



TAMERLANE VENTURES INCORPORATED

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

**Second Round Information
Responses from
Tamerlane Ventures Inc. to the
MVEIRB**

Submitted August 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

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.

Response:

1. Please see the below letter by Tamerlane requesting power, additionally, Tamerlane has contracted Northland Utilities for the design criteria to provide available hydro-power for the PPPP.

Tamerlane
VENTURES INC. 

7-12-07

Duane Morgan
Manager
Northland Utilities
An ATCO Company
1-66 Woodland Drive
Hay River, NT X0E 1G1

Dear Mr. Morgan,

Tamerlane Ventures Inc. is a Canadian mining company with assets in the Americas. As you know, Tamerlane is pursuing the development of a zinc-lead mine located 42 kilometers East of Hay River. The deposit is approximately 500 meters North of Highway 5 at the 41.6 kilometer mark. General Coordinates are latitude 60° 44' and longitude 115° 7'.

Tamerlane intends to extract and process one-million tonnes of zinc-lead ore by underground mining methods starting at its R-190 deposit. Tamerlane then intends to conduct commercial mining of the remaining deposits that incorporate a historical resource of 70 million tonnes that will span over many years.

Please accept this letter as Tamerlane's request of Northland Utilities to utilize excess power available to construct and operate the Pine Point Project. Tamerlane anticipates construction starting near the end of 2007. Additionally, Tamerlane requests any capital or rate considerations Northland Utilities can provide. A detailed power usage schedule will be provided later this week.

Thank you for your cooperation and support.



David Swisher
Vice President
Tamerlane Ventures Inc.
441 Peace Portal Drive
Blaine, WA 98230
(360) 332-4653

The previously proposed generation plant will still be used for some ancillary operations and primary safety and environmental back-up in the event of power failures. The prior designed diesel generation was for 6 MW and is now downsized to 4 MW.

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2. The power requirements have been recalculated to include all additional processing equipment and from utilizing exclusively diesel generation power to the inclusion of hydro-power. The construction phase of the project is anticipated to require approximately 2.92 MW of power during the 12-15 month construction phase. The availability of hydro-power is anticipated to come on-line midway through the construction phase. The operations phase power requirements have

- been readjusted to include the process equipment and is now anticipated to require a total of 5.85 MW. Hydro-power will account for 4.45 MW of power while it is estimated that 1.4 MW of power will be required from diesel generation throughout the operations phase of the project. A significant reduction of emissions will be satisfied by the use of the new system. Results of an air quality test and modeling will be made available to MVEIRB upon receipt by an independent consultant RWDI AIR Inc. Further explanation is outlined in IR0607-002-54
3. During a site visit with Norhland Utilities on July 10th, 2007, a best case scenario routing was identified that will mitigate highway exposure and land exposure. As indicated in the map below, the line (highlighted in green) will cross the highway at already elevated locations and then be routed along the access road to mitigate any additional clearing and provide Northland Utilities maintenance access. Additionally, please see the below correspondence regarding Tamerlane's continuing commitment to mitigate any environmental concerns:
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From: Robertson, Myra [Yel] [mailto:Myra.Robertson@EC.GC.CA]
Sent: Tuesday, July 24, 2007 9:02 AM
To: David Swisher
Cc: Rick Hoos; David Swisher
Subject: RE: Myra Robertson (CWS) request for information re power line

Hi David,

That sounds like you are well on your way to reducing the risk of collisions with the powerlines. If you need more information on markers or further advice on this issue, please ask.

Thanks,

Myra

P.S. Sorry for the slow response on my end - I was out of the office for most of the last 2 weeks.

Myra Wiebe Robertson
Environmental Assessment Coordinator
Canadian Wildlife Service
Environment Canada
Suite 301, 5204-50th Avenue
Yellowknife, Northwest Territories X1A 1E2
phone: (867) 669-4763
fax: (867) 873-8185
e-mail: myra.robertson@ec.gc.ca

From: David Swisher [mailto:dswisher@centurymining.com]
Sent: Wednesday, July 11, 2007 7:01 AM
To: Robertson, Myra [Yel]
Cc: 'Rick Hoos'; David Swisher
Subject: Myra Robertson (CWS) request for information re power line

Hello Myra,

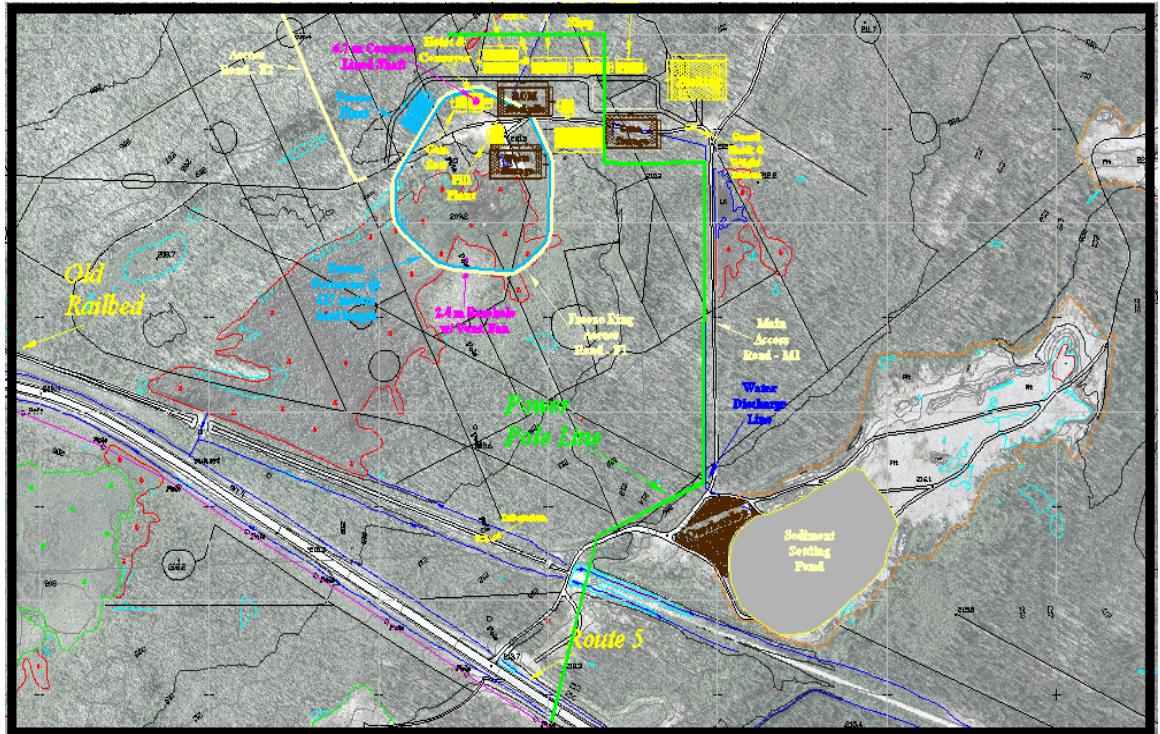
I had a productive meeting with several key personnel with Northlands Utilities yesterday. Keeping in mind with your concerns and suggestions, we have traced out a location for the power lines that will NOT cross or interfere with any fen areas nearby. We chose an area that is high and dry. The power poles will be ~35' high. It appears that in some areas, this will be higher than the surrounding tree line, therefore, I have already informed Northlands that we may want to put markings on them. The good news is that the new location for the power line has no corners or bends and will be bordered on either side by trees, thus not in any landing or take-off zone near any fen areas.

If you have any other questions, please don't hesitate to ask.

Thanks,

David Swisher

Tamerlane Ventures Inc.
Vice President/Senior Project Manager
441 Peace Portal Drive
Blaine, WA 98230
Ph: 360.332.4653
Fax: 360.332.4652
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dswisher@tamerlaneventures.com



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.

Response:

1. The most current schematic for the ore transfer/loadout facility outside of Hay River has been mailed 8-15-07 to the attention of Alistair MacDonald. Due to continuing negotiations between Tamerlane and CN, no further detailed updates are available.
2. A hard copy of the Flood Risk Map has been mailed 8-15-07 to the attention of Alistair MacDonald.

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.

Response

1. Request #1 of IR #16 specifically asked Tamerlane to “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.”

In response, Tamerlane conducted a review of the available literature discussing “boom-bust effects” in Canada and provided a list of relevant literature. MVEIRB now requests that Tamerlane verify that it has read the previously cited literature. In response, Tamerlane offers the following summary discussion for each article previously cited and a concluding analysis of their relevance to the PPPP.

Reference:

Government of Canada. (June 2006). *From Restless Communities to Resilient Places: Building A Stronger Future For All Canadians*. Final Report of the External Advisory Committee on Cities and Communities.

Overview:

The article discusses boom-bust resource industries within the context of resource-based rural and remote communities. The article briefly references the mine town of Cassier, BC. The town was forced to close following the bankruptcy of the local asbestos mine.

Lessons Learned:

The article suggests that in order for Canada to capitalize on its resource base, that the country increase the level of value added in Canada and not just ship resources overseas for processing. The article proposes accomplishing this through community-based strategies. Specifically:

- Look to research and innovation possibilities and strive to create better networks and connections for smaller places as well as large centres.
- Move up the value chain so that value is added as close to rural locations as is economically viable
- Increase research and development of new technologies in our rural and remote areas, such as test equipment for use in the north, and
- Look for ways to raise human-capital and educational performance for all rural dwellers

Reference:

Infrastructure Canada. (November 2005). *Northern Communities: Boom Bust and the Role of Infrastructure*. Ministry of Municipal and Community Affairs, Government of the Northwest Territories.

Overview:

The article discusses Canada's experience teaching community stakeholders valuable lessons about how to manage the transition from industry closure to community recovery. Four strategies are identified and applied to the case of Tumbler Ridge, a coal mining town in British Columbia. The strategies illustrated examine the period of 1981 (the town's inception) to current.

Lessons Learned:

The article identifies four strategies based on lessons learned from the town of Tumbler Ridge:

- Effective transition management anticipates and plans for industry closure as a normal event in the life-cycle of industry.
 - Applied within the context of Tumbler Ridge, provincial decision-makers made a series of key policy and design decisions as they planned the town's development.
- Restructuring resource-based communities after an industry closure requires collaborative efforts between all stakeholders.
 - Within the community of Tumbler Ridge, all levels of government collaborated to form a Community Revitalization Task Force to identify and develop economic opportunities.
- Implement a wide range of actions in the community
 - Tumbler Ridge's early planning for economic diversification reaped many benefits during its economic downturn. A key initiative has been marketing the community as a place to live and invest.
- All stakeholders must expect to provide an appropriate level of time-limited financial support to resource-based communities in transition.
 - In Tumbler Ridge, the key to financial solvency lay in ensuring stable property taxes, eliminating \$10 million in long-term capital debt and convincing the provincial government to honour its 20-year commitment to maintain a contingency fund established in anticipation of a downturn in the coal industry.

