



Mackenzie Valley
Environmental Impact
Review Board

MACKENZIE VALLEY ENVIRONMENTAL IMPACT REVIEW BOARD

**EA0607-002 Tamerlane Ventures
Inc.'s Pine Point Pilot Project (PPPP)**

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**Second Round of Information
Requests from
MVEIRB and Parties**

Issued on August 13, 2007

IR Number: IR0607-002-35
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.0 – Development Description
Terms of Reference Section: D - Development Description

Preamble

Since the issuance of the Developer’s Assessment Report (DAR) on May 2, 2007, a variety of components of the proposed development have been altered. This makes certain sections of the DAR outdated. Clarification on what exactly is being proposed is required so that all parties can make an educated examination of potential impacts.

The response to this IR should include both a written discussion and a summary table for reviewers to examine changes to the proposed development. In addition, the developer should make all efforts to update the parties and the potentially affected communities with this new development description.

Requests

1. In a table:
 - Please identify all the major development components originally discussed in the DAR and the sections where they were discussed.
 - For each major development component, identify which sections in the DAR initially described the component and its potential impacts on the environment.
 - For any development component that has been altered since the DAR was released, identify the alteration proposed.
2. For any development component that has been altered since the DAR was released, describe in detail the proposed alteration and its potential impacts, why the decision was made to alter the development component, and identify which supplemental documentation has been issued by the developer describing the alterations. This discussion must include at minimum the following:
 - Power generation/distribution system
 - Ore beneficiation system
 - Ore offloading/transfer facility location
 - Water treatment and disposal system
 - Sewage disposal methods
3. Provide for the public record a revised Summary (pages i through x in the DAR) that reflects the currently proposed development description.
4. Identify the developer’s plans for communicating updated descriptions of the development, particularly to potentially affected communities. This should include a

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discussion of what different media will be used to update communities (meetings, posters, audio, translations, etc.).

IR Number: IR0607-002-36
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3.6
Terms of Reference Section: C-11 (Power infrastructure); E-3 (Alternative Power Generation Methods)

Preamble

In the DAR (page 160), the developer identified that a solely on-site, diesel-power alternative is the best option for power generation. In the interim, the developer has identified an alternative of tapping into the existing hydroelectric power grid (see submission from Tamerlane of July 12, 2007). Some information was provided by the developer on the logistics of using the existing power grid and proposed mitigations, but more information is required.

Requests

1. Confirm that the developer will be utilizing power accessed from Northland Utilities existing grid as the primary power source for this development, and whether the previously proposed diesel generation plant still will be utilized, its size and role in the operations.
2. Identify the likely mixture of diesel and hydro-electric power usage during the construction and operations phases of the PPPP, and different air quality scenarios associated with usage of diesel vs. hydro-electric power.
3. Indicate on a map the committed to routing of power lines onto the site, and any mitigation against impacts on wildlife.

IR Number: IR0607-002-37
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.7 – Ancillary Developments
Terms of Reference Section: D-3 - Ore Transfer/Loadout Facility)

Preamble

The developer has now committed to locating their ore transfer facility in a location that differs from that noted in the DAR. The developer has provided map images of the location itself, a schematic drawing of the loadout facility with required infrastructure identified, and the location on the Flood Risk Map of Hay River. Unfortunately, these images were either incomplete when submitted or were not readable in digital format.

Requests

1. Provide updated schematics of the ore transfer/loadout facility, including required infrastructure layout and exact location.
2. Provide a legible hard copy of the location of the ore transfer/loadout facility on the Flood Risk Map of Hay River, to the Review Board.

IR Number: IR0607-002-38
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 5.6 – Site Logistics
Terms of Reference Section: D-24 (Worker Housing Situations and Transportation to Work)

Preamble

Page 368 of the DAR states: “The communities in the Pine Point region are all located within relatively easy driving distance from the PPPP site”. More specific information and analysis of this assertion is required, given that long-distance commuting of shift workers may have implications for road safety.

The developer has committed to providing bus transport from Hay River and Fort Resolution to all interested employees. Transportation and/or housing options for workers from the more distant community of Fort Smith are not discussed in the DAR, despite the fact that the Ellis Consulting report (page 370 of the DAR) predicts potential for both local and in-migrant workers to reside in Fort Smith during the PPPP.

