



November 2, 2007

Mr. Alistair MacDonald  
Environmental Assessment Officer  
Mackenzie Valley Environmental Impact Review Board  
Box 938, 200 Scotia Centre  
5102-50<sup>th</sup> Avenue  
Yellowknife, NT X1A 2N7

Dear Mr. MacDonald:

**Re: Undertakings from Tamerlane Ventures Inc. Public Hearing in Fort Resolution (EA0607-002)**

The Government of the Northwest Territories would like to respond to follow-up information requirements resulting from the Mackenzie Valley Environmental Impact Review Board's October 16, 2007 Public Hearing held in Fort Resolution. Please find attached our comments to Undertakings #4 and #5 parts a & b.

Should you have any questions or concerns regarding the above, please contact me at 920-6593.

Sincerely

A handwritten signature in blue ink, appearing to read "Joel M. Holder". The signature is fluid and cursive, with a long horizontal stroke at the end.

Joel M. Holder  
Environmental Assessment Analyst  
Environmental Assessment and Monitoring  
Environment and Natural Resources

## **Government of the Northwest Territories – Undertakings Responses: Tamerlane Ventures Inc. - Pine Point Pilot Project**

**4. The Government of the Northwest Territories committed to provide for the Public Record a status update on the implementation of the Deh Cho Boreal Caribou Working Group, which was mitigation measure required by the Review Board in EA03-005.**

### **Response**

The Department of Environment and Natural Resources (ENR) initiated discussions with the Dehcho regarding formation of the Boreal Caribou Working Group in the winter of 2006. Progress on the initiative was limited until ENR was given the opportunity to present the proposal to the Dehcho Leadership on February 24th 2007 in Fort Liard and received support to pursue the initiative with affected communities. ENR has met several times with the Dehcho leaders in recent months and ENR has agreed to retain a consultant to prepare a draft Terms of Reference for the Working Group, in consultation with leaders from impacted communities. The draft Terms of Reference will be completed by the end of November 2007. A meeting between ENR and the leaders of the impacted communities will then be held to finalize the Terms of Reference.

**5 a). The Government of the Northwest Territories committed to provide for the Public Record their analysis of the Site specific Air Quality Assessment conducted by RWDI Air Inc. on behalf of the developer, along with any recommended mitigation measures for air quality.**

### **Response**

Environment and Natural Resources (ENR) has reviewed the report entitled “Air Quality Assessment for the Pine Point Pilot Project” (the RWDI Report) produced by RWDI AIR Inc. and submitted to Tamerlane Ventures Inc. on October 12, 2007. A related letter dated October 22, 2007 from EBA Engineering Consultants Ltd. to Tamerlane Ventures Inc. outlining possible air quality monitoring approaches has also been reviewed.

In conducting reviews of proposed projects, ENR is guided by the Canadian Council of Ministers of the Environment (CCME) principles of ‘Keeping Clean Areas Clean’ and ‘Continuous Improvement’, which emphasize the use of Best Available Technology (BAT) and Best Management Practices (BMP’s) to minimize emissions. As the minimum requirement, projects are expected to meet the NWT Ambient Air Quality Standards (AAQS) and the most stringent of the National Ambient Air Quality Objectives (NAAQO), as applicable. However, there is an expectation that projects will make every reasonable effort to minimize emissions and not simply meet the ‘standards’ – i.e. ‘polluting up to a limit’ should not be the goal.

In general, the RWDI Report was well presented, used acceptable assessment methodology, emissions estimates and appropriate ambient air quality benchmarks,

as well as providing rationale for assumptions and acknowledgment of uncertainties, where necessary. The predicted pollutant concentrations are, therefore, felt to reflect the emissions regime associated with the project in question. There are, however, a few concerns that should be noted, as outlined below.

#### Section 2.0 Assessment Criteria

This Section contains a discussion of the Canada-wide Standards (CWS) for PM<sub>2.5</sub> and indicates that the calculation to determine achievement of the standard is based on the 98<sup>th</sup> percentile concentration for each year, averaged over 3 years. While this is correct, it should be noted that this management approach is used for national reporting purposes. The Government of the Northwest Territories (GNWT) has simply adopted the CWS concentration limit (30mg/m<sup>3</sup>; 24-hour average) as the AAQS and, for the purposes of air quality assessment, the maximum concentration values should be reported.

