

Alistair MacDonald

From: Wilson, Anne [Yel] [Anne.Wilson@EC.GC.CA]
Sent: August 9, 2007 2:40 PM
To: Alistair MacDonald
Cc: Fox, Dave [Yel]; Graham Veale; Joel Holder; jack_Bird@gov.nt.ca
Subject: FW: EC-GNWT letter -- Tamerlane

Hi Alistair,

In discussions with Tamerlane around our July 5th videoconference, the idea was raised that uncertainties with regards to air quality impacts could be addressed through a "worst case" approach to mitigation and monitoring. However, upon further review and consideration of the potential air quality issues we conclude the best path forward is for Tamerlane to complete an project specific air quality assessment. Our rationale is detailed in the attached joint EC-GNWT letter to the MVEIRB.

Accordingly EC would like to submit as an IR the request that Tamerlane conduct the project specific air quality assessment, prior to the closing of the public record of this EA.

Thanks,
Anne

<<EC-GNWT - Air Quality.doc>>



Environment Canada
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Environment and Natural
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Environmental Protection Division
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August 8, 2007

Alistair MacDonald
Environmental Assessment Officer
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
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Dear Mr. MacDonald,

Re: Tamerlane Air Quality Assessment for the Pine Point Pilot Project

Environment Canada (EC) and the Government of the Northwest Territories Department of Environment and Natural Resources (ENR) have concerns that Tamerlane has not completed an appropriate air quality assessment for their proposed Pine Point Pilot Project (PPPP) and, therefore, has not satisfied the Terms of Reference provided by the Mackenzie Valley Environmental Impact Review Board (MVEIRB). The requested assessment is standard protocol for projects of this type and is routinely provided by other project proponents. The specific sections in the Terms of Reference not satisfied are listed below:

- I-3 Vegetation
- I-3-4 The potential effects of vehicle, mine equipment and power plant emissions on vegetation.
- I-3-5 The potential effects of dust emissions on vegetation.
- I-6 Air Quality and Climate
- I-6-1 A description of air flow and likely levels of particulate matter and other emissions on the PPPP site, with a focus on the underground ventilation system's release of CO, SO₂ and NO_x, and other areas of on site emissions.
- I-6-2 The potential effects of PPPP operations on air quality through the atmospheric dispersion of emissions and dust on a local and regional scale to include:
 - I-6-2a Dust from construction activities, roads, mine workings, waste rock and ore stockpiles, the infiltration Basin, any quarries utilized, and DMS activities.
 - I-6-2b Emissions from vehicles and diesel generators.

- I-6-3 Identification of any human health impacts from particulate matter or hydrocarbon burning on site.
- I-6-5 A discussion of the standards, guidelines and regulations that will be applied to the PPPP operation in all areas related to air quality.
- I-6-6 A discussion of the technology that will be utilized in PPPP operations to ensure that significant adverse impacts to air quality are not incurred.
- I-6-7 A conceptual outline of the air quality adaptive management plan, which shall include a discussion of any proposed monitoring programs. As well as how monitoring results will be reported to regulators and impacted communities.

A project specific air quality assessment which includes on site air dispersion modelling is essential to assess potential impacts from mine emissions to vegetation and human health and to assure that ambient air quality guidelines are achieved. The purpose of air dispersion modelling is to predict ground-level contaminant concentrations using project specific emission information and a variety of representative meteorological conditions. It provides the basis to identify potential air quality issues and to determine regional 'hot spots'. Modelling predictions also provide useful information to assist in the development of monitoring programs by identifying which contaminants to monitor and where to locate monitoring equipment. Without the model predictions it is very difficult to develop an effective monitoring program or even know if a monitoring program is warranted. Similarly, an air quality adaptive management plan (as stated in the Terms of Reference, Section I-6-7) cannot be developed until the potential impacts are understood.

In Section 7.7.1 of the DAR, Tamerlane base the whole air quality assessment on a comparison of the PPPP to what they deem a similar mining operation (De Beers Snap Lake project) and conclude that because no unacceptable impacts were determined in the assessment for the Snap Lake mine, there will be no impacts from the PPPP. In their response to the technical session topics raised by EC (topic 2), Tamerlane justified using Snap Lake as a surrogate because both projects are underground mines, are expected to have comparable daily production rates and both employ the DMS circuits. However, such a 'coarse' project comparison does not account for the numerous variables which are crucial in determining ground-level contaminant concentrations and potential impacts resulting from mine emissions. Specific examples of variables affecting air quality impacts are listed below:

- Number of emission sources
- Location of emission sources within the project
- Types of emission sources: point, area and mobile
- Point source characteristics: stack height, stack temperature, stack exit velocity
- The amount and type of emissions from each source
- Temporal variation of emissions
- Building downwash – size and location of buildings
- Local meteorology – wind speed, wind direction, temperature, precipitation
- Local terrain and ecosystem

Tamerlane did not provide a detailed comparison of emission characteristics between the 2 projects to demonstrate their comparability and justify the assessment approach. Regardless, the difference in geographic location between the 2 projects is enough to cast doubt on the suitability of using Snap Lake as a surrogate for PPPP. PPPP is located south of Great Slave Lake in the boreal forest while Snap Lake is located north of Great Slave Lake in the barrens. The two projects are located in different climate regimes and different ecosystems and both the local and large scale meteorology are very different. Therefore, the Snap Lake air assessment is unlikely to be representative of potential air quality impacts resulting from the PPPP.

These concerns were brought to the attention of Tamerlane through technical session topics raised by EC and were further discussed at a videoconference on July 5 with Tamerlane, Indian and Northern Affairs Canada (INAC), EC and ENR. There has been no resolution of the air quality issues.

It is our opinion, that to satisfy the MVEIRB Terms of Reference and enable a thorough and diligent review of the potential air quality impacts, Tamerlane must complete a project-specific air quality assessment, which includes on site air dispersion modelling.

Sincerely,

Graham Veale
Air Quality Programs Coordinator
Environment and Natural Resources

Dave Fox
Air Pollution Management Analyst
Environment Canada

cc. Anne Wilson (Environment Canada)
Joel Holder (Environmental Assessment Analyst, Yellowknife, ENR)
Jack Bird (Regional Superintendent, South Slave, ENR)