The developer has identified a work schedule in its response to IR#11 that may be more attractive to Fort Smith workers commuting only once or twice a week from Fort Smith, and finding housing in Hay River. What is not addressed is the potential risks for “end of shift” long distance commuters driving straight home after a shift to Fort Smith. While this obviously includes an element of “personal choice”, the developer should show that it has considered ways of minimizing long-distance driving after shift work.

Requests

Provide the following:

1. The developer’s strategy for temporarily housing (or transporting) workers from Fort Smith during their work week (including a rationale for why no company transportation is currently envisioned from Fort Smith, given its identified likelihood as a labour pool).
2. The developer’s policies, plans, or strategy for minimizing the number of employees driving home to Fort Smith immediately after their shifts are complete.

IR Number: IR0607-002-39
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.3
Terms of Reference Section: H – 1 (Direct and Indirect Employment – Employee Transition and Sustainable Development)

Preamble

The Terms of Reference (ToR) asked in several places for the developer to consider the scenario where the mine is closed without further activity after the 2-3 year PPPP. Of particular interest were issues related to worker transition, and the contribution of the PPPP to sustainable development.

In IR#16, the Review Board identified that

“relatively short-lived developments of this size have on occasion created short-lived economic “bubbles” that can have adverse impacts on society and economy if post-development transition planning is not considered. The developer needs to be aware of and discuss these potential issues.”

The developer in their response to IR#16 chose only to identify documents that discuss these potential issues, rather than examine them and use them to provide insight into how the PPPP might avoid “boom-bust effects”. This was not an adequate response.

Request

1. Identify *and analyze* relevant case study material describing the presence or absence of “boom-bust effects” from short-lived, relatively high employing developments that have occurred in the Northwest Territories or other jurisdictions. This case study material (which must include the documents identified in the developer’s response to IR#16) should be held up against the likely socio-economic situation that will occur around the PPPP development, and “lessons learned” identified.

IR Number: IR0607-002-40
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.1.4 – Human Resources
Terms of Reference Section: H-1 Economy (Direct and Indirect Employment: 2 – contractor commitments)

Preamble

The ToR asked for the developer to “*describe the relationship between Tamerlane and its contractors and subcontractors and details as to how Tamerlane will ensure that the contractors and subcontractors will be responsible for, and honour commitments made by, Tamerlane...*”.

On page 357 of the DAR the developer states that “all PPPP contractors will also be required to adhere to Tamerlane’s goal of maximizing Northern and Aboriginal employment”.

On page 359 of the DAR, it is stated that “Tamerlane will work closely with all contractors to ensure that their business policies and procedures are aligned with those of the company”.

Current references in the DAR are unclear in how Tamerlane will ensure compliance from contractors. More clarity is required.

Request

1. Please describe how Tamerlane will ensure and enforce contractors’ and subcontractors’ compliance with Tamerlane’s committed to business policies/procedures and goal of maximizing Northern and Aboriginal employment.

IR Number: IR0607-002-41
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.1.4 - Human Resources
Terms of Reference Section: H – 1 Economy (Labour Market Barriers)

Preamble

In the ToR, the Review Board requested that the developer “*provide information on any identified barriers to employment, advancement and retention for Northern workers (with particular emphasis on residents of smaller potentially-affected communities and aboriginals), including minimum skill requirements, hiring policies related to criminal records or substance addictions, availability of willing employees, and lack of training opportunities for community members*”.

Training opportunities are examined elsewhere in the DAR. Nowhere in the DAR are the other issues substantially addressed. The developer has described the conceptual outline for a Human Resources Management Plan, but has also stated that “following standard business practices, Tamerlane does not intend to distribute the policies and procedures as a public document” (page 356). This makes it difficult to assess whether the developer is aware of current hurdles to engaging, in particular, aboriginal and small community residents, in the labour market.

The Review Board understands and appreciates that the developer may have some concerns about highlighting issues that may be sensitive to communities. However, in order to understand and overcome current barriers that keep people from fully engaging, a better discussion of these issues is required.

