



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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**First Round Information Requests from
the MVEIRB to Parties**

Issued on May 15, 2007

List of Acronyms

DAR – Developer’s Assessment Report
DMS – Dense Media Separation
EA – Environmental Assessment
IR – Information Request
GHG – Greenhouse gases
GNWT – Government of the Northwest Territories
INAC – Indian and Northern Affairs Canada
KFN – Katlodeeche First Nation
MVEIRB – Mackenzie Valley Environmental Impact Review Board
MVLWB – Mackenzie Valley Land & Water Board
NWT – Northwest Territories
PPPP – Pine Point Pilot Project
RBC - Rotating Biological Contactor
ToR – Terms of Reference

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-01
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: n/a
Terms of Reference Section: A-2

Preamble

The Terms of Reference (ToR - Section A-2) ask the developer to “provide an audio translation of the plain language summary in the South Slavey and Chipewyan languages”.

Request

1. Provide the requested audio translation, preferably in an MP3 format, to the Review Board, for the Public Record.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-02
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 2.6.2
Terms of Reference Section: (C-2: Description of the Existing Environment – Water Flow Directions)

Preamble

Current graphic depictions of water flow regimes need to be supplemented. Parties need to be able to determine the direction surface water and groundwater from either the R-190 area or the infiltration basin will be flowing, in order to make accurate predictions of areas potentially impacted by changes to water quality and quantity caused by the development.

Requests

1. Provide a contour map(s) of the local and regional study area, which should include the predicted direction of surface water flows.
2. Provide a map with estimates of groundwater flow directions away from the R-190 works and from the infiltration basin.
3. Note any expected differences between surface gradient and shallow groundwater flow directions.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-03
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 2.6; 2.8; 2.9
Terms of Reference Section: C-2; C-3 (Description of the Existing Environment – Water Quality, Quantity and Flow Regimes: R-190 site)

Preamble

Section C-3 of the ToR asked for “existing and historic data on surface and ground water quality and quantity and flow regimes”. More information on the current status of the R-190 site based on these parameters is required.

Current groundwater quality analysis from the developer is based on 30 year old data plus one sample extracted from 25 meters below ground at the R-190 site in 2006. Given that there may be differences between water quality in deep and perched/shallow aquifers, additional information is required.

The DAR (page 36) states that “a two-dimensional model was used as opposed to a three-dimensional one because the absence of recent piezometric data and analysis of current groundwater recharge meant that the results of any comprehensive groundwater model would be questionable for current conditions”. More information on groundwater quantity and flow analysis is required.

Requests

1. Justify how the background water quality and groundwater flow estimates provided by the developer can be considered reasonably accurate and a solid basis for impact predictions given the
 - lack of information related to:
 - local and regional piezometric levels and groundwater recharge rates;
 - local and regional gradients;
 - presence or absence of karstic features; and
 - potential influence of site lithology.
 - conflicting (or non – comparable) findings of older and more recent studies, and
 - absence of comparison between deep groundwater qualities vs. groundwater closer to surface.
2. Identify all additional groundwater studies (and the rationales behind them) the developer will be conducting prior to licensing approvals, if any.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-04
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 2.6; 2.8; 2.9
Terms of Reference Section: C-2; C-3 (Description of the Existing Environment – Water Quality, Quantity and Flow Regimes: Infiltration Basin)

Preamble

Section C-3 of the ToR asked for “existing and historic data on surface and ground water quality and quantity and flow regimes”.

Page 272 of the DAR states that “the licensed discharge criteria and associated groundwater monitoring program that will form conditions of the [water] License will be intended to ensure protection of existing groundwater quality in the vicinity of the infiltration basin”. Currently, there is not enough information in the DAR on the existing groundwater quality in the vicinity of the infiltration basin.

A well defined water quality baseline for the infiltration basin will assist assessors in developing an accurate prediction of the potential change in water quality stemming from any additional contaminant loading from mine and process water discharges.

Requests

1. Identify what the current groundwater quality (and at different depths) is in the vicinity of the infiltration basin.
2. Identify the depth of the current water table at the infiltration basin.
3. Provide evidence comparing the qualities of the deep minewater being extracted to surface and the groundwater in the area of the infiltration basin (i.e., what are the differences in the key water chemistry parameters between the different locations?).

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-05
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 5.5 (Transportation Alternatives)
Terms of Reference Section: D-3 (Processed Ore Transport)

Preamble

Several issues related to the transportation of processed ore are not addressed by the developer in the DAR. For example, in the scoping sessions, the developer stated that ore trucks will only be run during the night shift, presumably when traffic levels are lower along Highway 5. In the DAR, page 196, it is now stated that “if necessary, Tamerlane would be willing to modify haulage schedules to staggered, or graveyard shift hauling.” Clarification is required.

