



TAMERLANE VENTURES INCORPORATED

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

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

Submitted May 29, 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: IR0607-002-01
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: n/a
Terms of Reference Section: A-2

Preamble

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

Request

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

Response

1. The requested audio translations in MP3 format have been submitted to a 3rd party company for processing and will be forwarded to the Mackenzie Environmental Impact Review Board once they are completed.

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

Preamble

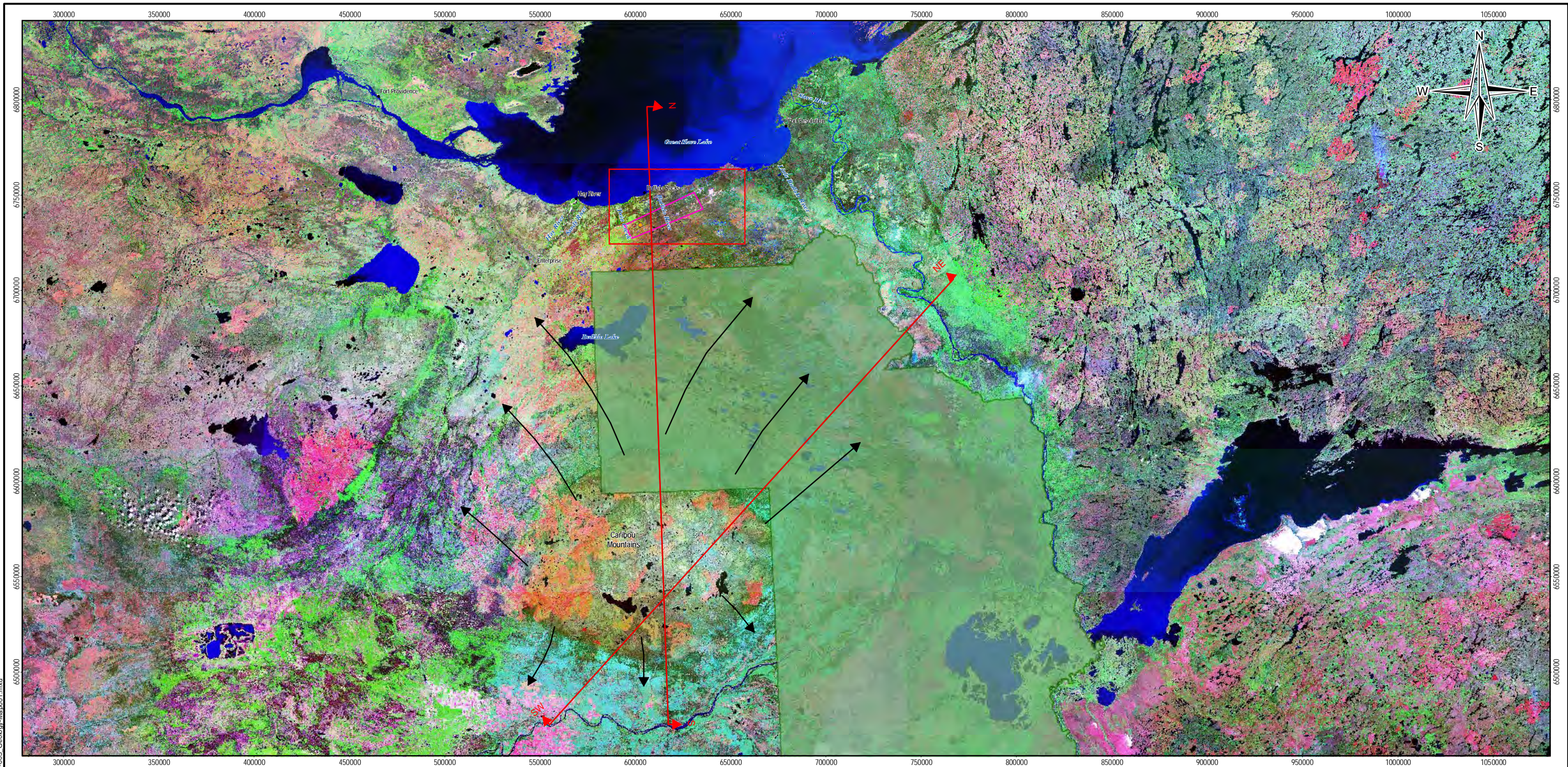
Current graphic depictions of water flow regimes need to be supplemented. Parties need to be able to determine the direction surface water and groundwater from either the R-190 area or the infiltration basin will be flowing, in order to make accurate predictions of areas potentially impacted by changes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

Requests

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

Response

1. Figure 1, adapted from Stevenson International Groundwater Consultants Ltd. 1984, illustrates the regional groundwater flow regime in the Pine Point area. As previously reported in Section 2.6-1 of the DAR, natural groundwater movement within the bedrock aquifer is generally towards the northeast at an average gradient of one foot to 2,200 feet (Brown et al. 1981). Northward groundwater flow under a hydraulic gradient of 1.5 m per km has also been reported (Stevenson 1984).
2. Figure 2, adapted from Stevenson International Groundwater Consultants Ltd. 1984, illustrated the general direction of groundwater flows in the vicinity of the R-190 works and from the nearby infiltration basin. As indicated in this figure, the groundwater flows generally move laterally in a northerly direction toward Great Slave Lake along the various geological formations that characterize the geology of the area.
3. Figure 2 also illustrates the very low hydraulic gradients that characterize the geological formations present in the area.