Requests

Provide:

1. A discussion on the developer’s hiring policies in relation to criminal records;
2. A discussion on the developer’s policies in relation to drug and alcohol testing, abuse, and treatment;
3. A discussion on the developer’s policies on required educational attainment for non-skilled labour sources.

IR Number: IR0607-002-42
Source: MVEIRB
To: Indian and Northern Affairs Canada
DAR Section: 1.4 – Corporate Governance; 9.0 – Closure and Reclamation
Terms of Reference Section: N/A - Closure and Reclamation Policy in the NWT

Preamble

Previous failures of mines in the Northwest Territories have created a legacy of public concern related to questions of who is responsible for care, maintenance, closure and reclamation in the case of unforeseen closure.

Request

1. Identify provisions in the current reclamation bonding policy that protects the people of the Mackenzie Valley from cases where a sudden and unforeseen closure occurs (whether that be due to lower ore values, economic or technical failure of a mine, or fiscal insolvency of the parent corporation).

IR Number: IR0607-002-43
Source: MVEIRB
To: Katlodeeche First Nation
DAR Section: N/A
Terms of Reference Section: N/A - Traditional Knowledge

Preamble

The Katlodeeche First Nation (KFN) submitted a Traditional Knowledge Study to the Review Board, which was placed on the Public Registry on August 8, 2007. It contains dozens of recommendations, some requiring commitments by the developer and some requiring actions by other parties. The KFN cover letter that accompanied the Traditional Knowledge Study states that *“With respect to the timing of the study, it was initiated while negotiations between [the KFN] and Tamerlane were in its infancy stages, therefore the recommendations contained in the study were met or exceeded by Tamerlane”* in the interim. Clarification is required on which, if any, of the recommendations in the Traditional Knowledge Study the KFN feel need to be implemented.

In addition, page 11 of the KFN Traditional Knowledge Study refers to a “Land Use and Occupancy Mapping Research Study” that was also conducted with hunters, trappers and fishers of the KFN. No results are provided, other than a conclusion that the Dene of the Hay River Reserve use the area.

Requests

1. Identify which of the recommendations in the KFN Traditional Knowledge Study the KFN feels need to be implemented in order for this proposed development to avoid causing significant adverse impacts on the environment or significant public concern.
2. Identify whether the KFN will be submitting for the Review Board’s consideration, the “Land Use and Occupancy Mapping Research Study” referred to in the Traditional Knowledge Study.

IR Number: IR0607-002-44
Source: Government of the Northwest Territories
To: Tamerlane Ventures Inc.
DAR Section: 8.1 Economy, 8.1.1 Direct and Indirect Employment, 8.1.1.2 Employment, 8.1.1.3 Labour Income, 8.1.1.4 Human Resources, 8.2.4.1 Community Family and Individual Wellbeing
ToR Section: H – 1 Economy (Direct and Indirect Employment & Distribution of Beneficial and Adverse Economic Impacts)

Preamble

The DAR, on page 340, states “*Tamerlane is committed to providing training, employment and business opportunities associated with the development of the PPPP consistent with the scale and duration of the relatively short-term initial project. Tamerlane’s commitment to training will include site-based on-the-job training and the support of a number of apprenticeships.*”

On page 357, the DAR states “*...Tamerlane program will initially be designed to fill apprenticeship and technological occupations. In addition, all PPPP contractors will also be required to adhere to Tamerlane’s goal of maximizing Northern and Aboriginal employment.*”

IR0607-002-14 Response, page 46, states “*Tamerlane is exploring several programs that may assist with the Company’s training needs.*” Tamerlane then identifies several programs administered by the Government of the Northwest Territories, such as:

- *Apprenticeship – Subsidized Wages*
- *Training on the Job – Subsidized Wages*
- *Training Plan Development*
- *Wage Subsidy Programs*
- *Employment Assistance Programs*

On page 399, it states “*As noted already, Tamerlane is committed to training during the short duration of the project. The company is optimistic that its partnership with Aboriginal Skills and Employment Partnership (ASEP) will encourage graduating teens to pursue employment opportunities associated with PPPP.*”

On page 340, it states “*Tamerlane is committed to employing northern and Aboriginal residents to the extent possible during the relatively short-term period of the initial PPPP*”.