Requests

Provide the following:

1. A map of the exact route the processed ore will be transported along in the Town of Hay River, to either the priority Transfer Facility or any identified alternate locations, with a description of any elements of the surrounding environment (e.g., school zones) that merit special consideration;
2. Options considered for the time of day and week the haul can occur, including a comparison of safety and other considerations that are decision factors for determining the use of “night only” and “day only” transport;
3. Any commitments to reduced speed limits and other safety considerations that the developer has for the haul trucks;
4. Identify both the potential environmental impacts and emergency response procedures for emergencies (e.g., a haul truck losing its load of processed ore).

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-06
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.7 (Ancillary Developments)
Terms of Reference Section: D-3 (Transfer Facility)

Preamble

In the DAR (page 174), it is stated that negotiations are ongoing with the Katlodeeche First Nation (KFN) to lease a property they hold in the Town of Hay River as the ore transfer facility. The developer also states that there are no environmental impacts likely to occur from their activities on-site.

As yet, not enough information has been provided about this facility and the proposed activities on site to make a determination of potential environmental impacts.

Requests

Please provide the following:

1. An update on progress toward an agreement with the KFN on the use of the primary proposed site, along with a description of any outstanding issues;
2. An update on progress toward an agreement with the company operating the railroad in Hay River to get a rail spur extended to the proposed site, along with a description of any outstanding issues;
3. The identification of any alternative locations where the processed ore may be stored if the primary proposed site is unavailable;
4. For both the primary and any identified alternative sites, a more detailed location description, including
 - a. its current uses, other tenants and a “before” view of the site layout;
 - b. its surroundings (other infrastructure and biophysical environment),
 - c. required additional infrastructure to make the location adequate for processed ore transfer (including a conceptual “during operations” site layout view),
 - d. a more detailed plan for materials storage and management onsite (e.g., what will be done to manage the water collected on the concrete pad?), as well as human resource requirements, and
 - e. sources and issues related to any potential environmental impacts from PPPP-related activities.
5. Please identify the elevation of the proposed site above the Hay River, whether the site is in an area prone to flooding, and provide a 1:2000 Flood Risk Map (available from the Town of Hay River) with the proposed location delineated on it, for the public record.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-07
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3 Surface Infrastructure
Terms of Reference Section: D-7 (on-site materials storage); D-9 (aggregate)

Preamble

Several points of clarification are required in reference to the discussion of on-site materials storage in Section 4.3 of the DAR. For example, Figure 4.3-1 shows a Run-of-Mine Stockpile, an Aggregate Stockpile, and an Ore Pad, while Table 4.3-1 and other areas in the text use somewhat different terminology. In addition, the location of certain materials needs clarification.

Requests

1. Provide a consistent name for each of the on-site mined materials storage facilities, and identify anywhere in the text that changes need to be made by reviewers. (e.g., confirm whether the “waste rock storage pad” is the same as the “aggregate stockpile” and provide one name for the facility).
2. Provide the accurate name for each surface mined product storage facility on an infrastructure diagram like Figure 4.3-1.
3. Confirm that the location of the “Railhead Product Stockpile” mentioned in Table 4.3-1 is at the Hay River off-site facility. If so, please revise Table 4.3-1 if there is a concrete pad under this stockpile, as noted on page 174 of the DAR.
4. Clarify whether the “Product Stockpile” has a concrete pad/slab or not. Table 4.3-1 indicates it does not. Paragraph 3 on page 154 indicates that the storage area for “concentrate” does have a concrete pad/slab.
5. Identify where removed soil and overburden will be placed for temporary storage during the life of the PPPP. This storage area is referred to on page 130 of the DAR, but its location is not identified in Figure 4.3-1.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-08
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3; 7.7
Terms of Reference Section: D-7 (runoff management)

Preamble

On page 154 of the DAR, it is noted that concentrate that leaves the Dense Media Separation (DMS) circuit will have about 8% moisture content. On page 323 of the DAR, it is stated that the processed ore will be maintained in a “moist” condition for shipping from the site to the transfer facility in Hay River. Table 4.3-1 and discussion in Section 4.3 of the DAR indicates that no concrete pads or associated collection system for water runoff from product storage facilities is required. Water runoff issues at a variety of locations require further consideration.

Requests

Provide more information on:

1. What method, if any, will be used to maintain the product in a “moist” condition;
2. The likely moisture content of the ore and waste rock materials at all different points in the crushing and DMS cycle and in storage facilities (include consideration of potential contributions from precipitation);
3. The potential for any leachate from the product to enter into the surrounding environment in the on-site materials storage piles, during loading, during transport to Hay River, or in the transfer facility in Hay River;
4. What potential contaminants might be in any leachate if it is predicted that such material will enter into the surrounding environment;
5. A prediction of what potential impacts leachate would have if it does enter the surrounding environment; and
6. How leachate management will be handled (e.g., collection, recycling and monitoring systems) if it is predicted to be required.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-09
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3.15
Terms of Reference Section: D-11 (Description of Infiltration Basin)

Preamble

The infiltration basin is the primary receiving environment for mine process water. Therefore, accurate knowledge of its current status, potential uses, current physical structure and proposed additions to infrastructure are important.