Reference

Infrastructure Canada. (February 2006). *Planning for a Soft Landing: Non-Renewable Resource Development and Community Infrastructure in the Northwest Territories*. A Research Backgrounder Prepared for the Experts Workshop on Northern Communities: Boom Bust and the Role of Infrastructure, November 15-17, 2005, Norman Wells, Northwest Territories.

Overview:

This research background examines non-renewable resource development and community infrastructure in the NWT. The paper selectively reviews the current state of knowledge about the boom and bust cycle of resource-based economic development and community infrastructure in the NWT within the context of three themes: 1) the connections between non-renewable resource development and community infrastructure in the north, 2) planning for resource development, and 3) strategies for moving ahead: putting ideas into practice.

Lessons Learned:

The paper concludes with three lessons-learned strategies for dealing with boom-induced infrastructure challenges facing NWT communities.

- Communities must focus on making more creative use of available funding.
- Communities must focus on promoting technical innovation
- Communities must focus on improving maintenance capacity at the community level.

Reference:

Western Economic Diversification Canada. (2006). *The Resilient City: Hope for Resource-Based Communities*.

Overview:

The document reports the results of a collaborative workshop examining the impacts of boom and bust economies on communities in the North which are dependent on a single-resource, with particular emphasis on infrastructure-related impacts. The goal of the workshop was to improve understanding of the impacts of the proposed Mackenzie Valley Pipeline project on local community infrastructure in the NWT, and to collaboratively develop concrete suggestions for future research and community based tools. The workshop was organized around three themes: 1) how community infrastructure is impacted by resource development, 2) planning for resource development; and 3) strategies for moving ahead.

Lessons Learned:

Within the context of each of the themes, community strategies based on lessons learned are discussed including:

- Impacts to Community Infrastructure
 - Timely and robust communication needs to occur between industry, regulators and communities

- Communities need time to develop the tools and targeted research that will allow them to make informed decisions and to formulate effective strategies regarding community infrastructure.
- Resource Development Planning
 - Appropriate legislation is needed including municipal by-laws and the capacity to use and enforce them
 - Planning tools to control speculation are needed
 - The ability to participate in regulatory hearings and to be kept informed of all proceedings and outcomes are required
 - Communities need to be the locus of communication between industry and other orders of government.
 - Industry should clearly indicate how project-specific infrastructure will be used when the project is completed.
- Moving Ahead
 - Communities should explore financial diversification opportunities to make them more resilient to the boom and bust economic cycle of resource development (Inuvik is discussed as an example).
 - Communities should explore developing regional governance models that provide opportunities for regional resource profit sharing, a regional trust fund, and regional marketing and co-op purchasing (Northern British Columbia is discussed as an example).

Reference:

Western Economic Diversification, Canada. (2006). *The Resilient City: Appendix 1 – Case Study Summaries*. Retrieved May 18, 2007

Overview:

The document is a supplemental appendix to Western Economic Diversification Canada's 2006 paper, "The Resilient City: Hope for Resource Based Communities." The appendix provides brief profiles of communities that have been impacted by the boom-bust cycles of natural resource industries. The communities listed in the Appendix by region include: Northern Canada (Faro, and Inuvik), Western Canada (Grand Cache, Granisle, Logan Lake, Meadow Lake, Ogema, Pinawa, Tahsis, Tumbler Ridge and Uranium City), Central Canada (Murdochville and Elliot Lake), Atlantic Canada (Bishop's Falls, Canso and Great Harbour Deep).

Lessons Learned:

The document does not discuss lessons learned per se. However, a number of themes emerge among the communities included in the appendix document. The communities most affected by declines in natural resource industries appear to have been most impacted by the following variables:

- Community Size (very small communities are most vulnerable)
- Project Size (larger mines and/or projects have larger potential impacts upon closure)
- Economic Diversity (communities almost entirely dependent on natural resource industry are most vulnerable)
- Geographic Location (communities geographically isolated face the largest difficulties recovering from a closure)

PPPP Analysis

As described in the summaries above, a limited number of documents are available that discuss the impacts and community-level issues associated with boom-bust cycles. The above documents were referenced in Tamerlane's original response to Request #1 of IR 16 because they most closely related to MVEIRB's request for "relevant case study material that discusses short-lived, relatively high employing developments." While some literature is available that discusses boom-bust cycles in communities with long-term, full-scale operations, literature specific to short-lived, relatively high employing developments such as the PPPP does not seem to be available.

With that in mind, Tamerlane readily acknowledges that the "lessons learned" offer valuable observations; including industry's need to have collaborative and ongoing dialogue with communities and all levels of government throughout the life of any resource development project. In terms of small-scale, short-term developments like the PPPP however, the literature does not offer much insight regarding closure scenarios.

As already noted, the PPPP is a relatively small project with a short duration. The project will financially benefit the area's primary communities and area businesses during its three-year life cycle. 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.

Tamerlane is confident that the PPPP will demonstrate commercial viability for the remaining resources which will generate development for the years to come. However, if the PPPP does not proceed to full-scale mining, the project will leave a beneficial legacy of tax and GDP revenues, improved labour market capacity and improved business capacity. The proposed PPPP will lead to an estimated increase of \$89 million in GDP during its three-year life (Ellis 2007). On a limited basis, the PPPP will also contribute to a more sustainable local economy by providing training opportunities and work experience that will help build the capacity of the labour market. The purchase of goods and services in the area will have a similar impact on building capacity in the business community (Ellis 2007).

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.

Response:

1. All contractors or subcontractors will be required to sign and adhere to Tamerlane’s policies and procedures while working on site. Any contractor or subcontractor found to not be in compliance with Tamerlane’s policies and procedures, individuals will be escorted from the site and validity regarding the main contract will be discussed between the contractor and Tamerlane.

With regard to maximizing Northern and Aboriginal employment, Tamerlane is incorporating this requirement in its final contractual agreements with the key specialized contractors. Example, Thyssen Mining is a well established Canadian mining contractor (shaft sinking specialist) with vast experience in employing

aboriginal and local people wherever they conduct business. Tamerlane recognizes the limited skilled labor pool and will be monitoring contractors to ensure that available positions be filled by local and Northern residents.

In addition, Tamerlane is currently finalizing supplies and support needed by the specialized contractors so we can begin working through details with the local Aboriginal groups and Northern businesses.

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.

Response:

1. In order to create a safe and secure workplace and to ensure that Tamerlane employees are qualified to perform the jobs for which they are hired, Tamerlane plans at this time to conduct pre-employment screening, including criminal background checks on all finalists.

In considering whether to hire a finalist who has been convicted of a criminal offense, Tamerlane will consider several factors including but not limited to:

- The relevance of the criminal conviction to job duties
- The date of the most recent offense and employment history since the commission of the crime
- The nature of the offense
- The accuracy of the information the finalist provided on the employment application
- If the felony occurred when the individual was a minor, consideration will be given to whether the minor was treated as an adult for purposes of prosecution

To this end, any material misrepresentation or omission on any employment application materials, including but not limited to the job application, resume or vitae, may be grounds for rejection of the application or termination of any subsequent employment with Tamerlane.

2. Tamerlane is committed to maintaining a safe, healthy, and productive work environment for all employees, contractors, visitors, and guests. Every employee has a role to play in this, and employees have a responsibility to report for work in a fit condition and to work safely throughout their work period. To this end, Tamerlane will have zero tolerance for the possession and/or use of drugs or alcohol at any Tamerlane work location. Tamerlane is currently evaluating whether it will conduct pre-employment drug-testing and/or random drug-testing at its sites on an on-going basis. The Company does plan, however, to conduct drug screening for “reasonable cause” and “post-accidents.”

In these situations, the following will be grounds for drug and alcohol testing:

- Post-Accidents/Incidents – close calls, fatal accidents, medical treatment cases, lost time injuries, and all equipment damage
 - Reasonable Cause - when an individual’s behaviour raises reasonable suspicion indicating they have not complied with the policy
3. A discussion on the developer’s policies on required educational attainment for non-skilled labour sources.

The skills and knowledge to perform the duties of a position generally fall into one of four (4) basic categories. The classification scheme and education criteria for each of the four categories follow:

- Professional
 - Work for the position requires a university degree.
- Skilled
 - Work for the position requires a College/Technical School diploma, certificate (e.g. specialized trades).
- Semi-Skilled
 - Work for the position requires a GED and related work-experience (e.g., equipment operator).
- Unskilled
 - Work for the position is non-specialised; GED is preferred, (e.g., labourer).

Tamerlane will generally follow these guidelines to recruit and hire its employees. In some cases, prior work experience will be considered equivalent to education. Tamerlane will treat exceptions to education criteria on a case by case basis.

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.*”

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)?

Response

- 1.a. Tamerlane is currently working with Hilary Jones and Joe Bailey (Mine Training Society, Northwest Territories) to begin an underground mine training program that will provide training for the communities of Fort Resolution and Hay River Reserve. The classes will be in sizes of 12 students per community depending on the demand, in which case, additional instructors or classes may need to be added if demand is very high. Working with the local aboriginal groups, Tamerlane has

committed to hiring 6 people from the KFN and the DKFN as well as people from the HRMC and FRMC. The purpose of partnering with the Mine Training Society is to develop interest and prepare these people for work in the mining industry.

- 1.b. Tamerlane plans to incorporate all trained personnel from the construction phase of the project into the operation phase of the project, as well as incorporating internal training processes.
- 1.c. For training opportunities, Tamerlane is actively recruiting from its corporate office for a Human Resources Superintendent which will work in concert with Tamerlane's management and the Mines Training Society. Tamerlane's HR Superintendent will liaise with the community points of contact and the Mines Training Society to advertise, screen and select candidates.

Other employment opportunities outside training programs, (Including but not limited to management & professional positions) will be advertised at local and regional levels in publications and organizations as deemed necessary by Tamerlane.

- 2.a. Tamerlane will be counting on support from the GNWT programs specifically around the Mine Training Society Aboriginal Skills Employment Program.
- 2.b. As per conversations with Hilary Jones, Mine Training Society, the current training program Tamerlane has teamed with the Mine Training Society is expected to include support from the Aurora College.
- 2.c. The attached email from Hilary Jones outlines Tamerlane's relationship with the Mine Training Society and the Aboriginal Skills Employment and Partnership. The email also outlines how Tamerlane's training program will be tied into Aurora College.

From: Hilary Jones [mailto:mts@yk.com]
Sent: Friday, August 10, 2007 3:11 PM
To: 'David Swisher'
Subject: RE: Outline of program - and another content expert
Importance: High

Possible responses:

Tamerlane Ventures Inc. and the Mine Training Society, one of the nine present Aboriginal Skills and Employment Partnerships in Canada, met and have agreed to work cooperatively with respect to community based "Introduction to Underground Mining" deliveries for the communities of Hay River and Fort Resolution, as well as other mine and mine related training for aboriginal people of the Deh Cho and Akaitcho.