On page 354, it states “*If the PPPP does not progress to full-scale mining, the project will be terminated. Tamerlane cannot commit to long-term employee transition initiatives and support for a short-term project.*”

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Developing transitional skills and expanding the skill capacities of Aboriginal and Northern Residents is critical to the success of many developers when trying to maximize labour market benefits throughout the Northwest Territories.

Further information with respect to the statements above and questions outlined below on Tamerlane's commitment for site-based on-the-job training and the support of a number of apprenticeships will help inform interested Parties or Individuals in preparation for potential training and employment opportunities.

Also, to help ensure a coordinated and collaborative approach to skill development in the North, the Government of the Northwest Territories (GNWT) will need to know the extent that Tamerlane plans to offset training and employment initiatives with GNWT programs and support.

Requests

1. Consistent with the scale and duration of the Tamerlane Pine Point Pilot Project and with reference to DAR Table 8.1-5, how many and what type of apprenticeship or technological occupation opportunities have been identified for Aboriginal and northern residents?
 - a. How many apprenticeship and/or technological occupation positions are intended for the construction phase of this project?
 - b. How many apprenticeship and/or technological occupation positions are intended for the operation phase of this project?
 - c. What are the Tamerlane's recruitment strategies for these training and employment opportunities?

2. In reference to DAR 8.1.1.4 Human Resources and IR0607-002-14 Response, what are Tamerlane's expectations of government with respect to available programs and support?
 - a. Specifically, to what extent is Tamerlane's training plan contingent on the accessibility of GNWT programs and support?
 - b. Does Tamerlane plan to utilize Aurora College for any technical training or adult education?
 - c. Please clarify, has Tamerlane established a partnership with Aboriginal Skills and Employment Partnerships (ASEP) as stated in the DAR Section 8.2.4.1 (p.399)?

IR Number: IR0607-002-45
Source: Government of the Northwest Territories (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: N/A
ToR Section: D-11; I-1 (Water Management)

Preamble

In a letter submitted to MVEIRB on July 20, 2007, Tamerlane committed to utilizing injection wells for the purpose of its water disposal versus the previously proposed infiltration basin.

If any part of the previously proposed infiltration basin is still planned to be used, discussions between the developer and the Department of Transportation of the GNWT should continue.

Requests

1. What contingency plan(s) does Tamerlane now propose to dispose of water should they encounter problems with the deep well injection system?
2. Does any part of a contingency plan(s) require the use of the adjacent DOT gravel quarry? If so, please explain and provide maps and details of the exact location proposed and the type of holding area being planned and under what contingencies it would be utilized.

IR Number: IR0607-002-46
Source: Water Resources, INAC
To: Tamerlane Ventures Inc.
DAR Section: 7.2
Terms of Reference Section: I-1-4 (Predicted inflows of water to the mine)

Preamble

During the technical sessions in Hay River on July 17th and 18th, 2007, it was noted that the rate of basal inflow presented in the DAR may be a significant underestimation. The basis for Tamerlane’s estimation of the basal inflow is not clear.

This information is critical for characterization of the discharge water and design of the injection well. Updated estimates of basal inflow based on a more thorough and critical analysis of the available data have not yet been provided for review.

Request

1. Provide new calculations and estimates for basal inflow to the mine. Given the limited hydrogeologic information available, provide a range that considers best and worst case scenarios.

IR Number: IR0607-002-47
Source: Water Resources, INAC (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: N/A
Terms of Reference Section: D-17; D-19; L-3; L-6

Preamble

For the purposes of water disposal, Tamerlane has recently committed to the use of an injection well rather than an infiltration basin (letter to MVEIRB of July 20,2007). This alteration eliminates a variety of concerns related to the operation and impact of the infiltration basin; however, the developer still needs to provide adequate information about this method of water disposal.

In addition, given the fact that the injection well option represents a completely new element of the project design, efforts must be made by the developer to provide both technical and plain language answers to each of the following requests.