In addition, a better understanding of sub-surface conditions is required, particularly to assist assessors in predicting infiltration capacity. The ToR included a requirement to study and describe “the ground composition under and around the infiltration basin”. Current assessment of exfiltration capacity is based on modeling from historic data, with field studies focusing on a 25 kilogram material sample from the infiltration basin. A better understanding of the subsurface composition of surrounding areas where water is likely to filter through is required.

Requests

Provide:

1. A graphic depiction of the likely layout of infrastructure in the infiltration basin, including locations of the proposed wet drain, berms, piping infrastructure, and monitoring stations.
2. Details of dyke construction plans and when/why they would be implemented. Also, provide a graphic depiction of the dyke system, a description of construction methods, structural materials and dimensions for the 23,300 tonne berm support estimated to be required around the infiltration basin.
3. A better description of the ground composition/stratigraphy in and around the infiltration basin that process/mine water is likely to be filtering through. The geographic extent of this area should include the range which the developer predicts to be the mixing zone of discharged water (to the point where no differences from background water quality can be distinguished).
4. More detail about when the Secondary Infiltration Basin would need to be used in addition to the Primary Infiltration Basin, and more information about the Alternative Infiltration Basin depicted in Figure 4.3-1 (e.g., physical composition, water table, and other parameters used in the assessment of the Primary Infiltration Basin).

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-10
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3
Terms of Reference Section: D-17 (Perimeter fencing)

Preamble

The DAR addresses some concerns about human access to the PPPP by locating a manned gate by the parking lot. However, the lack of plans for perimeter fencing raises questions about access from humans and animals on site from all other directions not visible from the guard shack.

On page 409 of the DAR, it is stated that “Tamerlane is not in a position to influence the nature of future hunting, trapping or berry-picking activities that residents of the area may wish to pursue in the vicinity of the PPPP site”. This raises questions about whether the lack of proposed perimeter fencing creates safety and security risks for traditional harvesters, other land users, animals and project employees/contractors.

There are a variety of access lines into the area that could accommodate pedestrians, all terrain vehicles, snowmobiles and animal movements. Given that the area is occasionally frequented by animals and people, more discussion of how on-site safety and security are going to be treated is important.

Requests

1. Provide a rationale for why is there no fencing envisioned around the development.
2. If the guard shack is to be the only security location, identify what portion of the area from which external access to the PPPP can be gained is in the guard shack’s line of sight.
3. Provide an outline of a site security/safety plan to control site access to unauthorized human or animal traffic (including the need and priority locations for appropriate signage).
4. Given the use of the area for traditional harvesting, identify whether a “safety zone” is required around the PPPP that needs to be developed and communicated to area hunters. Identify the developer’s thoughts on appropriate boundaries and efforts made to consult with traditional land users toward this end.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-11
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 5.6
Terms of Reference Section: D-24 (Worker Housing Situations, Transportation to Work, and Proposed Work Scheduling)

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. More information is also required on how the developer will provide incentives to maximize the use of company-provided transport from home to work.

Requests

Provide the following:

1. A description of the proposed shift scheduling for the PPPP, as well as alternatives and decision factors on which shift scheduling will be determined (if a variety of shift schedules are proposed, please note them all, by type of worker);
2. 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 likelihood as a labour pool).
3. The developer’s strategy for housing in-migrant workers, particularly contractors.
4. A discussion, given the differences between distances of different South Slave communities from the PPPP, of whether the developer envisions pressures for families or individuals to move from these communities to Hay River during the PPPP.
5. The developer’s strategy for maximizing the number of employees utilizing the bus service, rather than driving.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-12
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.2.1.10
Terms of Reference Section: F (Public Consultation)

Preamble

In a variety of sections of the DAR, information from traditional knowledge studies was introduced that showed local concerns about the development. In some cases, however, those concerns were not substantially addressed by the developer in the DAR.

In addition, despite the fact that a variety of “local knowledge” rather than “traditional ecological knowledge” questions were posed in the traditional knowledge studies undertaken by Tamerlane, no youth and only three female voices were among the 29 people contributing to these studies.

The Review Board requires more information on certain groups’ concerns and desires about the proposed development.

Requests

1. Discuss how the developer has identified the concerns and desires of young people about the proposed development, highlight the issues they have raised, and any commitments the developer has made to address these concerns.
2. Discuss how the developer has identified the concerns and desires of women about the proposed development, highlight the issues they have raised, and any commitments the developer has made to address these concerns.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-13
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.1
Terms of Reference Section: H – 1 Economy (Direct and indirect employment: 1 - numbers)

Preamble

Greater clarity is required relating to project employment - in particular, the discussion in the DAR of the number of required employees, both direct and contractors.