The Mine Training Society's mandate is to "maximize an Aboriginal and Northern workforce to the greatest extent possible, to train in all areas of the industrial sector, provide job assurances wherever and whenever possible, as well as, assessing and supporting exploratory pre-employment programs."

In addition to the community based deliveries of Underground Mining, Tamerlane is also providing content expertise to the Mine Training Society in the development of curriculum for college certificate level training in mining at Aurora College in Yellowknife, NWT.

Cheers,

Hilary

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.

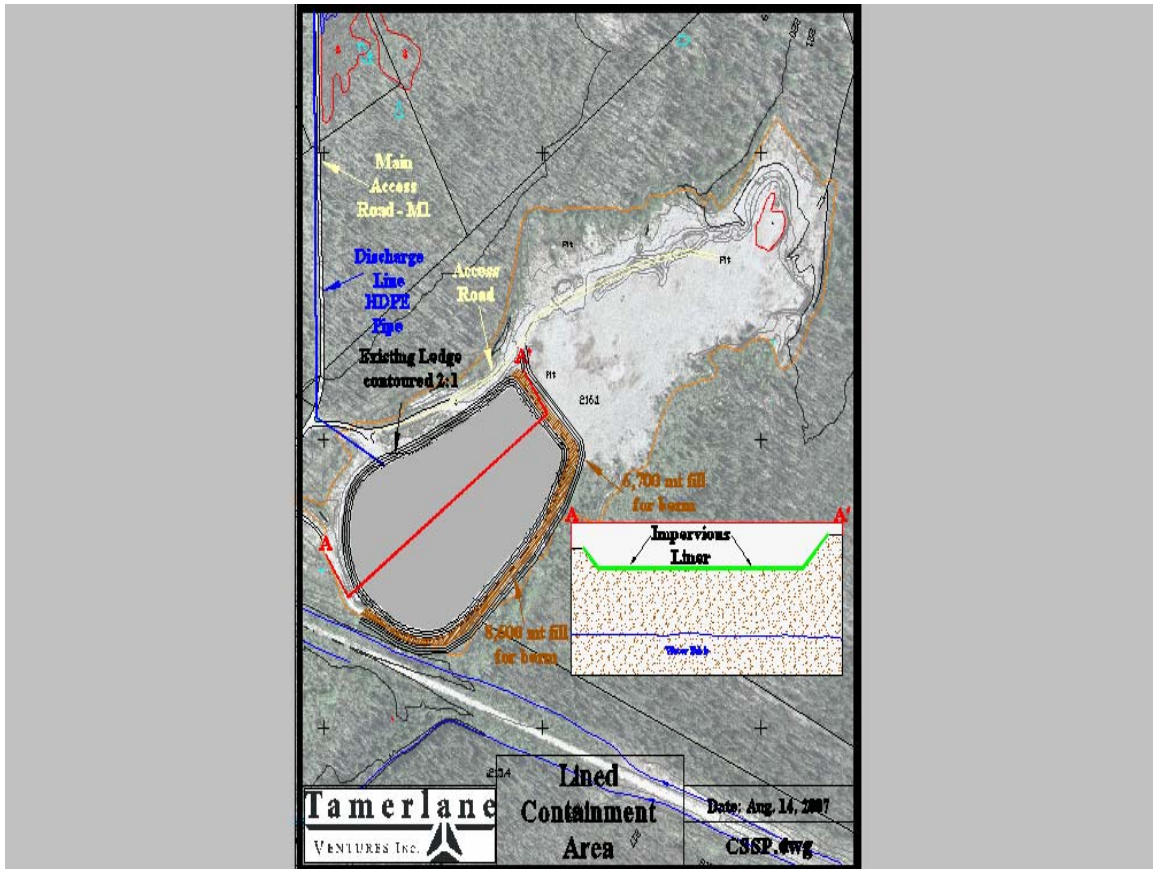
If any part of the previously proposed infiltration basin is still planned to be used, discussions between the developer and the Department of Transportation of the GNWT should continue.

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.

Response

1. A secondary well will be drilled next to the primary well to serve as a back-up to the primary disposal well for maintenance activities and to function in the unlikely event problems occur with the primary well.
2. Although the recently completed water tests indicate suspended solids will not be a problem, in the unforeseen event there is an inrush of high solids, a lined containment area will be constructed at the far Southern end of the previously proposed infiltration basin. The use of this location will ensure Tamerlane is separated from any future work the DOT may undertake on the Northern sector of the quarry. The contingency sediment settling pond (lined containment area) will have the capability to agitate and return solids for use in the backfill system to be returned underground. In addition, reclamation of this pond will entail final agitation and removal of all sediments to be mixed into the backfill for return into the underground. During reclamation, the liner will be removed and the area contoured as necessary to resemble its former state. Please see the Figure below:



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.

Response

1. Due to the vast drilling conducted in and around the R-190 deposit, Tamerlane was able to determine main rock stratification consisting of the overburden, Hay River Shale, Slave Point Dolomite, Watt Mountain Dolomite and the Presquile Dolomite. The ore body lies within the Presquile Dolomite zone which is between 135 and 170 meters in depth. As discussed in the Stevenson International Groundwater Consultants report November, 19832, 97% of total water inflow occurs at the 122 meter depth. Water inflow drops off significantly at continuing depth down to 158 meters. The significant decrease of water inflows is primarily due to the sedimentary dolomites at depth from 122 meters. Tamerlane considered this information in its determination that the 185 meter depth freezwall should extend 50' below the orebody and any underground workings to ensure minimal water inflows.

Following positive discussions from the technical sessions held in Hay River July 17 & 18, 2007, the estimated basal inflow by Tamerlane was estimated at 55 cubic meters per hour. Tamerlane reconsidered this calculation based on input provided at the technical sessions by Christoph Wels, Ph.D., M.Sc., Principal & Senior Hydrogeologist, Robertson Geoconsultants Inc. and Adrian Brown, P.E. Groundwater Hydrology, which collectively indicated one order of magnitude greater for the expected basal inflows, approximately 550 m³/hr with a worst case scenario being 2,000 m³/hr. With the agreed upon range of potential water

inflows, Tamerlane has designed in sufficient capacity to effectively control and handle these potential inflows within these ranges. Additionally, EBA Engineering has recalculated the effects of Ammonia Nitrate in the discharge water which considers in-flows of 550 m³/hr and is provided in IR 0607-002-47, Response #2, Fate of Ammonia. EBA Engineering's full report "Evaluation of Deep Well Disposal, R-190 Mineral Deposit Site Near Hay River, Northwest Territories" can be found on MVEIRB's public registry.

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.

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.

Response

1. The precise location of the injection wells is to be determined, but in general would be proximal to the outside of the frozen curtain around the R-190 deposit and along the east-west “hinge” axis. Exact well locations will be determined based on suitable access, logistics and avoiding existing or planned infrastructure. The hinge area is favourable, since previous pumping tests have shown elongated drawdown along the east-west hinge, indicated enhanced bedrock permeability in an east-west direction within the fractured limestone Presquile aquifer.

The injection well system has not yet been designed, but basic injection well design characteristics, typical installation and operation can be described here. Injection wells theoretically behave like water supply wells in reverse, with a build-up of injected water above the static water level during pumping, rather than a draw-down of water below static water level with a supply well. In practice, injecting water into an aquifer is less efficient than extracting water, so larger open areas through well screens or open bedrock intervals than would be needed for water supply wells are used to provide adequate injection capacity. To reduce possible turbulent head loss, which is a principal factor in the lower efficiency of injection wells, the entrance velocity of injected water through a well screen is designed to be half of that of a supply well.

For the R-190 system, two injection wells are recommended - one as principal and one as back-up well (which can also be used for water quality monitoring) (Which is what Tamerlane has committed to). The redundant back-up well ensures that there is always injection capacity in the system whenever the principal well is unavailable (e.g., for occasional well maintenance). The wells would be installed to span the full thickness of the Presquile aquifer (122 to 170 m (400 to 550 feet deep) to take advantage of the various high permeability horizons within the severely fractured, karstic limestone aquifer. We recommend the wells be cased down to the Amco Shale and Watt Formation, which form confining layers above the Presquile aquifer. This would prevent

migration of injected water into shallower layers above the target Presquile aquifer. Depending on the integrity of the open borehole walls after drilling, the wells could have either a perforated liner or casing with well screen sections over the injection intervals to maintain an open hole.

Hydraulic calculations show that there is sufficient injection capacity in the Presquile aquifer to accept injected water at the anticipated discharge rates entirely under gravity flow. This means that the surface installation would not need to be hydraulically sealed and over-pressured to cause injected water to flow into the Presquile aquifer. Injection water from a return pipeline would flow down a drop pipe from the well head to below the static water depth (currently approximately 25 m below ground surface) and discharge within the well casing, with no cascading “water fall” effect. This practice inhibits oxygenation of the discharge water which could lead to geochemical reactions within the well and exacerbate well fouling.

Injection wells are typically instrumented at the well head to monitor (as a minimum) flow rate, water level in the well and to provide points for water quality sampling or continuous monitoring, if required. Well head systems, controls and monitoring instrumentation are typically build into an enclosed, secure and weather-proof control house. Data from the control house could be data logged and downloaded periodically, or interfaced with a web-based monitoring system for remote real-time monitoring (preferred).

Over time, all wells (supply or injection) require cleaning or maintenance to maintain their performance. As an injection well slowly loses efficiency (over 2-3 years), the pumping water levels in the well, for a give injection rate, will rise. Monitoring build-up provides data to determine when well maintenance may be needed. During maintenance, or if the primary well is unavailable for any reason, valve and piping arrangements are used to redirect injection water into the backup injection well.

2. As outlined in the July 30th, 2007, EBA report, “Evaluation of Deep Well Disposal, R-190 Mineral Deposit Site Near Hay River, NWT”, please note the comments from this report listed below, as well as the cross-sectional diagram showing the maximum mounding effects:

Hydraulic calculations by EBA show that anticipated groundwater mounding due to injection ranges were 0.21 m for an injection rate of 55 m³/hr, 2.1 m for 550 m³/hr and 7.6 m for 2,000 m³/hr. All of these buildups are less than the depth to the current static potentiometric surface (25 m below ground surface) developed above the Presquile aquifer. This indicates that there is no anticipated breakout of injected water at the surface near the wells.

It is understood that there is no current or planned use of water from the Presquile aquifer for drinking water purposes, or any other use except as supply water for the mine process. Thus, the re-injection of water back into the Presquile aquifer will have a beneficial effect of maintaining the water balance within the aquifer. After mine operations cease, the re-injection will cease and the Presquile aquifer will revert to natural hydraulic static conditions.

MOUNDING HEIGHT

There will be mounding of the natural water surface (potentiometric surface for the confined Presquile aquifer) around an injection well, where the water level in the formation rises higher than the static water level.

