and Toronto. Under some weather and wind conditions, air pollutants from the facility's plume will be carried into Toronto. The impacts on Toronto of air emissions from the facility are unclear from the ERR since there is no evaluation of the cumulative transboundary input to Toronto. It is important that we understand the potential impacts from this facility on Toronto. I recommend that the Ministry require the proponent to assess the potential impacts on Toronto of Greenfield South under worst case conditions, and provide this information.

Over the coming years, it is likely that many small-to-medium power plants will be proposed for Toronto and the surrounding region. The City of Toronto and the Government of Ontario need to understand the cumulative impacts on Toronto and the region from all proposed, new point sources in the region so that air quality may be managed on an airshed basis. This underlines the need for reliable data describing the impacts of each new facility on Toronto and the GTA.

I recommend that the Ministry begin to take a holistic approach to managing the GTA's airshed by assessing air impacts of multiple point sources cumulatively, rather than one-by-one in isolation.

2) Modelling Smog Alert Days

In the Air Quality Impact Study, the proponents have used the 90th percentile MOE monitoring data to represent ambient air quality in the area, before the addition of Greenfield South (ERR Appendix C, page 36). This means that the top 10% worst air quality days are omitted from the assessment.

In 2005 so far, Toronto has experienced 43 smog alert days. If Toronto has no more smog days in 2005, Toronto will have smog alerts on approximately 12 percent of the days this year. By modelling the 90th percentile ambient air quality, the ERR omits Toronto's smog days from its analysis. Therefore, the ERR does not analyze Greenfield South's air quality impacts on the dirtiest days of the year. I believe this oversight should be remedied by analyzing the facility's impacts under smog alert day conditions, rather than the 90th percentile. It is important to understand the facility's impacts under realistic, worst case conditions.

Assessing the facility's impacts on smog alert days is particularly important to Toronto. Atmospheric inversions, weather conditions that can keep pollutant emissions close to the ground, typically occur in combination with smog alert days. On days with inversions, there is a greater risk that emissions from the facility may impact Toronto. Since the ERR is missing the smog days, it is also likely missing the days with inversions. In order to understand the facility's impacts on Toronto, I recommend that the proponent assess and report the facility's expected impacts on smog alert days.

3) Air Pollutant Emissions from Fuel Oil

The Greenfield South facility is permitted to run on fuel oil instead of natural gas up to ten percent of its operating time. Air pollutant emissions from the facility would be greater when burning fuel oil than when burning natural gas. When Greenfield South is operated using fuel oil, the facility could have an impact on ambient air quality off-site, according to the ERR.

Off-site of the facility (at the fence line, not at sensitive receptors), the facility's contribution could be substantial. When the plant runs on fuel oil, it could double ambient NO_x concentrations and cause SO₂ concentrations 25 times the current background concentration under some operating conditions. As noted in the ERR, these levels are for the location experiencing the maximum concentration and would not be widespread. They would not exceed Ontario's Ambient Air Quality Criteria (AAQCs).

The ERR defines some local residences, industrial areas and a hospital as "sensitive receptors". Unfortunately, the ERR does not provide the resultant concentration that will be experienced at the sensitive receptors. It gives only the concentration that will result from the facility alone, without making the conversions necessary and including background concentrations (ERR Appendix C, page 46). Given the time and information provided in the ERR, it was not possible for my staff to assess the facility's impacts at sensitive receptors. I believe it is the proponent's responsibility to clearly lay out the air pollutant concentrations that will result if Greenfield South begins operation, and explain their significance. I recommend that the proponents make the necessary conversions (e.g., from half-hour to one-hour data), provide resultant air concentrations for sensitive receptors in a table, and clearly explain the results in the text, for operations using fuel oil.

4) Air Pollutant Emissions from Natural Gas

Emissions from the facility during normal operation with natural gas would be lower than when fuel oil is used. However the facility will have an impact on local air quality when burning natural gas.

At locations around the proposed facility (at the fence line, not at sensitive receptors), the facility could increase ambient NO_x concentrations by approximately one third while burning natural gas, relative to the current background levels. As noted above, this level would not be widespread.

As noted above for fuel oil, given the time and information provided in the ERR, it was not possible for my staff to assess the facility's impacts at the sensitive receptors. As above, I recommend that the proponents provide a more complete explanation of resultant concentrations from operating with

natural gas (see ERR Appendix C, page 45) by making the necessary conversions, providing resultant air concentrations at sensitive receptors in a table, and clearly explaining the results in the text.