Given that initial estimates of labour requirements for mining developments have often proven low, and the small available South Slave labour pool the developer identified in the DAR, the prediction of total employment needs to be as accurate as possible, as this will help identify how many non-resident workers will have to be recruited. The total number of in-migrants becomes a consideration for the estimation of beneficial and adverse impacts on communities.

Requests

1. Appendix F (page 3) states that “The PPPP will employ an estimated 157 personnel”. This differs from the amount cited in the main DAR (a maximum of 131 workers; page 348). Clarify.
2. Identify how confident the developer is in its construction and operations labour requirement predictions, in light of the following:
 - a. A consideration of lessons learned from other Northern mines and infrastructure projects’ predicted vs. actual labour requirements; and
 - b. Apparent inconsistencies between the labour requirements listed in Table 8.1-5 of the DAR, and the activities required to build, operate and maintain the development (e.g., are 10 haul truck workers adequate to run 10 haul trucks seven days a week?).

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-14
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.1.4
Terms of Reference Section: H – 1 Economy (Education and Training)

Preamble

The ToR requested the developer to “Assess the requirements for any training, education, and other improvements necessary to maximize employment of residents of potentially-affected communities in the workforce of the mine, and compare this to existing educational and training initiatives available in the NWT”. The ToR also 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 “.

A more complete consideration of the following issues is still required to address training issues and barriers for Northern workers in accessing adequate training.

Requests

1. Describe the progress in consultations and collaborations with local Aboriginal organizations and other potentially affected communities to encourage effective development and delivery of training programs (per page 357 of the DAR), and in overcoming barriers for Northern and aboriginal workers to get training and jobs.
2. In several places in the DAR (e.g. pages 357-8), the developer relies predicts the “support of the federal and territorial human resource management agencies” in training and employment opportunity generation. Identify all the specific programs that might be of assistance in developing a “job ready” workforce for the PPPP, and how Tamerlane will contribute to these efforts.
3. In particular, provide evidence of discussions with the Mines Training Society, especially in regard to their programs’ capacities to provide Tamerlane with “job ready” workers (e.g., how many workers have graduated from these programs, how much room is there for more students, and what are timelines to completion?).
4. Discuss the current level of engagement of people from South Slave communities in programs like the Mines Training Society, apprenticeship programs, the historic completion ratio of students, and annual numbers of South Slave graduates.
5. Identify when training programs will have to begin prior to the onset of the development in order for local and aboriginal people to take advantage of PPPP jobs, and how Tamerlane plans to contribute to these programs.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-15
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.2
Terms of Reference Section: H – 1 Economy (Business Opportunities)

Preamble

On page 358 of the DAR, Tamerlane states that “To assist in raising local northern business capacity, Tamerlane will outsource its workforce requirements to northern businesses as and when appropriate.” On pages 359-60 the DAR, a commitment is made to “prioritize Aboriginal and northern (South Slave) businesses”, with five stated commitments to bolster the opportunities of local companies. More detail is required.

On page 8 of the DAR, the developer states its corporate policy that “In all cases, purchases by Tamerlane should be based on price, product, quality, service, and the consistency and dependability of the basic business relationships underlying each transaction”. In addition, many of the major infrastructure projects seem to be specialized. The developer needs to address its confidence and rationale that businesses from the North will be able to compete for these contracts.

Requests

1. Describe whether Northern and/or aboriginal content will be positively weighted when business contract proposals are evaluated. If so, how will this be done?
2. Identify how each of the five stated commitments on pages 359-60 of the DAR will be accomplished, and in what timeline they need to be in place by if they are going to be successful in assisting South Slave businesses in taking advantage of this development.
3. Indicate what elements of the construction works might feasibly be handled by northern businesses, taking into consideration the works’ level of complexity/specialization and the current capacity and availability of South Slave companies in particular, and Northern companies in general.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-16
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 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.

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.

Requests

1. Identify 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.
2. Identify what government agencies and programs might be called upon to provide support to transitioning workers if the development does not proceed beyond the current proposal. In addition, identify whether there is sufficient capacity in the South Slave to accommodate any predicted level of increased demand on government services in the post-development period.
3. Identify any plans the developer has to assist in the transition of PPPP employees into other employment opportunities, if the development does not proceed beyond the estimated 3 year life span.
4. Identify the beneficial legacies the PPPP development, if it does not proceed beyond the current proposal, will leave behind.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-17
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.2
Terms of Reference Section: H – 2 Society and Culture (Potential Impacts and Ability of Social Services to Manage)

Preamble

A variety of parties have raised issues related to potential adverse impacts of industrial development on society during this EA. These issues need to be considered in greater detail than are currently provided in the DAR.

In particular, the developer needs to look closer at historic social problems identified during consultations with communities and social service providers, whether adverse social impacts could be created or contributed to additively by this development, and what mitigation would be required to deal with any problems. In addition, the DAR predicts that the developer, social service agencies and communities have the capacity to manage any social impacts, but does not present corroborating evidence to support these predictions.