The theoretical build-up in the aquifer (mounding height) can be calculated by reworking the equation above.

$$\text{Mounding height} = h_w - H_o = Q \times 0.366 \log(r_o / r_w) / Kb$$

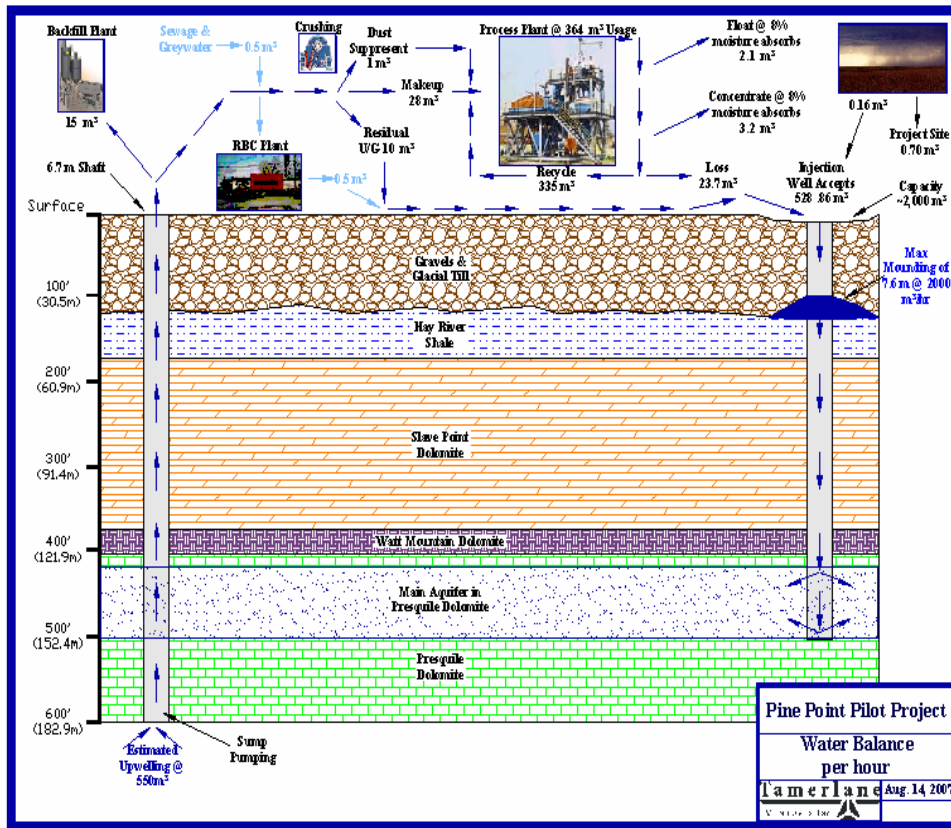
For the initial calculation parameters given above, the mounding heights for the various proposed injection rates would be:

For an injection rate of 55 m³/hr:

$$\text{Mounding height} = 1,320 \text{ m}^3/\text{d} \times 0.366 \log(4,000 \text{ m} / 0.2 \text{ m}) / 10,000 \text{ m}^2/\text{d} = \underline{0.21 \text{ m}}$$

For an injection rate of 550 m³/hr, the mounding would be 2.1 m and

For injection rate of 2,000 m³/day, the mounding would be 7.6 m.

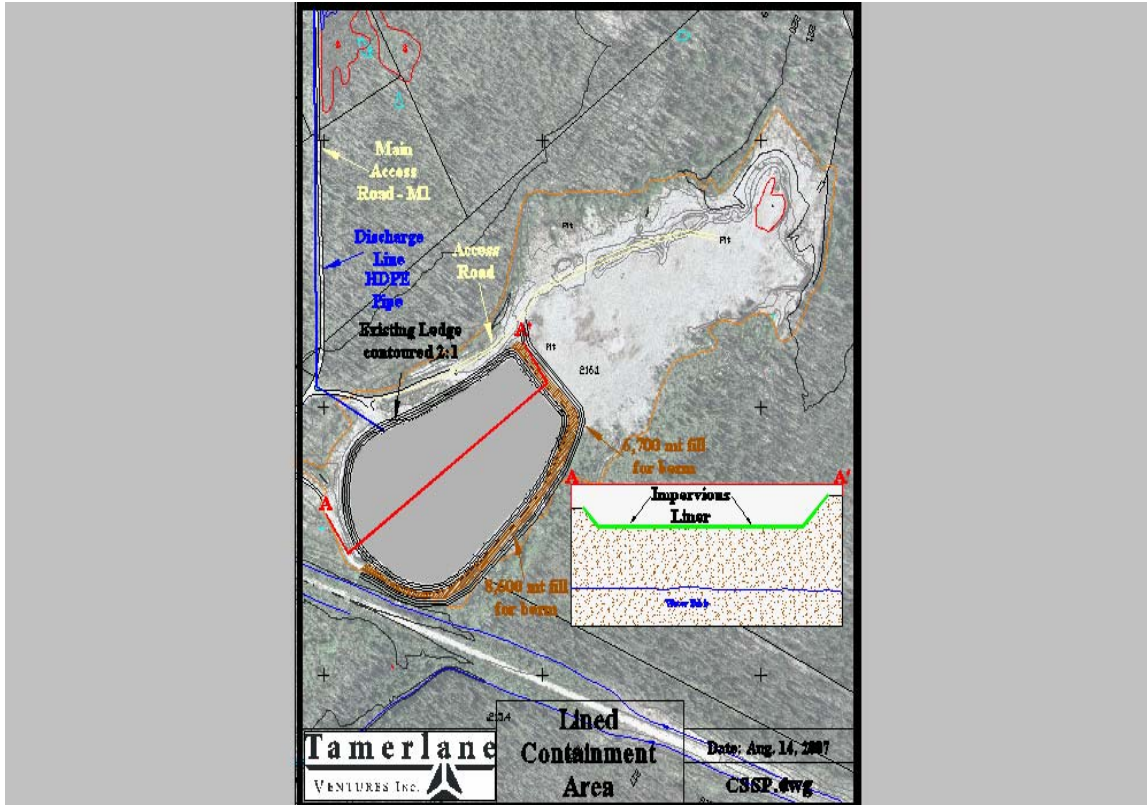


FATE OF AMMONIA

Ammonia as a chemical species (present as ammonium ion NH_4^+) is reactive and will typically readily oxidize through geochemical processes to nitrate compounds or be adsorbed on soil and rock surfaces down-gradient from the injection point. In general, the low concentrations anticipated for the ammonium (1-2 mg/L), the deep injection depths (122 to 183 m below ground surface), the relatively large surface area for adsorption on the severely fractured dolomite aquifer, and the long travel distance to any receptors or surface water bodies (kilometres) suggests that ammonium would be readily retarded (reacted or adsorbed) in the subsurface.

Regarding availability of water resources for other uses during and after operation, there are no other users of the groundwater in this area.

3. Please also refer to IR0607-002-45, response #2. As shown in the below diagram, berms will be constructed on the North and East side of the pond utilizing 6,700 and 8,600 metric tonnes of fill respectively. The South and West banks will be sloped with the remaining berms at a 2:1 angle. An impervious liner will be laid out and fitted together throughout the pond and up the slopes. A thin layer of gravel or waste rock will be laid over the top of the liner to act as protection against puncture.



4. Monitoring wells upstream from the injection wells will be initially installed for freeze ring monitoring within a couple hundred meters. These wells will also be utilized for upstream (background) monitoring of the primary injection well.

With two injection wells, the backup well can and will be located down-gradient of the primary injection well and used to monitor groundwater quality in the Presquile aquifer. When not in use, the backup well can be accessible for installing a submersible groundwater sampling pump. This configuration could be temporary (installed only at the prescribed sampling intervals) or semi-permanently as a dedicated sampling pump (to be removed only when the backup well was needed for injection purposes).

Water quality at the injection well itself would also be monitored for key indicator parameters as required. Water samples would be taken according to a prescribed schedule and submitted to a chemical laboratory for analysis of required parameters.

Likely dilution would be extremely large due to the vast amounts of water in the aquifer itself. Process discharge dilution is calculated from 550 m³/hr pumped from the aquifer with a split into the process then remixed at the end of pipe. Losses of water are due to moisture losses in the concentrate. These calculations were conducted by Godfrey McDonald and are as follows:

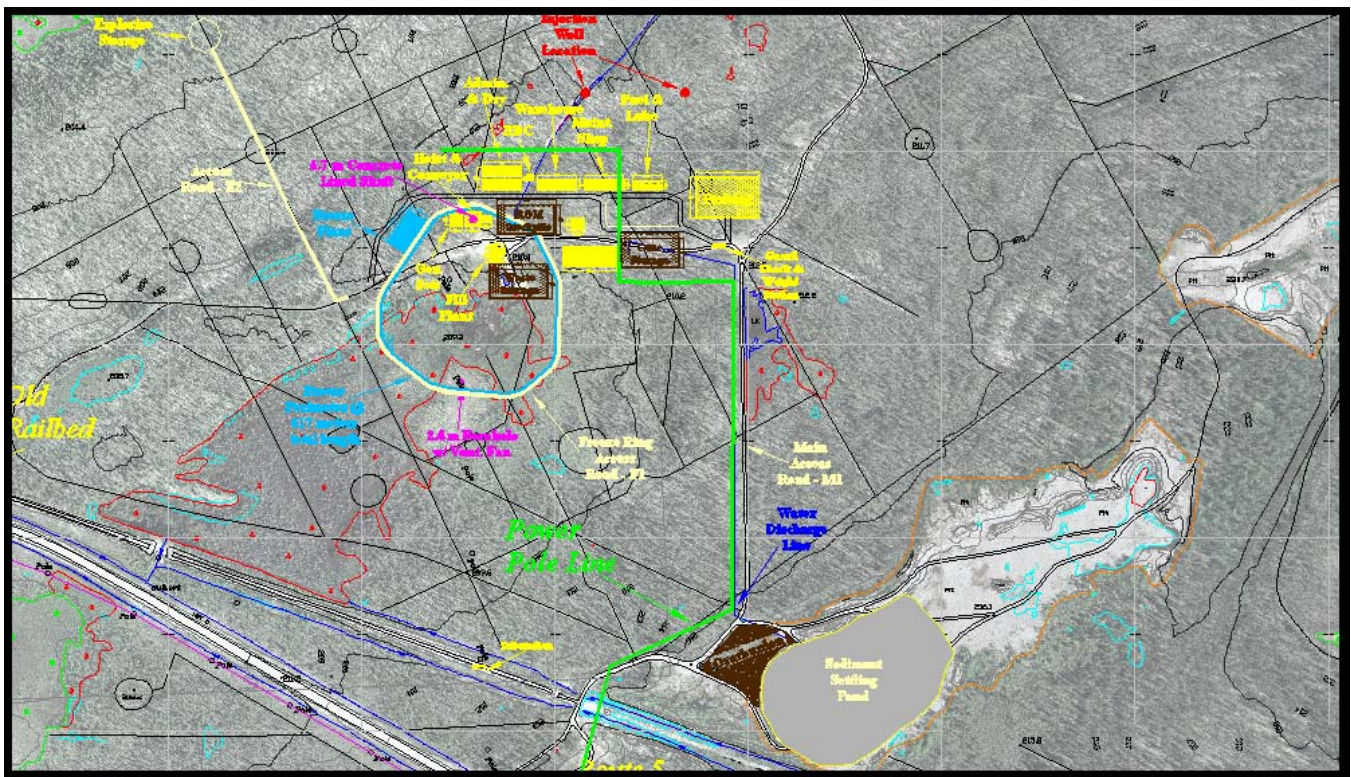
- Underground Seepage 377 m³/hr
- Process Discharge 137 m³/hr
- End-of-Pipe 514 m³/hr

5. In the event that discharge water quality did not meet water quality criteria outlined in the water license, an above-ground lined sediment settling pond will be constructed for temporary storage with a capacity for over three days of flow (514 m³/hr x 24 hrs = 12,336 m³). Such an event would only be foreseen for an unlikely and short-term (hours) upset condition. When the upset condition was rectified, the discharge water would be rerouted back to the discharge well system. The stored water would be treated in a batch manner in the tank before releasing into the injection well at a later time.