Requests

1. Describe in words and images the location, installation, and operation of the injection well, with examples from other uses of this technology. Provide design information on the injection system, sufficient to establish that the proposal is feasible.
2. Describe the environmental impact, if any, of the operation of the injection well with respect to changed groundwater quality and levels, and with respect to availability of water resources for other uses during and after operation. The assessment should address all contaminants that are expected to be higher in the combined discharge than in the groundwater entering the mine, including metals and other elements that contribute to total dissolved solids.
3. Will a settling pond be used to remove materials that could contribute to plugging of the well? If so, provide details of pond location, construction and operation.
4. Describe how the fate and potential effects of the injected water will be monitored, with particular emphasis on how overall ground water quality changes across a variety of components will be monitored and at what distances from the injection well location. In addition, describe the levels of dilution likely to occur (i.e., what percentage addition to the local groundwater the injected mine water will represent and how quickly any differences from the surrounding groundwater will be diluted out), and at what point (in time and space) the injected mine water might reach surface ground or water levels.

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5. Clearly outline contingency measures for scenarios (including “worst-case” even if probability is low) that may arise during operation of the injection well. In particular, address storage, treatment, or other options that will be available on-site in the event that the discharge water does not meet the water quality criteria outlined in the water license, and options that will be available to address inadequate discharge capacity in the event of either greater than expected mine water inflow, or of failure or reduction in injection capacity of the well. Include in this analysis potential causes of failure (e.g., clogging of screens) and what mitigation will be in place to avoid them.
6. Provide a new “birdseye” view conceptual image of the entire PPPP operation with the injection well infrastructure included, and compare this to the previously proposed development footprint and infrastructure requirements.

IR Number: IR0607-002-48
Source: Water Resources, INAC (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: 4.3.7
Terms of Reference Section: I-1-5 (i); L-3 (c); L-6

Preamble

For the purposes of water disposal, Tamerlane has committed to the use of an injection well rather than an infiltration basin. It is uncertain whether treated sewage effluent can be mixed with process water for disposal as per the original DAR (NOTE FROM MVEIRB – IT IS CURRENTLY THE STATED OPINION OF INDIAN AND NORTHERN AFFAIRS CANADA THAT THIS MIXING PROCESS WOULD BE INAPPROPRIATE IN AN INJECTION WELL).

Discussion is required on which treated sewage disposal options are appropriate – e.g., mixed in with injection well water or use of a septic field. As yet, no alternative method of disposal has been put forth for the treated sewage effluent by the developer.

Requests

1. Identify all the alternative treated sewage disposal options the developer has considered, and describe the logistical and environmental benefits and problems associated with each.
2. Identify the disposal method that will be used for the treated sewage effluent, including details of the method and monitoring, and clearly outlining contingency measures designed to address “worst-case” scenarios (eg. spills, failure of effluent to meet water quality criteria set out in the water license, treatment plant shut-down, etc.).

IR Number: IR0607-002-49
Source: Water Resources, INAC (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: 7.2
Terms of Reference Section: I-1-1

Preamble

In order to develop water quality criteria as part of the water licensing procedure, the water to be discharged to the injection well must be characterized. This information was not provided in the DAR and has not yet been provided in subsequent meetings or correspondence.

It is understood that the developer is undertaking to characterize “end-of-pipe” water quality through a “Lock Cycle Test” procedure, for which a final report has not yet been received. Information on likely “end-of-pipe” water quality is required to replace the outdated information from DAR Table 4.6-1 and the response to IR#19.

Water quality estimates need to take into consideration both the total and relative amounts of different constituents in the mine water reporting to the injection well disposal system, given different mine inflow scenarios and the addition (if it is confirmed) of a froth flotation system to supplement the previously proposed Dense Media Separation system. The use of a simple dilution analysis may be appropriate to demonstrate likely changes in groundwater quality for all constituents within a specified distance from the injection well.

Requests

1. Provide estimates of water quality characteristics for “end-of-pipe” water (for discharge to the injection well). Quality may be estimated in ranges, but must at a minimum include the expected pH and concentrations of TDS, sulphate, nitrate, ammonia, metals, cyanide, and any other constituents that can constitute a detrimental impact on the environment.
2. Please show how these numbers were determined, taking care to consider water losses and effects of combined inputs. Provide justification for any assumptions that are made. Note how water quality characteristics of the effluent will differ if the rate of basal inflow varies significantly from the estimate in the DAR.
3. If additional components or reagents could be added to the DMS circuit, describe these additions and indicate what effect they will or might have on the quality of the discharge water.
4. Given that this is a new system for water disposal, replacing the one proposed in the DAR, how will the water quality be monitored prior to injection?