The selection of the Ontario PM<sub>10</sub> criterion is acceptable for use in the NWT.

#### Section 3.0 Study Area

A more detailed discussion of the project, especially the technology and equipment, along with management practices, proposed for the project would have been useful in the context of demonstrating the proponents commitment to CCME principles and minimizing emissions.

A plan view of the project site showing the various emission sources, their spatial relationships and a delineation of the property boundary or limits of the active mine area (i.e. the 'fenceline') would also have been useful (see discussion at Section 6.4).

#### Section 4.3 Dispersion Meteorology

Bullet 2 in this Section indicates that wind speeds less than 1m/sec in the data set (i.e. 'calms') were set to a value of 1m/sec for modelling purposes. One of the advantages of the CALPUFF model over other dispersion models is its ability to incorporate 'calms' without manipulating the wind data. Since high pollution concentrations are often associated with minimal wind speeds and the 'wind rose' presented in Figure 4-1 indicates that 'calms' occur 12% of the time in the Hay River data set, resetting these hours to 1m/sec may result in underestimation of pollutant concentrations. Discussion with RWDI indicates that a decision was made to run the CALPUFF model in ISC mode for reasons of expediency (the meteorological file set up for ISC mode is quicker but ISC-type meteorological files require the resetting of 'calms' to 1m/sec). In RWDI's opinion the ISC mode model run did not significantly effect the model predictions and ENR understands the time constraints placed on this modelling project.

#### Section 6.4 Predicted Ambient Air Contaminant Concentrations

Figures 6-1 to 6-12 provide a useful visualization of potential emission impacts in a regional context. However, it is not clear what portion, if any, of the identified areal concentrations falls within the project property boundary (or active mine area). The

project property boundary (or 'fenceline') delineates the point beyond which ambient air quality criteria apply. Maps providing greater local detail, especially identifying the property boundaries with the predicted concentration superimposed, would allow a better evaluation of the extent of potential impacts and appropriate application of ambient air quality criteria. Regardless, it is apparent that exceedences of particulate and gaseous pollutant criteria are predicted to occur up to a kilometer from the emission sources.

#### Section 6.4.3 PM<sub>2.5</sub> Concentrations

As discussed earlier in Section 2.0, the use of the CWS reporting calculation is not applicable in the NWT for air quality assessment purposes as it essentially 'screens out' the highest values. The maximum predicted values by the model should have been reported and, consequently, the number of receptors exceeding the standard is likely underreported. However, the underreporting would not significantly change the conclusions of the assessment (i.e. exceedences of the PM<sub>2.5</sub> standard were still predicted).

#### ENR Summary and Recommendations

The predicted exceedences of particulate and gaseous pollutant criteria are a concern and, in most circumstances, would warrant additional mitigation measures beyond those already proposed (and incorporated into the modelling). However, it is recognized that the exceedences are localized and there are a number of uncertainties associated with the predicted concentrations. Therefore, the most reasonable approach appears to be an ambient monitoring program as indicated in the RWDI Report. If the monitoring program results indicate excessive impacts to air quality, then the proponents should be prepared to implement additional mitigation strategies. The modelling results highlight the need for the proponents to ensure diligent application of their currently proposed mitigation strategies, especially those related to particulate emissions (e.g. dust suppression, enclosed crushing operations and general good site management) and these mitigation strategies should be clearly documented.

In designing the ambient air quality monitoring program, it is important that the appropriate monitoring equipment is selected to ensure meaningful data is collected. EBA Engineering Consultants Ltd. (letter dated October 22, 2007 to Tamerlane Ventures Inc.) outlined possible air quality monitoring approaches. However, there are some concerns with EBA's suggestions:

The use of Passive Integrated Samplers for gaseous pollutants is an attractive option, given their lack of power requirements and simplicity of operation. However, due to the typical 1-month exposure period, they are not an appropriate methodology where the focus of the monitoring is on periods of exposure less than 1-month (e.g. monitoring for pollutants with short-term [1-hour, 24-hour] averaging periods) as is the case with this project.