Contingency for decrease in injection capacity would be in the form of the second injection well. This backup well would be identical to the primary injection well, but located approximately 100-200 m away from and down-gradient of the primary injection well. If there was a need to take the primary injection well off-line (either for maintenance due to anticipated slow well fouling or some abrupt upset condition), the discharge water would be rerouted through valves and pipes to the backup injection well. Importantly, the backup injection well can also serve as a groundwater quality monitoring well during normal operation.

Regarding water quality criteria, Tamerlane would question the need for water quality criteria as the water to be pumped down-hole will be very comparable to the existing groundwater environment and will not contain any hazardous materials of any kind.

6. As shown in the figure below, the preliminary location identified for the injection well is North of the Maintenance building and within the hinge zone of the aquifer. Additionally, the difference in the footprint lies with the decreased usage of the quarry originally proposed for the infiltration basin. This difference reduces the footprint of the entire project by 10,095 m² or 1.0 hectare which represents a 11% decrease from the original 8.98 hectare project footprint.



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.).

Response

1. Tamerlane first considered an on-site drain field which we soon discovered may not be an acceptable practice in the area, due to ground permeabilities.

Tamerlane then considered not utilizing the RBC system and storing the sewage on-site for daily pickup into Hay River. Although sewage shipping was available from local Hay River businesses, Tamerlane did not consider this for the following reasons: The economics were very prohibitive per month for sewage disposal 48 kilometers to the town of Hay River sewage ponds; and more importantly, our surface dry facilities for all employees during the operation phase of the PPPP is estimated to utilize 12 m³ per day (3100 gpd). At this rate, sewage/gray water disposal trucks would be required on and off the site daily which would create increased site congestion and increase safety hazard exposure.

2. Please see the below comments from EBA Engineerings hydrologist, Scott Schillereff, Ph.D., P.Geo.:

The treatment plant will be designed to produce sewage effluent that has low concentrations of nutrient compounds and low suspended solids. We conclude that this type of discharge effluent water could conceptually be added to the discharge water from the process plant upstream of the filtering and degassing components and admitted to the injection well. This type of injection well discharge of treated sewage plant effluent is practiced in other jurisdictions, as per quote below:

"The practice of disposing wastes by deepwell disposal has been carried out since the 1930s. The terms underground, deep well and sub-surface injection / disposal are sometimes used synonymously. The term deepwell disposal will primarily be used in this document and is not intended to apply to shallow, nears surface disposal facilities.

Deepwell disposal is a waste disposal technique that is used in many other North American jurisdictions, including Alberta. Its use is predominantly, but not exclusively, in the oil and gas sector. Historically, deepwell disposal of wastes has only been carried out to a very limited extent in BC. The exception to this statement is the disposal of produced formation fluids, where deepwell disposal is almost the exclusive method of disposal.

In the past few years, the ministry has received several requests for authorizations of facilities to inject wastes underground. These requests are for facilities located in the oil and gas producing area of northeast BC, but in some cases are not limited to wastes directly related to upstream oil and gas activity (e.g. municipal sewage from remote camps, reject water from water treatment plants)."

- from Section 2.0 at

http://www.env.gov.bc.ca/epd/epdpa/industrial_waste/petrochemical/deepwell_wastes.html

The treated sewage effluent from the Biodisk treatment system, will be of such high quality, that it can be commingled with the remainder of the discharge process water directed to the injection well. Please see the below letter from Tom Smith, BIODISK, outlining monitoring methods that will be incorporated by Tamerlane.

Worst case scenario with the BIODISK system is that it becomes inoperable, out of operating compliance or it requires maintenance to the system. In this case, Tamerlane would immediately utilize the Hay River sewage disposal service on an interim basis to haul wastes away from the site until the system could be brought back into proper operation.

www.BIODISK.ca

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BIODISK
Natural Purification of Wastewater

October 25, 2006

Mr. David Swisher
Tamerlane Ventures Inc.
441 Peace Portal Drive
Blaine, Wa 98230
Tel: 360 332-4653
Dswisher@centurymining.com

Ref No. Biodisk-Q-R-07460

Ref; Monitoring of a Biodisk

Biodisk will provide a PLC in the control panel that will allow the transmission of data. The information will include alarm faults, UV light transmission, heat tracing status and enclosure temperature.

The alarm faults include a motor under load and over load current. For instance if the key in the shaft was to come loose the motor current will be very low and the alarm will sound. If the shaft is over loaded with biomass, ice or gets jammed for any reason the motor amps will be high and the alarm will sound.

If the water levels get above normal operating levels and alarm will sound, if one of the two effluent pumps fails to operate the high water alarm will be activated.

The wastewater temperature is important to the process. If the tank contents drops below the set level the alarm will sound. The panel also transmits the normal operation of the heat tracing elements.

The UV system is equipped with a light transmission signal. If for any reason the effluent becomes cloudy the light will not be transmitted and an alarm will sound.

All alarm function are transmitted through a PLC to an off site location.

Additional feed back can be provided. When he Biodisk is operating at optimum the dissolved oxygen (DO) and pH are in a specific range. These two option and others can be added to the treatment process. I should note that this has not been a requirement at any location to date. Biodisk will provide a small test kit so that the operator can check the DO and pH.

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BIODISK
Natural Purification of Wastewater

The control room has a sample tap. When the Biodisk is not meeting effluent quality it is often evident by looking at the sample. If the sample is a clean clear colourless liquid with out any odour the effluent will be good.

Part of the routine inspection procedures that are contained in the operation and maintance manual is a visual inspection of the process. Visual inspection includes looking at the quantity and quality of the biomass on the disk surface. A Biodisk that is operating well will have a dark brown biomass with a smooth texture. If the Biomass is grey, black or is starting to change colour then the operator can address the issue. If the biomass starts to show signs of gelatinous texture it is also a signal for the operator.

The operator will also listen to the mechanical components. Bearing and drives will often tell you that they need attention. A quiet system is what is normal. Noises are signal that the mechanical components need attention.

I trust that the above will meet your needs. Should you have any further question please feel free to ask.

Yours truly,

Tom Smith, CEO
Biodisk Corp
Tel: 416 237-0214
Fax: 416 239-7880
Email: rbcguy@biodisk.ca.

Please see the below effluent quality information provided by BIODISK Corporation. The information represents analytical testwork performed by MAXXAM Analytics Inc for an operating sewage treatment facility like the one Tamerlane is proposing to use.

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BIODISK
Natural Purification of Wastewater

	BOD5	TSS	TP	Total ammonia	pH	E-coli 200/100	Temp C	Unionized Ammonia	TKN
C of A Limits	25	25	1	2-3	6-9.5		NA	20 µg/l	
Date									
Jan. 4	<2	2	0.35	0.34	7.8	<1.8	11.7	2.1	
12	<2	1	0.78	0.30	8.0	<10	12.5	0.66	
18	<3	5	0.52	0.17	8.0	<10	15.5	0.48	
25	<2	2	0.21	0.39	8.0	<1.8	15.6	1.09	
Feb 1	<3	2	0.25	0.28	8.01	<1.8	17.4	0.8	
9	<2	<1	1.00	0.07	7.6	<1.8	13.9	0.05	
15	<2	2	0.25	0.16	7.8	<1.8	13.6	0.5	
23	<2	3	0.55	0.08	7.4	<1.8	12.5	0.05	
March 2	<2	<1	0.23	0.10	7.6	<1.8	12.5	0.16	
8	<2	1	0.20	<0.05	7.2	<1.8	12.7	0.02	
13	<2	5	0.20	0.06	7.7	<10	14.0	0.09	
23	<2	<1	0.03	0.10	7.7	<1.8	14.0	0.04	
29	<3	1	0.31	0.08	7.7	<1.8	15.9	0.14	
April 6	<2	1	0.24	0.28	8.0	<1.8	17.1	0.89	
13	<2	1	0.36	0.06	7.8	<1.8	17.1	0.17	
19	<2	3	0.32	0.06	7.6	<1.8	20.8	0.08	
27	<2	1	0.33	<0.05	7.6	<1.8	20.8	1.5	
May 4	<2	1	0.1	<0.05	7.7	<1.8	20.2	2.4	
11	<2	1	0.27	<0.05	7.7	<1.8	20.7	1.6	
18	<2	2	0.19	<0.05	7.9	<1.8	19.0	3.6	
25	<2	<1	0.08	0.17	7.7	<1.8	18.7	2.8	
31	<2	<1	0.12	0.08	7.5	<1.8	24.3	1.7	
June 7	<2	3	0.17	0.12	7.4	<10	22.5	1.5	
15	<2	<1	0.26	0.09	7.7	<1.8	21.7	3.2	
22	<2	1	0.19	0.27	7.6	<1.8	23.2	2.4	
26	<2	1	0.10	0.11	7.1	<10	25.4	0.6	
July 5	<2	<1	0.06	0.20	7.5	<1.8	22.3	1.4	
13	<2	1	0.08	0.21	7.3	<1.8	24.8	1.0	
21	<2	2	0.11	0.12	7.1	<1.8	25.8	0.7	
28	<2	3	0.06	0.07	7.0	<1.8	25.2		
Aug 3	<2	<1	0.21	0.18	7.5	<1.8	25.8		

Your Project #: TPA
Site: TPA
Your C.O.C. #: 00417643

Attention: Tom Smith
Biodisk Corporation
21 Cliveden Ave
Toronto, ON
M8Z 3M7

Report Date: 2006/10/26

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A6B2341
Received: 2006/10/19, 14:48