Requests

1. Detail all discussions with community members, community government, local, regional and territorial services agencies and other interested parties, that led to the findings that minimal social impacts are likely to occur, and that current social services are adequate to deal with any residual social impacts.
2. Provide additional details relevant to the specific issue being addressed for each time the statement “support consistent with company policy to employees and their immediate families” is used in the DAR.
3. Page 382 of the DAR states that “During the life of the PPPP, Tamerlane will encourage its employees and contractors to direct income and benefits generated from their employer to positive uses for themselves, their spouses, children and family elders”. Please specify the policies, plans and programs that will be used toward this end.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-18
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.3
Terms of Reference Section: H-3 – Heritage Resources

Preamble

Section H-3 of the ToR requests that the developer “list all recommended mitigation measures identified for the protection of local known and high potential areas of cultural and heritage resources”.

The developer had a Heritage Resource Assessment undertaken by Points West Consulting and found no known and no high potential heritage resources in the vicinity of the PPPP. Nonetheless, page 406 of the DAR states: “As a precaution, Points West recommended that if unexpected archaeological materials were encountered during any phase of this development, all activity in the area must cease and the Prince of Wales Northern Heritage Centre must be contacted”.

Requests

1. Identify whether this represents a commitment by the developer, rather than simply a contractor’s recommendation.
2. Provide information on how employees will be trained in the identification of, and protocols around, heritage resources.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-19
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.6
Terms of Reference Section: I-1 Waters; (5 – “End of Pipe” Water Quality)

Preamble

Page 270 and Table 4.6.1 on page 173 of the DAR both discuss “preliminary laboratory bench-scale process water discharge analyses”. A better understanding of how this data was produced is necessary to estimate the confidence to be placed on Tamerlane’s predicted quality of water likely to be entering the infiltration basin.

In addition, potential impacts on the receiving environment of different components of the mine/process water need to be considered in more detail.

Requests

1. Provide details behind the “preliminary laboratory bench-scale process water discharge analyses” referred to in the DAR, including
 - i. where the water used for the analysis was from;
 - ii. an elaborated description of the testing procedures and whether it can be considered to be representative of a full-scale operating DMS circuit;
 - iii. all assumptions behind the procedures used and analyses; and
 - iv. an explanation why cadmium, a common co-contaminant of zinc-containing ore bodies, was not included in the analysis.
2. Discuss in more detail the pathways by which potential losses of fugitive metals to the receiving environment might occur, and what forms those metals will likely take.
3. Provide a discussion of potential impacts on the receiving environment (the infiltration basin and its surroundings) via loading of total dissolved solids (TDS) and metals.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-20
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: Several (page numbers noted below)
Terms of Reference Section: I-1 (Waters)

Preamble

A variety of areas in the discussion of water quality lack plain language explanations that would assist in the analysis of the DAR.

Requests:

1. Identify how lime treatment (first mentioned on page vii of the DAR) would occur if it is found necessary, and if so, what effect it would have on the contaminants in the process water.
2. Provide a plain language explanation of why alkaline ore with a high pH cannot mobilize any soluble metal ions (discussed on page 270 of the DAR), and why only soluble metal ions are predicted to be harmful to the receiving environment.
3. Put the water flow rates described on pages 274-5 of the DAR into plain language terminology (e.g., metres of flow per day).

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-21
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 5.7
Terms of Reference Section: I-1 (Waters) (5h - Sewage Treatment)

Preamble

Clarity is required both on how on-site sewage treatment will occur and reasons behind the chosen option.

Page 430 of the DAR states that “treated sewage will be discharged into an approved septic field”, but no location for this septic field is provided. Previously in the DAR (page 161), it was stated that high quality treated sewage would be co-mingled with the mine water being sent directly to the infiltration basin. Clarification of which method of disposal is going to be used is necessary.

In addition, the quality of the effluent from the proposed RBC sewage treatment facility is not discussed in the DAR. A better understanding of the quality and quantity of effluent is essential to estimate the contribution of sewage to nutrient loading in order to determine if there are potential impacts to the environment.

Requests

1. Page 198 of the DAR notes that “No off-site shipping of sewage was considered by Tamerlane as this would require unnecessary Tamerlane resources for the PPPP”. Provide a detailed explanation of options considered for sewage disposal, including both cost and environmental impact comparisons of the chosen sewage treatment option versus shipping.
2. Identify the following in relation to the sewage treatment facility:
 - the predicted quantity and quality of the effluent;
 - its method of transport to the disposal area, and whether that disposal will be to the infiltration basin or to an approved septic field; and either
 - the proposed location, if applicable, for the approved septic field, and an assessment of any potential impacts on the receiving environment; or
 - the inclusion, if applicable, of nutrient loading from the sewage treatment facility, to the discussion in IR #22, of the amount of nutrients in process water entering the infiltration basin.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-22
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 7.2.2.1
Terms of Reference Section: I-1 (Waters; Nutrient Loading)

Preamble

Page 271 of the DAR states that “any nutrients associated with the process/mine water such as nitrates and ammonia are expected to be rapidly assimilated by the natural biological processes operating in the surface and shallow subsurface overburden of the area”.