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IR Number: IR0607-002-50
Source: Water Resources, INAC
To: Tamerlane Ventures Inc.
DAR Section: 4.2.2.7 and 4.3.11; Appendix F
Terms of Reference Section: D-13; L-3 (a)

Preamble

On page 162 of the DAR, proposed on-site fuel storage is described, including details of capacity and secondary containment; however, a similar level of detail is not provided for the underground storage tank (supplied from the surface by piping) mentioned on page 148.

Requests

1. Provide details regarding this underground storage tank and associated piping, including capacity, contents, and containment.
2. Underground spills from this tank have the potential to contaminate groundwater—a scenario that has not been addressed in the Spill Contingency Plan. Outline contingency measures for underground spills.

IR Number: IR0607-002-51
Source: Water Resources, INAC
To: Tamerlane Ventures Inc.
DAR Section: 9.0-9.6
Terms of Reference Section: J-2 (d, f, g); J-5

Preamble

Even in the preliminary stage, closure and reclamation planning is viewed not just as a written commitment to use best practices at the time of closure, but as an integral part of the mine design. The Mine Site Closure and Reclamation Guidelines for the NWT have the stated intention of providing “guidance on how to develop, operate, and close mine sites in a manner that promotes effective reclamation.” The level of detail presented in the Closure and Reclamation Plan (CRP) of the DAR does not reflect this view.

A CRP should take into account planned and potential future use of the area. The reclamation goals stated in Section 9.1 (page 413) of the DAR do indicate that future productivity and future users will be considered; however, beyond this, there is no further mention of future use in the CRP, so it is not clear that future use was truly integrated into the CRP.

Additionally, an essential component of the CRP is the development of specific and measurable closure criteria that will be used to evaluate the progress and completion of closure and reclamation activities. These criteria also help to create a realistic cost estimate for closure and reclamation activities.

Further detail was provided on some reclamation issues during the technical sessions on July 17th and 18th, 2007; however, there is currently no written record of these details for future reference.

Requests

1. Describe the reclamation of the piping associated with the freeze curtain and indicate how the brine solution will be disposed of.
2. Page 418 of the DAR states that fuel and lube tanks and piping will be washed and cleaned prior to dismantling. Describe how the contaminated wash-water will be treated and disposed off.
3. Page 418 of the DAR also states that hazardous waste materials may be treated on site. Describe what techniques will be available for treating hazardous waste on site.
4. Describe how the injection well will be addressed as part of the closure and reclamation procedures.
5. If a settling pond will be used, describe how it will be addressed as part of the closure and reclamation procedures.

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6. Describe post-closure monitoring in greater detail than that currently available in the DAR. Include cost estimates for post-closure monitoring, since it has not been addressed as part of the current reclamation total.
7. Explain how planned or potential future use is being incorporated into closure and reclamation planning.
8. Consider each objective set out in Section 9.2 and describe the measures that will be used to determine when each objective has been met, bearing in mind that multiple criteria may be necessary to satisfy an objective and that one criterion may satisfy more than one objective.

In this case, closure criteria should include, but not be limited to, the following:

- a) Infrastructure removal: Based on the current CRP, this component will be complete when all infrastructure has been removed and the foundations have been removed or buried.
- b) Re-vegetation: At what point will the vegetative community be considered to be successfully re-established and self-sufficient? For example, the predicted growth rate of seedlings (presented on page 415 of the DAR) is a specific measure that might be used in combination with community composition to evaluate success after a given period of time.
- c) Groundwater monitoring: It is expected that groundwater monitoring will be on-going over the course of the project to determine the fate and effect of the injected water. After closure, how will the physical and chemical stability of the aquifer be conclusively demonstrated?

Additionally, for each criterion, describe the contingency actions that will be taken if the criterion is not satisfied within the anticipated time-frame.