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Carbonaceous BOD	2	N/A	2006/10/20	Ont SOP 0068	APHA 5210B
E.coli, (5TMPN/100mL)	1	N/A	2006/10/19	Ont SOP-0196	SM 9221
Ammonia-N	1	N/A	2006/10/24	Ont SOP 0441	US GS I-2522-90
pH	1	N/A	2006/10/24	Ont SOP 0067	SM 4500H
Total Kjeldahl Nitrogen in Water	1	N/A	2006/10/25	Ont SOP-0823	EPA 351.2 Rev 2
Total Phosphorus (Colourimetric)	2	2006/10/24	2006/10/25	Ont SOP 0115	SM 4500 PBE
Total Suspended Solids	2	N/A	2006/10/25	Ont SOP 0076	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key  James Aspin
28 Oct 2006 09:22:28 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

JAMES ASPIN, Project Manager
Email: James.Aspin@maxxamAnalytics.com
Phone# (905) 817-5700 Ext:5771

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Maxxam Job #: A6B2341
Report Date: 2006/10/26

Biodisk Corporation
Client Project #: TPA
Project name: TPA
Sampler Initials:

RESULTS OF ANALYSES OF WATER

Maxxam ID		O96745			O96747		
Sampling Date		2006/10/19 13:30			2006/10/19 13:40		
COC Number		00417643			00417643		
	Units	TPA-EFFLUENT	RDL	QC Batch	TPA RAW	RDL	QC Batch

INORGANICS							
Total Ammonia-N	mg/L	0.26	0.05	1083974		0.05	1083974
Total Carbonaceous BOD	mg/L	<2	2	1081488	23	2	1081488
Total Kjeldahl Nitrogen (TKN)	mg/L		10	1084493	110	10	1084493
pH	pH	7.3	0.01	1084001		0.01	1084001
Total Phosphorus	mg/L	0.06	0.02	1084913	19	0.5	1084108
Total Suspended Solids	mg/L	<1	1	1085077	29	1	1081826

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A6B2341
Report Date: 2006/10/26

Biodisk Corporation
Client Project #: TPA
Project name: TPA
Sampler Initials:

MICROBIOLOGY (WATER)

Maxxam ID		O96745		
Sampling Date		2006/10/19 13:30		
COC Number		00417643		
	Units	TPA-EFFLUENT	RDL	QC Batch

MICROBIOLOGICAL				
Escherichia coli	5TMPN/100mL	<1.8	1.8	1081164

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



Biodisk Corporation
Attention: Tom Smith
Client Project #: TPA
P.O. #:
Project name: TPA

Quality Assurance Report
Maxxam Job Number: MA6B2341

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1081488 HAI	QC STANDARD	Total Carbonaceous BOD	2006/10/20		94	%	75 - 125
	Method Blank	Total Carbonaceous BOD	2006/10/20	<2		mg/L	
	RPD	Total Carbonaceous BOD	2006/10/20	NC		%	25
1081826 JWU	QC STANDARD	Total Suspended Solids	2006/10/25		100	%	85 - 115
	Method Blank	Total Suspended Solids	2006/10/25	<1		mg/L	
	RPD	Total Suspended Solids	2006/10/25	15.7		%	25
1083974 LS	MATRIX SPIKE	Total Ammonia-N	2006/10/24		99	%	80 - 120
	Spiked Blank	Total Ammonia-N	2006/10/24		99	%	80 - 120
	Method Blank	Total Ammonia-N	2006/10/24	<0.05		mg/L	
1084108 API	RPD	Total Ammonia-N	2006/10/24	0.3		%	25
	MATRIX SPIKE	Total Phosphorus	2006/10/25		112	%	75 - 125
	QC STANDARD	Total Phosphorus	2006/10/25		109	%	85 - 115
1084493 SBU	Spiked Blank	Total Phosphorus	2006/10/25		112	%	75 - 125
	Method Blank	Total Phosphorus	2006/10/25	<0.02		mg/L	
	RPD	Total Phosphorus	2006/10/25	0.8		%	25
1084913 API	MATRIX SPIKE	Total Kjeldahl Nitrogen (TKN)	2006/10/25		89	%	80 - 120
	QC STANDARD	Total Kjeldahl Nitrogen (TKN)	2006/10/25		91	%	85 - 115
	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2006/10/25		87	%	80 - 120
1085077 JWU	Method Blank	Total Kjeldahl Nitrogen (TKN)	2006/10/25	<0.1		mg/L	
	RPD	Total Kjeldahl Nitrogen (TKN)	2006/10/25	1.6		%	20
	MATRIX SPIKE	Total Phosphorus	2006/10/25		94	%	75 - 125
1085077 JWU	QC STANDARD	Total Phosphorus	2006/10/25		107	%	85 - 115
	Spiked Blank	Total Phosphorus	2006/10/25		107	%	75 - 125
	Method Blank	Total Phosphorus	2006/10/25	<0.02		mg/L	
1085077 JWU	RPD	Total Phosphorus	2006/10/25	2.2		%	25
	QC STANDARD	Total Suspended Solids	2006/10/25		100	%	85 - 115
	Method Blank	Total Suspended Solids	2006/10/25	<1		mg/L	
	RPD	Total Suspended Solids	2006/10/25	NC		%	25

NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard
SPIKE = Fortified sample

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?

Response: NOTE: ALL INFORMATION PROVIDED BY MR. GODFREY MCDONALD, CONFIDENTIAL METALLURGICAL SERVICES.

1. The end-of-pipe volume and several, characteristics are calculated on the volume and characteristic of the sources which are the underground seepage water and the process flotation discharge water, which is as follows:

Calculated End-of-Pipe			
Characteristic	Underground Seepage 377 m3/h	Process Discharge 137 m3/h	End-of-Pipe 514 m3/h
pH	7.8	11.8	8.6
Sulphate (mg/l)	1780	300 to 1000	1387 to 1575
TDS (mg/l)	3140	200 to 500	2108 to 2180
Copper (mg/l)	0.001	0.495	0.133
Lead (mg/l)	0.001	0.302	0.081
Zinc (mg/l)	0.016	0.186	0.061

With regard to the nitrate and ammonia, these were recalculated by EBA and are shown in IR0607-002-47, response #2.

2. The flotation discharge from each cycle of a laboratory “locked cycle” flotation test were discharged into a pail and after two hours of natural settling a sample of the discharge water above the settled, flotation discharge solids was collected. This water was sent to the analytical laboratory for analysis. The analytical report CA 10209 – Jul07, ICP-MS Metals is attached (2 pages) with a detailed, activity schedule and the completed analyses. There will not be any cyanide compounds used in the flotation process.

The ground seepage that will report to the mine workings, mine seepage sumps and then will be pumped to surface where it will be temporarily used for ROM ore processing before being pumped through an injection well back to the same

deep, hard water aquifer that has a very high estimated volume. It can be seen as a water loop with limited time and characteristic change during its cycling.

Why do we say limited characteristic change; because of the minimum estimated, quantity of underground seepage to be in this loop is 550 cubic meters per hour and it's temporary use in the ROM ore processing is only 173 cubic meters per hour or 31% of the flow. Of the 31% seepage volume temporarily used only 137 cubic meters per hour is returned to the aquifer, which is only 25% of the original, estimated flow of the cycled, underground seepage. The missing 36 cubic meters per hour of seepage water is the quantity that remaining as a moist surface coating on the dewatered concentrate, flotation discharge and DMS "float" reject particles and will be permanently lost from the water loop. The seepage water characteristic for Brown, Erdman and Associates on the deep, hard water aquifer is attached.

Notes:

- The process flotation discharge are 25% of the underground seepage flow so the affect on the pH of the injection well water will be increased 0.8 units which will quickly be diluted by the large volume of water in the injection well aquifer.
- The sulphite, bisulphate and sulphate in some of the flotation reagents will be adsorbed on the surface of the designated mineral surfaces and will not report to the process flotation discharge.
- The copper sulphate added to the flotation circuit; the copper ion will activate the sphalerite (zinc) particle surfaces for subsequent flotation and the sulphate, cation ion will be precipitated by the calcium ion in the circuit to form gypsum which will report to the flotation solids.
- There should be no reason for the injection well to plug from the loop water.

If the quantity of water to be pumped to surface from the underground mine settling sumps, increases; then the volume of water to be pumped through the injection well to the subsurface aquifer(s) will increase by the same quantity. The increased volume of underground, mine settling sump water will dilute the flotation discharge water characterization (listed above) and the resultant injection well water will be closer to the characterization of the subsurface aquifer(s).

If the quantity of water to be pumped to surface from the underground mine settling sumps, decreases; then the volume of water to be pumped through the injection well to the subsurface aquifer(s) will decrease by the same quantity. The decreased volume of underground mine settling sump water will not dilute the flotation discharge water characterization (listed above) and the resultant injection well water will be closer to the characterization of the flotation tailings water characterization.

SGS Lakefield Research

CA10209-JUL07

10 July, 2007

Client (2736) Barb Bowman
Reference
Project CALR-11633-001
Batch Env ICP-MS Metals
Supervisor bgraham

Received 10-Jul-07 14:53
Requested 17-Jul-07 14:53
Created 10-Jul-07 14:53
Finished
Samples 1,0,0 - 41

Notes:
ckd ks

Tag	Type	Sample ID	pH units	Alkalinity mg/L as CaCO3	Acidity mg/L as CaCO3	Conductivity uS/cm	Hg µg/L
1	NOS	~Analysis Start Date	12-Jul-07	12-Jul-07	12-Jul-07	12-Jul-07	12-Jul-07
2	NOS	~Analysis Start Time	09:33	09:33	09:33	09:33	08:15
3	NOS	~Analysis Approval Date	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	12-Jul-07
4	NOS	~Analysis Approval Time	09:11	09:11	09:11	09:11	13:39
5	SMP	Zinc Comb Tails Water	11.4	163	13	3610	1.5

Tag	Ag mg/L	Al mg/L	As mg/L	Ba mg/L	Be mg/L	B mg/L	Bi mg/L	Ca mg/L
1	13-Jul-07	12-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	12-Jul-07
2	11:00	15:18	11:00	11:00	11:00	11:00	11:00	15:18
3	17-Jul-07	18-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	18-Jul-07
4	15:19	07:42	15:19	15:19	15:19	15:19	15:19	07:42
5	0.00600	0.52	0.0314	0.0263	< 0.00004	0.134	0.00156	171

Tag	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	Fe mg/L	K mg/L	Li mg/L	Mg mg/L
1	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	12-Jul-07	12-Jul-07	12-Jul-07	12-Jul-07
2	11:00	11:00	11:00	11:00	15:18	15:18	15:18	15:18
3	17-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	18-Jul-07	18-Jul-07	18-Jul-07	18-Jul-07
4	15:19	15:19	15:19	15:19	07:43	07:43	07:43	07:43
5	0.00053	0.000704	0.0037	0.495	0.94	13.6	< 0.002	0.746