The developer needs to show evidence of both the amounts of nutrients from all sources likely to be generated by the development (for example, including combinations from both sewage, mine water and residual dry explosives entrained in ore, if applicable), and why it is confident that the said natural processes will assimilate these nutrients without causing adverse impacts to the receiving environment.

Requests

Provide:

1. An estimate of the concentrations and overall quantities of nutrients likely to be found in the “end of pipe” water, as well as the rationale for arriving at the estimate provided.
2. An opinion of what an unsafe (or otherwise unacceptable) level of nutrients reporting to the infiltration basin would be, and how that was determined.
3. A discussion of what components are necessary in the receiving environment for the “natural biological processes” promoting assimilation of nutrients to occur.
4. A discussion of where in the infiltration basin materials necessary for the assimilation processes to occur are located (i.e., in the gravel bed itself, downgradient?). If necessary, provide examples of similar environments used for this assimilation process in other operations.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-23
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.3.15; 4.6; 7.2
Terms of Reference Section: I-1-5-f and L-3-d: Infiltration Basin (Potential Impacts and Contingency Plans)

Preamble

Page 165 of the DAR notes the proposed infiltration basin was previously operated as a gravel pit by the GNWT's Department of Transportation. The DAR does not discuss the current status of negotiations with the landholder for use of the site by the developer. In addition, the developer needs to address what impacts, if any, the use of the gravel bed for an infiltration basin may have on its future viability as a source of granular material.

Additional discussion of contingency planning is also required.

Requests

1. Consult with the landholder of the infiltration basin (GNWT-Department of Transportation) and indicate any issues they bring forward, and how these have or will be addressed by the developer.
2. Predict the amount of sediment, nutrients and metals that will be deposited in the gravel bed during its use as an infiltration basin, and whether this gravel bed will then be considered environmentally benign or contaminated, and whether any future uses of the gravel will need to be curtailed.
3. If lime treatment is deemed necessary, describe how it would be applied and whether provisions would be included in the design for removal of any precipitates formed from the addition of lime prior to deposition in the infiltration basin.
4. Describe all contingency plans for high discharge quantities and/or unsatisfactory discharge quality. Include details on the emergency water storage and treatment plan that will be in place in case of severe water quality issues caused by accident, malfunction, or other reasons. This emergency contingency plan should discuss how the continuous water flow into the mine will be dealt with in a worst case scenario where the infiltration basin was inoperable for a period of time.
5. On page 192 of the DAR, the developer refers to "ensuring a worst case scenario was considered and designed into the project", when discussing the secondary infiltration basin option. Identify where in the DAR this worst case scenario is identified, or if not, discuss it now in detail.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-24
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 7.6; 10.3.4
Terms of Reference Section: I-4-4: Attraction of Wildlife - Infiltration Basin

Preamble

Figures 9.5-1b (View 3 – during PPPP operations) and 9.5-1c (immediate post-closure - mislabeled View 3 again) on pages 420-421 in the DAR show what appears to be standing water in the infiltration basin during the PPPP, especially during the operations phase. The DAR does not discuss either the likelihood of this occurring, or the potential impacts of standing water in the infiltration basin. More information is required.

Request

1. Provide a prediction, considering seasonal climate and precipitation as well as process water outflows to the infiltration basin (including scenarios of greater than expected process water outflows – e.g., exceedences by factors of 2, 4 and 10), of
 - a. how often portions of the infiltration basin will have standing water present;
 - b. how deep this standing water is likely to be, and what geographic footprint it would likely cover;
 - c. what the water quality of any standing water is likely to be;
 - d. a discussion of the potential for standing water in the infiltration basin to attract wildlife, and what might be the impacts on those animals; and
 - e. what measures, if any, the developer will put in place to
 - i. keep standing water out of the infiltration basin; and
 - ii. discourage animals from using the area, and monitor and report their presence.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-25
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 7.8
Terms of Reference Section: I-1 (Waters – Water Quality Monitoring)

Preamble

Water quality monitoring is mentioned several times in the DAR (e.g., pages 331-2), but there are no specifics of the technology likely to be used, potential numbers of - and conceptual locations for - sample points, testing parameters or standards they will be held against (other than stating that “all water released from the infiltration basin will meet MVLWB license criteria”). More specifics are required as to how the developer will set up a system to ensure that any unpredicted water quality exceedences are immediately identified so that adaptive management can be imposed.

Furthermore, on page 332 of the DAR, the developer states they will “consider opportunities for utilizing locally-based personnel to assist in conducting the necessary water quality monitoring activities”. Given that water quality from both historic and proposed mining in the area has been a common issue for local communities, additional information on how monitoring results will be acted on and reported are necessary.