IR Number: IR0607-002-52
Source: Water Resources, INAC (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: 4.1.3, 11.3, Appendix C-1
Terms of Reference Section: D-6 (Freeze Wall Infrastructure); D-8 (Hazardous Materials)

Preamble

The DAR sets out the freezing proposal, and mitigation responses to emergencies in its operation. However no consideration is given in the DAR to the issue of the impact of release of some or all of the refrigerant fluid to the environment due to an accidental rupture of the main brine circulation lines, or the in-ground freezing lines.

Requests

1. Develop, propose and describe design measures to ensure that the refrigeration fluid is at all times contained within the distribution system, even in the event of total rupture of the brine distribution system. Tamerlane should provide information that demonstrates that the containment system(s) have sufficient capacity for complete rupture without release of any refrigerant to the environment. In this analysis, for example, identify whether the lined drainage ditch extends around the entire freeze ring or is limited to the main manifold section only.
2. Provide information and evaluation that indicates the quantity of brine that might be lost due to an underground failure of the mined system (e.g., loss of brine from one of the “down pipes”), and the likely area of influence on local groundwater quality from such an occurrence. Describe response measures that would be proposed to prevent this brine creating an unacceptable environmental impact.

IR Number: IR0607-002-53
Source: Water Resources, INAC (revised by the MVEIRB)
To: Tamerlane Ventures Inc.
DAR Section: 4.3
Terms of Reference Section: D-15 – Ore Beneficiation System

Preamble

The DAR presents a dense media separation (DMS) technology for ore beneficiation. During the technical sessions in Hay River on July 17th and 18th, 2007. Tamerlane indicated that an additional froth flotation step may be added to the beneficiation and ore separation process. Information about the nature and effect on water quality and the environment of this processing step must be presented and considered.

Initial results from the “Lock Cycle Test” from the flotation circuit (see submissions “Data from Leach Tests” and “Data on Water Discharge Levels” submitted by the developer to the Public Record on July 25, 2007) seem to indicate that some elemental concentration may be higher than those presented in the DAR DMS-circuit tests. Clarification is required.

Request

1. Confirm for the public record whether this additional froth flotation step is the final proposed technology that needs to be assessed.
2. Provide details of the expected flotation process, if used. Specifically, provide details of flotation agent(s) that will be used, rate of use, chemical composition of flotation agents, storage and transportation of these chemicals, contingency plans for loss and/or spillage of reagents, and expected impact of the additional process step on the quality of project discharge water.
3. Compare the likely “end of process” water concentrations of all major constituents, between the “DMS-only” system previously proposed, and the new system being proposed.
4. Provide an affirmative statement that no hazardous or environmentally harmful constituents will be used in any part of the flotation process, including but not limited to cyanide.
5. Provide information that revises the power requirements of the processing system, and the environmental impacts of providing that power.

IR Number: IR0607-002-54
Source: Environment Canada (EC),
Department of Environment and Natural Resources, GNWT (ENR)
To: Tamerlane Ventures Inc.
DAR Section: 7.7.1
Term of Reference Sections: I-3 (Vegetation); I-6 (Air Quality and Climate)

Preamble:

As stated in the joint EC-ENR letter to the Mackenzie Valley Environmental Impact Review Board (MVEIRB), dated August 9, 2007, EC and 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 listed above. The requested assessment is standard protocol for projects of this type and is routinely provided by other project proponents.

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

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- 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 two projects to demonstrate their comparability and justify the assessment approach. Regardless, the difference in geographic location between the two 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.

It is our understanding that a decision on electrical power source (diesel generators versus hydro power) for the mine has not been finalized. We advise Tamerlane to use a conservative model emission scenario which assumes that all of the PPPP electrical needs will be provided by diesel generators.

Request:

1. EC and ENR request that Tamerlane complete a project specific air quality assessment including air dispersion modelling for PPPP. The assessment process should include:
 - A pre-assessment consultation with EC and ENR to discuss the assessment and modelling approach
 - Submission of a draft air quality assessment proposal to EC and ENR for review before work on the air quality assessment is started
 - Submission of the completed air quality assessment in draft to EC and ENR for review prior to submission to the MVEIRB for inclusion in the EA decision.