G:\Vancouver\GIS\0701_YEL\17_40149_PinePoint\maps\005\Geology\1740149-005_Geology_Map001.mxd

LEGEND

- Local Study Area (LSA)
- Regional Study Area (RSA)
- Wood Buffalo National Park
- Groundwater Flow Direction
- Geological Cross Section

NOTES

Base data source:
Landsat 7,
Stevenson International Groundwater Consultants Ltd. 1984 Report

PINE POINT PILOT PROJECT

**Regional Groundwater Flow Direction
Between Caribou Mountains
and Pine Point Mines**

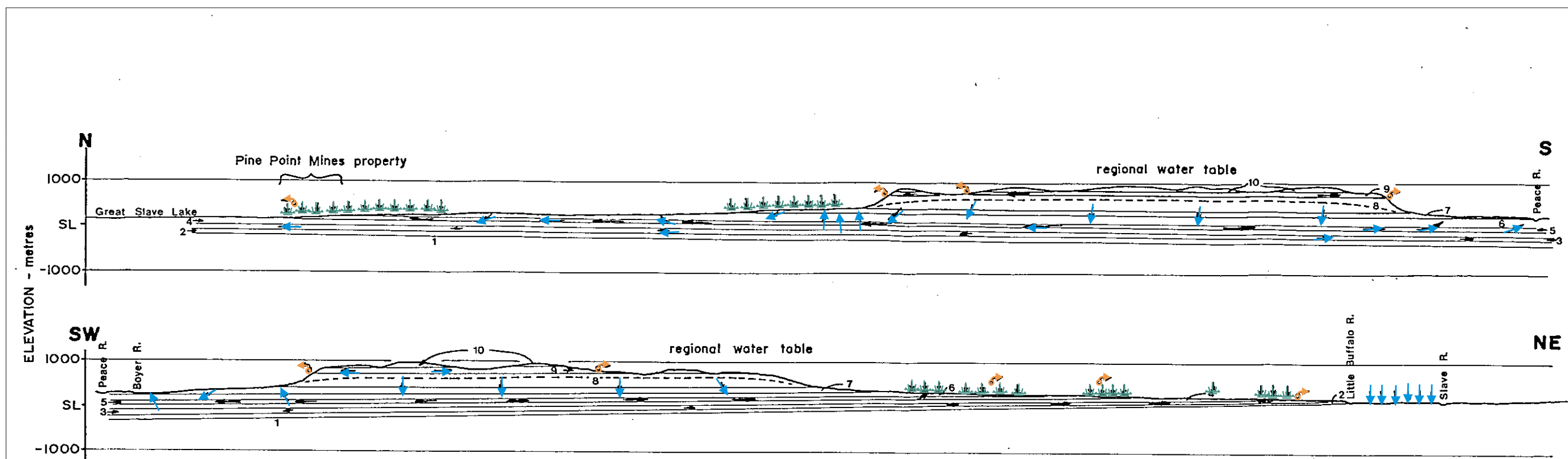
PROJECTION UTM Zone 11	DATUM NAD83
Scale: 1:2,000,000	

Tamerlane
VENTURES INC.

EBA Engineering
Consultants Ltd.

FILE NO. 1740149-005_Map001			
PROJECT NO. 1740149.005	DWN BGP	CKD RH	REV 1
OFFICE EBA-VANC	DATE May 24, 2007		

Figure 1



HORIZONTAL SCALE 1:1,000,000
vertical exaggeration : 10 times

- 10 SMOKY GROUP
- 9 DUNVEGAN FORMATION
- 8 SHAFTESBURY FORMATION
- 7 LOON RIVER FORMATION
- 6 HAY RIVER FORMATION
- 5 SLAVE POINT FORMATION
- 4 MUSKEG (NYARLING) FORMATION
- 3 KEG RIVER (LITTLE BUFFALO) Fm.
- 2 CHINCHAGA FORMATION
- 1 ARCHEAN

- area mapped as swamp
- spring or seepage
- direction of groundwater flow

LEGEND

	Area mapped as swamp
	Spring or Seepage
	Direction of Groundwater Flow

NOTES
Source: Stevenson International Groundwater Consultants Ltd. 1984 Report

CLIENT 	PINE POINT PILOT PROJECT			
	Geological Cross Sections			
EBA Engineering Consultants Ltd.	PROJECT NO. 1740149.005	DWN KW	CKD RH	REV 0
	OFFICE EBA-VANC	DATE May 24, 2007		

Figure 2

1740149-005_Geology-Figure2.cdr

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

Preamble

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

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

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

Requests

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

Response

It should be noted that the following answers ONLY address the groundwater flow estimates and lithology for the artificial ground freezing system.