Tag	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	P mg/L	Pb mg/L	Sb mg/L	Se mg/L
1	13-Jul-07	13-Jul-07	12-Jul-07	13-Jul-07	12-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07
2	11:00	11:00	15:18	11:00	15:18	11:00	11:00	11:00
3	17-Jul-07	17-Jul-07	18-Jul-07	17-Jul-07	18-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07
4	15:19	15:19	07:43	15:19	07:43	15:19	15:19	15:19
5	0.00777	0.0633	1000	0.0060	0.16	0.302	0.0048	0.002

CA10209-JUL07

Tag	Si mg/L	Sn mg/L	Sr mg/L	Ti mg/L	TI mg/L	U mg/L	V mg/L	W mg/L
1	12-Jul-07	13-Jul-07	12-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07	13-Jul-07
2	15:18	11:00	15:18	11:00	11:00	11:00	11:00	11:00
3	18-Jul-07	17-Jul-07	18-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07	17-Jul-07
4	07:43	15:19	07:43	15:19	15:19	15:19	15:19	15:19
5	3.63	0.0013	9.42	0.0058	0.0011	0.00030	0.00135	0.00820

Tag	Y mg/L	Zn mg/L	Hg Prep
1	13-Jul-07	13-Jul-07	11-Jul-07
2	11:00	11:00	15:00
3	17-Jul-07	17-Jul-07	11-Jul-07
4	15:19	15:19	15:00
5	0.000119	0.186	1

test ltd.
1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

REPORTED TO BROWN, ERDMAN & ASSOCIATES LTD.
1409 BEWICKE AVENUE
NORTH VANCOUVER, B.C.

W/O NO. W-801204-002
DATE JANUARY 7, 1981
FILE NO: 9185D

ATTENTION MR. RICHARD VOGWILL
SAMPLE TYPE WATER

We have tested the sample of water submitted by you on Dec. 3, 1980 and report as follows:

SAMPLE IDENTIFICATION:
The sample was submitted in a plastic bottles labelled:
WESTERN MINES
80 - 190
R-190 End of Test
12:50 Nov. 24/80
5°C Pump Off 13:07

METHOD OF TESTING:
The analyses were carried out in accordance with procedures described in "Standard Methods for the Examination of Water and Wastewater (14th Edition)" published by the American Public Health Association, 1975.

RESULTS OF TESTING:
(on the following page)

REMARKS:
(on the following pages)

CAN TEST LTD.
Judi M. Mitchell, B.Sc.,
Chemist

/cs

CAN TEST LTD. W/O NO: W-801204-002
PAGE NO: 2 of 3
FILE NO: 9185D

SAMPLE # 1
CLIENT SAMPLE I.D. WESTERN MINES

PHYSICAL TESTS
PH 7.85
Conductivity (micromhos/cm) 3400.
Colour [Pt-Co scale] (CU) 15.
Turbidity (JTU) 7.3
Hardness (mg/L) 1950.

SOLIDS (mg/L)
Total Suspended < 0.5
Total Dissolved 3140.

DISSOLVED ANIONS (mg/L)
Alkalinity: Bicarbonate HCO3 382.
Alkalinity: Carbonate CO3 Nil
Alkalinity: Hydroxide OH Nil
Chlorides Cl 46.0
Sulfates SO4 1780.
Nitrates and Nitrites N < 0.002
Ortho Phosphates o-PO4 < 0.03
Fluorides F 1.25

DISSOLVED METALS (mg/L)
Arsenic As < 0.001
Cadmium Cd < 0.001
Calcium Ca 520.
Copper Cu < 0.001
Iron Fe < 0.030
Lead Pb < 0.001
Magnesium Mg 159.
Manganese Mn 0.006
Molybdenum Mo 0.006
Nickel Ni < 0.005
Potassium K 4.54
Silicon SiO2 9.75
Sodium Na 79.8
Zinc Zn 0.016

TOTAL METALS (mg/L)
Iron Fe < 0.030
Manganese Mn 0.007
Mercury Hg 0.00007

POLLUTANT TESTS (mg/L)
Total Organic Carbon C 5.
Total Phosphate PO4 0.18
Sulfides S 66.

mg/L - milligrams per liter

CAN TEST LTD..

W/O No: W-801105-001
File No: 8729D
Page No: 2

SAMPLE # 1
CLIENT SAMPLE I.D. PUMP TEST

TOTAL METALS (mg/L)		
Aluminum	Al	< 0.15
Antimony	Sb	< 0.15
Arsenic	As	< 0.001
Barium	Ba	0.010
Beryllium	Be	< 0.003
Bismuth	Bi	< 0.5
Boron	B	0.44
Cadmium	Cd	< 0.001
Calcium	Ca	602.
Chromium	Cr	< 0.03
Cobalt	Co	< 0.02
Copper	Cu	0.006
Iron	Fe	0.050
Lead	Pb	0.002
Magnesium	Mg	178.
Manganese	Mn	0.011
Molybdenum	Mo	0.005
Nickel	Ni	< 0.025
Phosphorus	PO4	0.60
Potassium	K	4.45
Silicon	SiO2	11.3
Silver	Ag	< 0.03
Sodium	Na	92.4
Strontium	Sr	10.3
Tin	Sn	< 0.03
Titanium	Ti	< 0.006
Vanadium	V	< 0.010
Zinc	Zn	0.021

mg/L - milligrams per liter

99

CAN TEST LTD.

W/O NO: 801204-002
PAGE NO: 3 of 3
FILE NO: 9185D

REMARKS:

The water represented by the sample submitted can be characterized as a very hard water, also very high in dissolved mineralization.

For the parameters tested, the sample met the limit set by "Guidelines for Canadian Drinking Water Quality, 1978", published by authority of Health and Welfare, Canada, with the exception of turbidity (limit = 5.0 J.T.U.) total dissolved solids (limit = 500 mg/L), sulfates (limit = 500 mg/L) and sulfide (limit = 0.05 mg/L). The sample was also noted to be borderline with respect to color, to be approaching the limit for fluoride (1.5 mg/L) and to be high in calcium, magnesium and hardness.

Examination of these test results would indicate that the water represented by this sample is not acceptable as potable water.

3. The site processing described in the initial DAR document was:
- Underground and surface crushing to reduce the run-of-mine (ROM) ore lump size to -1/4".
 - Wash the crushed, ROM ore to remove on a vibrating screen the -28 mesh screen fines.
 - The +28 mesh screen fraction will be subjected to a Dense Media Separation (DMS) process to produce:
 - a DMS "float" reject that will be mixed with cement and returned underground for backfilling mined-out areas and shotcreting walls as required.
 - a DMS "sink" product, which is the Direct Shipment Ore (DSO), will be conveyed to a temporary storage area and subsequently hauled by truck to the railhead at Hay River.
 - the -28 mesh screen fines will be dewatered and the solids will be mixed with the DMS "sink" product for shipment as part of the DSO.
 - The process water discharge characterization will not be affected by the use of ferrosilicon in the DMS plant because ferrosilicon is an inert substance and is not soluble in water.

The plan to do additional processing at the site will involve only the DMS "sink" product and the -28 mesh screen, fines, will be as follows:

- These DMS products will be ground to 80% -99 microns for liberation of individual sulphides from each other and from the host rock (limestone/dolomite).
- Specific reagents will be added to the ground, upgraded ROM ore so first, a lead concentrate will be floated.
- Next, more reagents are added to the lead circuit and a zinc concentrate will be floated.
- The zinc circuit discharge will be dewatered. The dewatered discharge will be a major component of the cemented backfill for the mined-out areas and shotcrete applications underground.
- The lead and zinc concentrates will be dewatered in separate but identical dewatering circuits subsequent to truck haulage to the railhead in Hay River.
- The reclaimed process water from the dewatering circuits (the zinc circuit discharge, lead concentrate and zinc concentrate) will be recycled to the DMS and grind/flotation circuits as the process demands. The excess reclaim water will be pumped for disposal in the injection well.

Reagents and Substances Consumed in the Site Processing:

The listed reagents and substances that will be consumed in the ROM ore processing at the site, are as follows:

<u>Reagents and Substances</u>	<u>Consumed grams/tonne ore*</u>
• DMS circuit –ferrosilicon powder	500
• Flotation circuits –Soda Ash	4,000
-P82 (25% sodium bisulphate)	188
(25% sodium sulphite)	188
(50% zinc sulphate)	374
-AQ8 (20% CMC)	655
(20% Dispersogen)	655
(60% Sodium Silicate)	1,965
-Sodium Sulphide	800
-Potassium Amyl Xanthate	48
-Dowfroth 067	20
-Lime	1,300
-Copper Sulphate	1,200
-R3894	10

*based on 3,000 tonnes of ROM ore per day

- The laboratory test work has exemplified the fact that cyanide or any cyanide complex, will not be required to produce a lead, zinc separation in the flotation circuits. The reagents employed in the flotation circuits have to be transported, stored and distributed in the flotation circuits. No special handling is required provided instructions are clearly written and a thorough personnel training program is initiated to ensure safety to personnel and equipment. Some reagents will be delivered in bulk, some in tote bags (1 tonne) and some in steel or plastic drums.

- The reagents used in the flotation circuits will be adsorbed onto the mineral surfaces either to enhance specific mineral floatability or to prevent their floatability. Most of the reagents therefore leave the flotation plant on the surface of the concentrates produced or the discharge solids reject which will be returned underground as cemented backfill. The only reagent that is used in the flotation circuits that is not adsorbed on the solids surfaces will be the frother (Dowfroth 067) which is used to stabilize the air bubble which will move the floatable minerals to the top of the flotation cell and allow the mineral laden bubbles to overflow the flotation cell edge and into the product collecting launder(s). Frother is similar to soap in water and at an extremely low concentration which is easily dispersed and oxidized naturally. The trained, flotation operators will prevent excess quantities of all reagents entering the process; thereby preventing these reagents from reporting in the flotation discharge water.
 - A written contingency plan for the handling of reagent spills will be prepared before commissioning the DMS and flotation plants starts.
4. The process water from the flotation discharge thickener “overflow” that is not recycle to the DMS and grind/flotation circuits will flow directly to the injection well pump feed where an automatic sampler will take a sample before it enters the injection well pump.

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.

Response

1. Similar to many underground mines operating in North America, Schedule 40 piping will be buried from the tank farm (to prevent exposure) directly to the shaft. The piping will then be attached to the shaft wall and ran to a smaller holding facility which will contain polypropylene storage tanks sized to provide a 1-2 day supply before refueling. The tanks will be contained in a lined catchment sized to 110% capacity.
2. Tamerlane's Hazardous Spills Contingency Plan was designed to address any spill within the operation whether it be on surface or underground. The appropriate measures for any underground spills will be employed as per Tamerlane's Plan.