EBA identifies NO<sub>2</sub>, SO<sub>2</sub> and VOC's as pollutants to be monitored. The low SO<sub>2</sub> concentrations predicted by the modelling do not indicate a need for ambient monitoring of this pollutant, while VOC's were not identified or assessed as a pollutant of concern. Conversely, CO was predicted to exceed the applicable NAAQO's but is not identified in the proposed monitoring. In discussion with Maxxam Analytics Inc. – a company experienced in design and analysis of passive monitoring programs – ENR is of the understanding that monitoring of NO<sub>2</sub> is not possible in colder regions such as the NWT as the sampling media requires a minimum average temperature of around 18°C to be effective.

The use of battery powered particulate samplers (e.g. the suggested “MiniVol” sampler) offers similar advantages as the passive monitoring in that no fixed power source is required. However, there will likely be operational issues related to cold temperatures (battery failure, internal electronics malfunction) if the samplers are operated during the winter months. It should be noted that this sampling methodology is not an ‘approved’ reference method in the United States or Canada which means that it is not appropriate for regulatory or compliance monitoring. Interestingly, the Airmetrics website <http://www.airmetrics.com/products/minivol/index.html> indicates that the sampler can be used for CO monitoring with an optional Tedlar bag attachment.

ENR notes that there is no consideration given in the EBA letter to monitoring of dustfall as recommended in the RWDI Report. Although not assessed in the modelling, ENR supports dustfall monitoring as deposition of particulate is likely a concern as indicated by the predicted high concentrations of TSP. Metals (e.g. lead and zinc) associated with the particulate are an additional concern and particulate samples should also be analysed for metals content.

Although the RWDI Report indicated that construction phase emissions are less than those likely during the operational phase, modelling of operational phase emissions predicted high concentrations of some pollutants and exceedences of ambient air quality criteria. The modelling results do provide a level of comfort that construction phase emissions, though less than operation phase emissions, will not result in exceedences of ambient air quality criteria. Therefore ambient air quality monitoring should be conducted during both construction and operational phases of the project.

The final design and configuration of the ambient air quality monitoring program for the project will require further discussion beyond which the time constraints placed on this review can accommodate. The proponent should consider the comments offered by ENR above and review the possible monitoring options. ENR is available for further consultation with the proponent and the appropriate regulatory authority.

The on-going validity of the pollutant predictions and impact assessment are dependent on the modelled project emissions regime remaining representative of

actual facility conditions. If the quality or quantity of the emissions sources change, then the project may need to be reassessed. Therefore, there is a need to implement an emissions tracking program for the project to ensure that emissions sources remain at or below those modelled. Emissions should also be tracked during the construction phase to ensure they remain at or below those provided in the RWDI Report and used as justification for modelling operational emissions only.

To ensure the proponents pollution prevention and mitigation strategies, ambient air quality monitoring program and emissions tracking program are documented and implemented, ENR provides the following overall recommendation:

The proponent should develop and implement an Air Quality and Emissions Management Plan (AQEMP). The AQEMP should be approved by the appropriate regulatory authority prior to project construction and include:

- A summary of the pollution prevention and emission mitigation strategies, BAT and BMP's employed at the Pine Point Pilot Project;
- A summary of additional mitigation strategies that may be employed if the ambient air quality monitoring program indicates a need;
- A plan of the project facility showing emission sources and monitoring locations and a delineation of the property boundary or active mine area;
- An emission tracking program including annual estimates of common air contaminants – TSP, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub> and SO<sub>2</sub> – as well as greenhouse gases – CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O – reported as CO<sub>2</sub>E;
- An ambient air quality monitoring program – the design and configuration of which should be determined prior to project construction.

An annual report detailing the results of the emissions tracking and ambient air quality monitoring program should be submitted in a format acceptable to the appropriate regulatory authority. ENR is available to assist the proponent and the appropriate regulatory authority in development of the AQEMP. Given the relatively short-term operation of the project, a review period for the AQEMP will likely not be necessary unless a significant change in the emission regime occurs. However, the proponent should be aware that if the project progresses beyond the proposed 'pilot' scenario, an additional air quality assessment would be required unless it can be demonstrated that the emissions regime is unchanged.