Requests

1. Discuss the following in a conceptual water quality monitoring plan:
 - i. the type of monitoring to be used, with appropriate details for an environmental assessment; and
 - ii. the need, if any, for downgradient testing stations so that groundwater quality coming out of the infiltration basin can be monitored.
2. Discuss any commitments to involve locally-based personnel in water quality monitoring, as well as the reporting of results of water quality testing to local communities.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-26
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 2.6.2; 4.1.3; 7.2.2.2; Appendices C-1 & C-2
Terms of Reference Section: I-1 Waters (4 - Likelihood of Freezeway Success)

Preamble

The ToR asked for “an assessment of the likelihood of success of the freezeway technology”.

The developer has noted the absence of some information pertaining to this type of assessment in the DAR, and is currently conducting risk analysis assessments for the following items (see page 456 of the DAR):

- Verification of soil and rock stratigraphy across the entire site;
- Cross referencing of thermal properties of both soil and rock;
- Evaluation of the hydraulic gradient based on the installation and monitoring of piezometers along the perimeter of the proposed frozen earth wall;
- Chemical testing of groundwater in the proposed piezometers;
- Pumping tests in areas that appear to have excessive permeability; and
- Peer review of detailed analysis.

Current uncertainty about current groundwater flow conditions, as well as about ground conditions themselves, limit the ability of assessors to accurately predict the likely inflows of water into the mining works, as well as the overall likelihood of success of the freezeway technology. Additional information may be required prior to the conduct of Technical Meetings for this EA.

Request

1. Identify what portions of the above mentioned risk analysis assessment have been completed and what portions still remain to be completed, and timelines for any additional information coming forward. Information from any studies that have been completed should be placed on the public record.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-27
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 4.1.3; 7.2.2.2
Terms of Reference Section: I-1: Waters (4 - Freezeway – Depth Issues)

Preamble

There are some inconsistencies in the way the depth of freezing is discussed in the DAR and clarification is required. In addition, more information is required as to how the developer determined that the freezeway depth should be 185 metres below ground, and whether this is deep enough to prevent major inflows of water from below or near the bottom of the shaft.

Requests

1. Provide clarification on how the required and likely depths of the freezeway were determined.
2. Provide a description on how deep down the pipes will go (in metres).
3. Clarify whether the freezeway depth will be 585 metres (or 2000 feet, as indicated, perhaps in a typo, on page 132 of the DAR), or 185 meters, as indicated on page 273 of the DAR.
4. Identify the reasons and assumptions behind the developer's confidence that there will not be significant vertical upwelling of water from below the mineworks, or increased horizontal inflows near the bottom of the shaft. Include in this discussion consideration of the permeability of the geology at the bottom of the mine works, the proposed depth of the freezeway in comparison with the depth of the mine works, and the potential for thermal erosion at the bottom of the freezeway.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-28
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 11.2; 11.3
Terms of Reference Section: L-2 - Accidents and Malfunctions (Infiltration Basin – Infiltration Capacity); (Freeze wall – Water Inflow/Outflow Scenarios)

Preamble

The developer identifies in the DAR that the likely amount of water collecting in the mineworks on a daily basis at approximately 1320 cubic metres per day. The prediction is that the freeze wall will limit the amount of water flowing into the mineworks to this amount. Of this water, it is predicted that approximately 810 cubic metres will eventually report to the infiltration basin. If there are larger than expected water inflows to the mine, safety margins have been built in to the underground-to-surface pumping system. On page 148 of the DAR, it is noted that “Tamerlane does not anticipate needing to utilize the full capacity of the pumping station, but has sized it for any unforeseen inflows of water”, so that a maximum of over 54,000 cubic metres of water per day could be pumped out.

The Review Board requires more information on water inflow scenarios which would not interfere with the ability to run an operation, but where more water than expected reports to the infiltration basin.

Requests

1. Provide a rough estimate (or even a range) of the daily water inflow level (in cubic metres) beyond which the developer does not envision being able to dewater to continue operations or, alternatively, to profitably operate.
2. Identify potential environmental impacts of water outflows to the infiltration basin significantly greater than expected (e.g., 2, 4, 10 times as much as expected).
3. Identify management options for the chosen water outflow scenarios.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-29
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 7.4; 7.7
Terms of Reference Section: I-3 (5 – Dust Control Measures)

Preamble

Dust can have an impact on the surrounding environment. Additional detail is required on when, how and what dust control measures will be utilized.