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.

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.

Response

1. The brine will be removed and returned either to the manufacturer or GNWT for roadway usage and the internal pipes will be removed while the external pipes will be left in place.
2. Provided that the fuel and lube tanks are not sold or reused for other business purposes, then the tanks will be washed and the wash water captured and hauled off site to an appropriate disposal facility either Hay River or Edmonton.

3. Page 418 of the DAR overstated the on-site treatment of hazardous waste material. Tamerlane does not intend to treat any hazardous waste on site.
4. As with prior dewatering test wells already existing currently, the injection wells will be capped and left in place with all surface infrastructure removed.
5. Reclamation of the settling pond will entail final agitation and removal of all sediments to be mixed into the backfill for return into the underground. During reclamation, the liner will be removed and the area contoured as necessary to resemble its former state.
6. Due to changes in the nature of the project which reduce footprint size and eliminates surface water discharge which eliminates the use of the infiltration basin, post-closure monitoring will be limited to evaluating the success of the re-vegetation effort. Post-closure monitoring for re-vegetation success is envisioned to be conducted 1 & 5 year post closure. The need for extended monitoring beyond 5 years can be re-evaluated thereafter. Any prior funds estimated for the full reclamation of the infiltration basin will be utilized for post-closure monitoring.
7. The current plan, as outlined in the DAR, is to return the area to similar pre-mining land uses for wildlife and the general public.
8. Protection of public health and safety through the use of safe and responsible reclamation practices;
 - Through the effective removal of residual wastes (e.g. brine, waste hydrocarbons) mine infrastructure, re-contouring and re-vegetation of the area, this objective will be successfully met.

Reduction or elimination of physical environmental effects once the mine ceases operation;

- Through the effective removal of residual wastes (e.g. brine, waste hydrocarbons) mine infrastructure, re-contouring and re-vegetation of the area, this objective will be successfully met.

Re-establishment of conditions that permit the land to return to similar pre-mining land uses;

- Through the effective removal of residual wastes (e.g. brine, waste hydrocarbons) mine infrastructure, re-contouring and re-vegetation of the area, this objective will be successfully met.

Eliminate the need for long-term monitoring and maintenance by establishing physical and chemical stability of disturbed areas;

- Physical and chemical objectives will be readily recognizable and monitored during the initiatives outlined in response #6 above.

No contingency actions are anticipated due to the projects straight-forward nature.

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

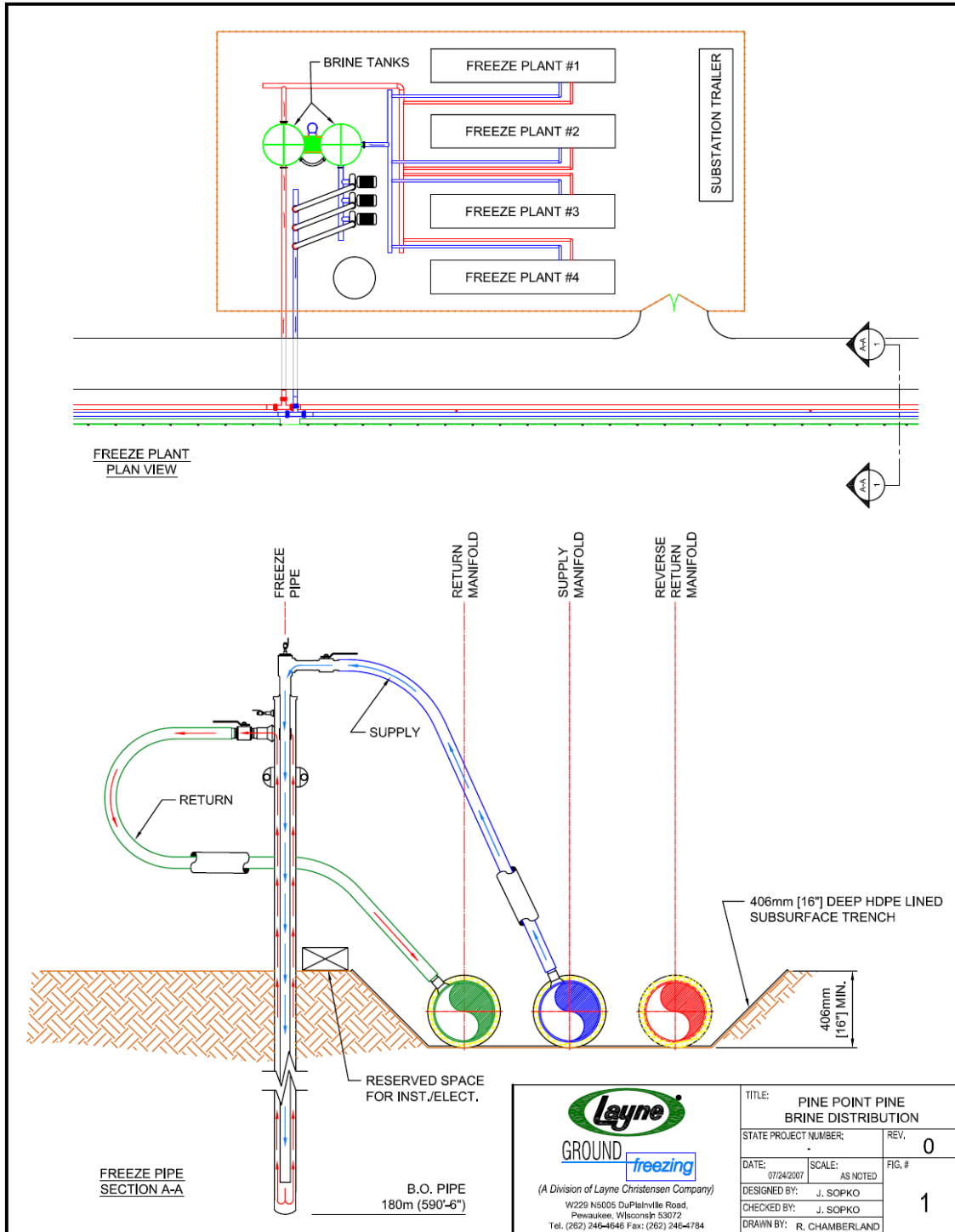
1. Develop, propose and describe design measures to ensure that the refrigeration fluid is at all times contained within the distribution system, even in the event of total rupture of the brine distribution system. Tamerlane should provide information that demonstrates that the containment system(s) 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.

Response

1. Tamerlane will be adhering to the following around the freeze ring perimeter: [The simplest and most effective way to contain the brine within the manifold is to set the manifold in a HDPE-lined trench that will serve as a reservoir for any spills. The proposed manifold is composed of three 12-inch diameter pipes making up the supply, return and reverse return manifold. The combined volume of the manifolds is 34,700 gallons while the volume of the lined trench is 111,100 gallons. A drawing of this system is provided below.](#)

Sincerely,

Layne Christensen Company



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2. As outlined by Layne Christensen:

An underground failure of the mine system could result in the breakage of the 4-inch diameter freeze pipes. Each individual freeze pipe contains approximately 400 gallons of brine. Assuming that all that pipes are broken, this would be 240,000 gallons, in addition to the 34,700 gallons in the manifold. This type of leak is unlikely for the following reasons:

1. A mine rock failure would be localized and affect a very small number of pipes;
2. The pipes are capable of bending without breaking in the event of rock movement; and
3. It is possible to place isolation valves at the surface that can be operated either manually or automatically to isolate the manifold and prevent brine loss.

In the unlikely event however of any brine loss into the environment the simplest method of control is to dilute with sufficient amounts of fresh water. The calcium chloride solution is at 28 percent therefore it is possible to dilute to levels that will be undetectable.

Sincerely,

Layne Christensen Company

Joseph A. Sopko, Ph.D., P.E.
Director of Engineer

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.

Response:

1. The Flotation circuit in addition to the Dense Media Separation process is the final proposed technology as further explained in IR0607-002-49.
2. Please see IR0607-002-49, response #3
3. Please see the below chart provided by Godfrey McDonald, Confidential Metallurgical Services, which is similar to the chart previously provided in IR0607-002-49, response #1:

Calculated End-of-Pipe			
Characteristic	Underground Seepage 411 m3/h	DMS Only Discharge 137 m3/h	End-of-Pipe 548 m3/h
pH	7.8	7.27	7.6
Sulphate (mg/l)	1780	200 to 400	1386 to 1436
TDS (mg/l)	3140	100 to 300	2382 to 2432
Copper (mg/l)	0.001	0.0005	0.0008
Lead (mg/l)	0.001	0.00047	0.0008
Zinc (mg/l)	0.016	0.0663	0.017

Calculated End-of-Pipe			
Characteristic	Underground Seepage 377 m3/h	Process Discharge 137 m3/h	End-of-Pipe 514 m3/h
pH	7.8	11.8	8.6
Sulphate (mg/l)	1780	300 to 1000	1387 to 1575
TDS (mg/l)	3140	200 to 500	2108 to 2180
Copper (mg/l)	0.001	0.495	0.133
Lead (mg/l)	0.001	0.302	0.081
Zinc (mg/l)	0.016	0.186	0.061

4. Please see IR0607-002-49, response #3

5. The power requirements have been recalculated to include all additional processing equipment and from utilizing exclusively diesel generation power to the inclusion of hydro-power. The construction phase of the project is anticipated to require approximately 2.92 MW of power during the 12-15 month construction phase. The availability of hydro-power is anticipated to come on-line midway through the construction phase. The operations phase power requirements have been readjusted to include the process equipment and is now anticipated to require a total of 5.85 MW. Hydro-power will account for 4.45 MW of power while it is estimated that 1.4 MW of power will be required from diesel generation throughout the operations phase of the project. The environmental impacts are thus reduced by the potential emissions associated with the original proposal of utilizing nothing but diesel generation. An updated air quality survey and dispersion model will be made available upon completion by RWDI AIR Inc.

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
- 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.

Response:

1.2.3. Prior to the development and submission of the second round information requests posted on the Public Registry and subsequently reviewed by Tamerlane, Tamerlane has already evoked the use of a professional air quality firm to conduct project specific air quality assessment and including air dispersion modeling for the PPPP. The professional firm is as follows:

- RWDI AIR Inc.
Atmospheric, Industrial & Risk Services
Mark C. Milner, M.Eng., P.Eng.
Project Manager Noise and air Quality
830-999 West Broadway
Vancouver, B.C. V5Z 1K5
Tel: 604.730.5688 ext. 3222
E-mail: mark.milner@rwdi.com

Tamerlane has recently been in discussions with Anne Wilson, M.Sc., Environment Canada to ask that both EC and ENR contact Mark Milner to discuss that the proper parameters are being considered for the study.

Upon completion of the air quality assessment and air dispersion modeling, a final copy will be submitted by Tamerlane to MVEIRB.