**5 b). The Government of the Northwest Territories committed to provide any information on the current status (accessibility, programs, plans) of child care in the South Slave region, particularly to address concerns raised by the people of fort Resolution about inadequate child care spaces for potential mine workers. If adverse impacts are identified in relation to the proposed development, the GNWT should identify appropriate mitigation measures to deal with child care issues.**

## **Response**

Early childhood programs are operated by local community members or organizations, these groups are responsible for the program as a business and the delivery of services. The GNWT's Early Childhood Program provides support to community groups in the development of quality and age appropriate programs that meet local needs. Regional Early Childhood Consultants work directly with community groups who are interested in operating early childhood programs, including childcare facilities.

The GNWT Income Security Programs are structured to provide adequate financial supports in combination with other program supports and services necessary to achieve an outcome that enables self-reliance. The client structure recognizes individual client needs and outcomes and uses a case management approach to address client specific needs, such as childcare.

## **Early Childhood Program**

The Early Childhood Program administers contributions to early childhood programs, contributes funding to assist with the start-up and operation of childcare centres and family day homes, and contributes funding to non-profit programs to assist with rent or mortgage expenses.

Licensed childcare programs regularly receive program development support including newsletters that contain a variety of child development and programming ideas.

## **Child Care Subsidy Program**

The Income Security Child Care Subsidy Program is designed to provide financial support to lower-income NWT families or students to assist them with their childcare expenses so that they can participate in the labour force, or pursue educational and training opportunities in the NWT.

Child Care Subsidy Program eligibility is based on age of the child, hours of care, parental work or study requirements, attendance of the child and parent in work or school, and financial need.

## **NWT Child Benefit**

The NWT Child Benefit is part of a National initiative between provincial/territorial and federal government. Financial support is provided to parents with dependent children under 18 years of age who qualify for the federal income tested Canada Child Tax Benefit. This program uses National Child Benefit reinvestment funds and Territorial Workers Supplement funding approved by the GNWT.

## **Integrated Early Childhood Supports: Aurora College / Healthy Children Initiative**

A key to providing quality childcare is obtaining and retaining qualified staff. The Early Childhood Program and the Healthy Children Initiative also provide funding to

Aurora College for the distance delivery of the Early Childhood Education Certificate Program.

Another important aspect of Early Childhood support is the Healthy Children Initiative (HCI) that provides a comprehensive approach to the design and delivery of programs and services for children zero to six years of age and their families. The departments of Education, Culture and Employment and Health and Social Services manage the HCI jointly.

### **Child Care Program and Service Support**

For this undertaking, information on childcare programs and services receiving support from the GNWT was collected from the Local Study Area communities in the South Slave Region.

Hay River has five licensed full-time family day homes and two licensed nursery school programs. Hay River Reserve has one full-time child care program and one part-time nursery school program. Fort Smith has one licensed full-time child care program, three part-time nursery school programs, one daily after school program, and four licensed full-time family day homes. In Fort Resolution, currently one program is licensed and operable for part-time nursery school childcare spaces. The program in Fort Resolution is looking to expand their organization to incorporate full time day care spaces.

### **Recent Program Changes**

The Department of Education, Culture and Employment examined the Child Care Subsidy Program in light of the needs of students attending full-time studies in the NWT while receiving NWT Student Financial Assistance. As a result of this examination, the Department announced the implementation of a new set of Regulations in August 2007 that will provide assistance to full-time students in need who were previously not eligible in the NWT.

Concerns have been expressed about the high rental costs that some early childhood programs incur. In response, the rental/mortgage contribution program was announced in May 2007.

The GNWT continues its effort to provide comprehensive program and service support to address the needs of Early Childhood Programs operated by local community members or organizations, and the needs of NWT families, including those of Fort Resolution and the South Slave Region.

### **Tamerlane Commitment to address Child Care Concerns**

In the Developers Assessment Report, Tamerlane makes a commitment to address childcare concerns. Tamerlane states that it will “provide support consistent with company policy to employees and their families in dealing with personal health and well-being issues, including possible concerns related to child care” (DAR, p.377). Tamerlane further states it “believes that child care-related concerns for specific

employees who may be facing this problem can be effectively addressed” (DAR, p.377).