5) Quantity of Fuel Oil

The ERR is clear that the facility would be permitted to burn fuel oil instead of natural gas in the facility up to ten percent of the time (ERR Appendix C, page 59). However, the air quality modelling assumed that fuel oil would be used only four percent of the time. Emissions of NO_x, SO₂, PM and other contaminants from the facility would increase substantially when fuel oil is burned instead of natural gas. I recommend that the proponents be required to analyze the potential impact of burning fuel oil at the facility up to ten percent of the time.

6) Sources of Equipment and Emission Factors

The manufacturer and model for the natural gas turbine and other equipment were not given in the ERR. Therefore, it was not possible for my staff to verify whether the technology selected is the most health-protective available. Similarly, emission factors and other important model inputs were not always clearly defined and referenced, making verification difficult. For example, the Air Quality Impact Study states that some emission rates were obtained from the manufacturer but provides no further information (ERR Appendix C, page 18). I recommend that the proponent specify the manufacturer and model for the turbines and other major equipment. I also recommend that the proponent ensure that emission factors and important model inputs are clearly referenced and explained in this ERR. Similarly, I ask the Ministry of Environment to require that all ERRs completed in the future provide verifiable descriptions and references for relevant equipment and emission factors.

7) Health Impact Assessment

The “Health and Ecological Impacts of Air Emissions” section of the ERR states simply that the facility’s emissions will be lower than those of a coal-fired power plant, and “it can be concluded without further study” that the facility will not cause significant health impacts (ERR Appendix C, page 49). This proposed generating station should be evaluated on its own merits, not relative to another technology, such as coal-fired generation. On the whole, I do not believe this is an adequate assessment of health impacts. As noted above, the ERR does not provide enough information, or clear enough explanation of the results, to assess health impacts. I recommend that the Ministry require the Greenfield South proponent, and other proponents of power generation projects in the future, to provide a more thorough and informed analysis of potential health impacts as part of an ERR.

8) Meaningful Public Consultation

Public consultation on the Greenfield South Power Project has been minimal, and some important questions have not been adequately answered by the proponents. This level of effort does not foster confidence in the proponent's capacity for environmental stewardship. I recommend that the proponent revisit the public consultation questions and provide more thorough responses. This should include a clear description of Eastern Power's health and safety history.

It is also relevant that the proponent has not made the ERR or any company information available on the internet. This makes it more difficult for members of the public to access the ERR documents.

I recommend that in the future, the Ministry work closely with proponents to ensure more meaningful public consultation. At a minimum, in addition to the existing consultation requirements, proponents should be required to provide thorough answers to pertinent questions from the public, provide a longer period within which to review the ERR, and make the ERR and supporting documents freely available on the internet.

9) Contaminants Considered

The air quality analysis did not consider particulate matter of diameter less than 2.5 microns (PM_{2.5}). ERRs for other proposed generating stations have assessed this contaminant, demonstrating that it is possible. Certainly, health impacts of PM_{2.5} in air have been demonstrated. I recommend that the Ministry require this proponent, and proponents of facilities in the future, to include an analysis of PM_{2.5}, to the best of their ability.

10) Ontario Regulation 419/05

The ERR does not reference O. Reg. 419/05 – Local Air Quality. This new regulation includes new air standards for a number of pollutants and initiates a new risk-based approach to ensuring compliance with standards over time. I recommend that the proponent evaluate compliance with O. Reg. 419/05.

11) ERR quality

The clarity of the writing and data provided in some portions of the ERR was not adequate for my staff to fully understand the air quality implications, and therefore health implications, of the proposed facility. I have demonstrated this in several examples, above.

The writing is particularly unclear in the last two paragraphs of section 9.3 of the Air Quality Impact Study (ERR Appendix C, page 38-39). The second-last paragraph of section 9.3 compares model results at 7°C with results at 30°C, but the poor writing obscures the air quality impact being described. Also, the data being described are not provided in the report. As a result, my staff could not evaluate the emission rate increases described in this section. I recommend that the Ministry

require the proponent to more clearly explain this section of the report, and provide the 30°C modelling data in a table.

It is not clear what operating conditions are being discussed in the last paragraph of the Air Quality Impact Study, section 9.3. The quality of the writing is so poor that my staff are left to guess what is being compared. A higher level of effort and quality of writing are expected. I recommend that the Ministry require the proponent to clearly explain this section of the ERR and provide the relevant data.

I ask the Ministry of Environment to ensure that ERRs released for public review in the future use clear language throughout and meet a high standard of quality overall.