Requests

Provide information on:

1. What level of particulate in the air is the threshold for using the type of mitigation (misting systems) mentioned on page 154 of the DAR, and how this threshold will this be measured – quantitatively, or by a subjective quality assessment.
2. What current estimates of the amount of water needed for dust control (1 cubic metre per hour) are based on.
3. Any predicted differences in seasonal effectiveness of dust control, balanced against different seasonal requirements for same.
4. What the alternative dust suppressants first mentioned on page 278 of the DAR are.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-30
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 7.6; 7.8.4
Terms of Reference Section: I-4 (Wildlife and Wildlife Habitat)

Preamble

Insufficient field studies on wildlife were cited during scoping as a major concern about the developer's initial environmental analysis. The ToR noted this "lack of confidence that wildlife studies have been extensive enough to properly characterize wildlife and habitat in the area". The importance of this issue was augmented by the fact that a variety of species at risk have been known to frequent the area.

On page 317 of the DAR, the developer speaks of committing to employing "an adaptive management approach" to potential effects on wildlife and wildlife habitat.

Additional information about wildlife studies, monitoring and adaptive management is required.

Requests

1. Explain what, in the interim since the EA scoping sessions of August 2006, the developer has done to improve the public's "lack of confidence that wildlife studies have not been extensive enough to properly characterize wildlife and habitat in the area".
2. On page 333 of the DAR, the developer states it is "prepared to conduct limited wildlife monitoring in the immediate vicinity of the PPPP development area". Identify what wildlife monitoring activities are proposed, which species they are proposed for, how monitoring results will be evaluated, and provide specifics on how the adaptive management system will turn evaluation results into actions.
3. Whooping cranes are an especially vulnerable species at risk. Identify what adaptive management measures would be used if it was found that whooping cranes were frequenting the Local Study Area or Regional Study Area during the PPPP life cycle.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-31
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 2.3; 7.7
Terms of Reference Section: I-6 (Air Quality and Climate)

Preamble

The DAR states that the PPPP will contribute about a 5% increase to the NWT “base case” greenhouse gas (GHG) emissions.

The DAR also makes the claim that there is “a high degree of uncertainty in predicting impacts associated with project-specific emissions and controversy pertaining to the reversibility of GHG emissions and global warming”, and that “as a result no environmental consequence has been attributed to the Tamerlane PPPP GHG emissions” (page 325).

The developer is expected to consider whether there are cost effective ways to reduce GHG and other emissions contributions, regardless of the absolute level of contribution of the development to cumulative air quality impacts.

Requests

1. Identify how the PPPP emissions estimated on page 321 of the DAR were determined.
2. Compare the emissions data predicted in Table 7.7-1 with applicable/relevant NWT and/or Canadian standards. If it appears that any concentrations (e.g., TSP, PM10) would exceed standards, identify what additional mitigation methods can be used to limit those concentrations.
3. Discuss what emission control techniques will be used to reduce the contribution of the PPPP to GHG and other emissions. Consideration of methods used by other industrial enterprises and municipalities may be of use in this effort.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-32
Source: MVEIRB
To: Indian and Northern Affairs Canada (INAC)
DAR Section: N/A
Terms of Reference Section: K-4a – Cumulative Effects (Status of historic Pine Point mining area)

Preamble

From the outset of this EA, public concerns about the status of the lands where the historic Pine Point lead-zinc mining activities occurred. Some clarity on the current legal, usage and environmental status of these lands would be valuable to many parties.

In addition, cumulative effects of previous Pine Point mining activities along with other industrial developments and the proposed PPPP are under consideration in this EA. Any information that Indian and Northern Affairs can provide about whether historic mining had impacts on water quality, in particular, would be valuable.

Requests

1. Provide an update on the status, ownership/landholding, required monitoring activities and any future plans, for the historic Pine Point mining area. The area to be considered is the portion of the Regional Study Area for this EA that is east of the Buffalo River, plus any other areas that INAC considers relevant.
2. Considering the information already on the public record for this EA, please identify any additional relevant information that would assist in the determination of whether the historic Pine Point mine is contributing or has contributed to cumulative adverse impacts on local/regional water quality.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-33
Source: MVEIRB
To: Environment Canada (EC)
DAR Section: N/A
Terms of Reference Section: I-1 – Waters; (1 - Applicable Authorizations)

Preamble

There is as yet no consensus on the public record as to whether Canada's *Metal Mining Effluent Regulations (MMERs)* should apply to this development. Environment Canada is the government agency responsible for a final determination of whether the MMERs apply.

Request

1. Identify whether Environment Canada has determined that the MMERs apply to this development, and if so, what changes are required to water quality monitoring and management plans.

EA0607-002 Tamerlane Pine Point Pilot Project (PPPP) – Information Requests

IR Number: IR0607-002-34
Source: MVEIRB
To: GNWT Department of Environment and Natural Resources
DAR Section: N/A
Terms of Reference Section: I-3-5 - Dust Emissions and Dust Control

Preamble

Dust emissions and control are an issue with any mining development. It is the Review Board's understanding that the GNWT is currently updating its *Guidelines for Dust Suppression*.

Request

1. Identify when the updated *Guidelines for Dust Suppression* are expected to be available, if they are not already; and provide the Review Board with a copy for the public record, now or as soon as they become available.