1. The DAR Section 2.6.2, paragraph 1, refers to a desktop evaluation undertaken by EBA 2006 to estimate, at a feasibility level, the natural groundwater velocities for design of an artificial ground freezing system to managed seepage during mining.

In terms of the local and regional groundwater and site lithology, the following reports were used as primary references for preparation of this desktop study:

- Brown, Erdman & Associates (1981),
- Stevenson International Groundwater Consultants (1983), and
- GTC Geologic Testing Consultants (1983).

The reference information for these reports is included below for the reviewer's further reference.

In terms of the local and regional piezometric levels in the vicinity of the R-190 site, it is our opinion that these would have not have changed significantly since the completion of the above referenced studies. As a result, EBA remains confident with the results of the above reference desktop study.

Local and regional groundwater gradients are reported to range between 0.45m/km and 1.5m/km.

Based on the available geological information for the project area, the primary karstic features in the area are those which resulted in the creation of the R-190 and other similar orebodies. The freeze curtain will be installed to surround the karstic feature which is the R-190 ore body.

In terms of the known site lithology, it is our experience that limited variation of the site lithology will have manageable impact on the implementation and performance of artificial ground freezing system.

REFERENCES

Brown, Erdman & Associates Ltd. (1981). *R-190 Zone Aquifer Test Analysis and Preliminary Design*. Report submitted to Western Mines Ltd., February 1981.

GTC Geologic Testing Consultants Ltd. (1983). *Hydrogeologic Evaluation of the Pine Point – Great Slave Lake Region*. Report submitted to National Hydrology Research Institute, Environment Canada. March 30, 1983.

Stevenson International Groundwater Consultants Ltd. (1983). *Hydrogeology of R190 Mineralized Region, Great Slave Reef Project, Westmin Resources Limited*. Report submitted to Westmin Resources Limited, November 1983.

2. Tamerlane does not feel there is a need to conduct additional groundwater studies prior to licensing approvals. Tamerlane feels confident that the three prior groundwater studies of the specific R-190 deposit by engineering consulting firms as reported in the DAR (Brown et al. 1981; GTC 1983; Stevenson 1983) are deemed to be sufficient to characterize groundwater conditions in the area of the R-190 site and for the purpose of the current design of the PPPP.

As indicated by Layne Christensen Company, “While several documents were in our possession at that time we had not completely evaluated the data presented. After further review it appears that there are sufficient baseline parameters needed to further evaluate the frozen earth barrier. After further analysis Layne believes that sufficient data is present to eliminate the need to conduct groundwater pumping tests at this time.”

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

Preamble

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

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

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

Requests

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

Response

1. Groundwater quality at the R-190 site is anticipated to be comparable to that expected to be found in the vicinity of the infiltration basin. Groundwater has not been discretely sampled at different depths. However, prior pumping tests in the vicinity of the R-190 site (X-25) provided representative groundwater quality data for the area of interest. As previously discussed in the DAR

(Section 2.9.2) groundwater in the area occurs as both a shallow phreatic water table associated with the overburden and also under confined pressure conditions in the bedrock.

As also noted in Section 2.9.2 of the DAR, Weyer *et al.* (1978, 1979) reported that three basic types of groundwater occur in the Pine Point area, including in the vicinity of the PPPP (R190) site:

- A calcium bicarbonate water, found locally in glacial drifts. Conductivities are less than 1000 $\mu\text{mho/cm}$. This type of groundwater has been found at a number of locations along the Buffalo River.
- Sulphur water, a sulphate-bicarbonate with Ca^{++} as the main cation (with SO_4^{--}). This water is probably derived from the Devonian gypsum layers. Conductivities are usually between 1,000 and 2,000 $\mu\text{mho/cm}$. This type of groundwater is commonly found in the springs along the south shore of Great Slave Lake from Little Buffalo River to Sulphur Point and across to Windy Point.
- Salty water, sodium chloride brines, derived from groundwater contact with the Devonian evaporite layers. Brandon (1965) reported 420 mg/l chloride in a water sample collected in 1961 at the mouth of the Buffalo River.

The chemistry of most other groundwater samples collected in the Pine Point area over the past 30 years seem to reflect mixing or evolution of these three basic water types. Information obtained from the Traditional Knowledge interviews conducted in October 2006 (Tamerlane 2006b, c) and from the EBA water sampling program (EBA 2006a) have confirmed that existing groundwater quality at the R-190 Pilot Project site is poor and generally not suitable for potable drinking water purposes.

2. The anticipated depth of the current water table at the infiltration basin, within 500 metres of the R-190 pump test site, is expected to be in the order of 25-30 metres. Please also refer to IR0607-002-09, response #3.
3. The evidence requested cannot be provided at this time. However, given the response to item 1 above, noting the generally poor quality of groundwater in the area of the PPPP, Tamerlane questions the need to be overly concerned about differences which may or may not exist between key water chemistry parameters between the different locations and depths. It must also be emphasized that the groundwater environment does not support biological life that any of the regulatory agencies are typically concerned with.

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

Preamble

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

Requests

Provide the following:

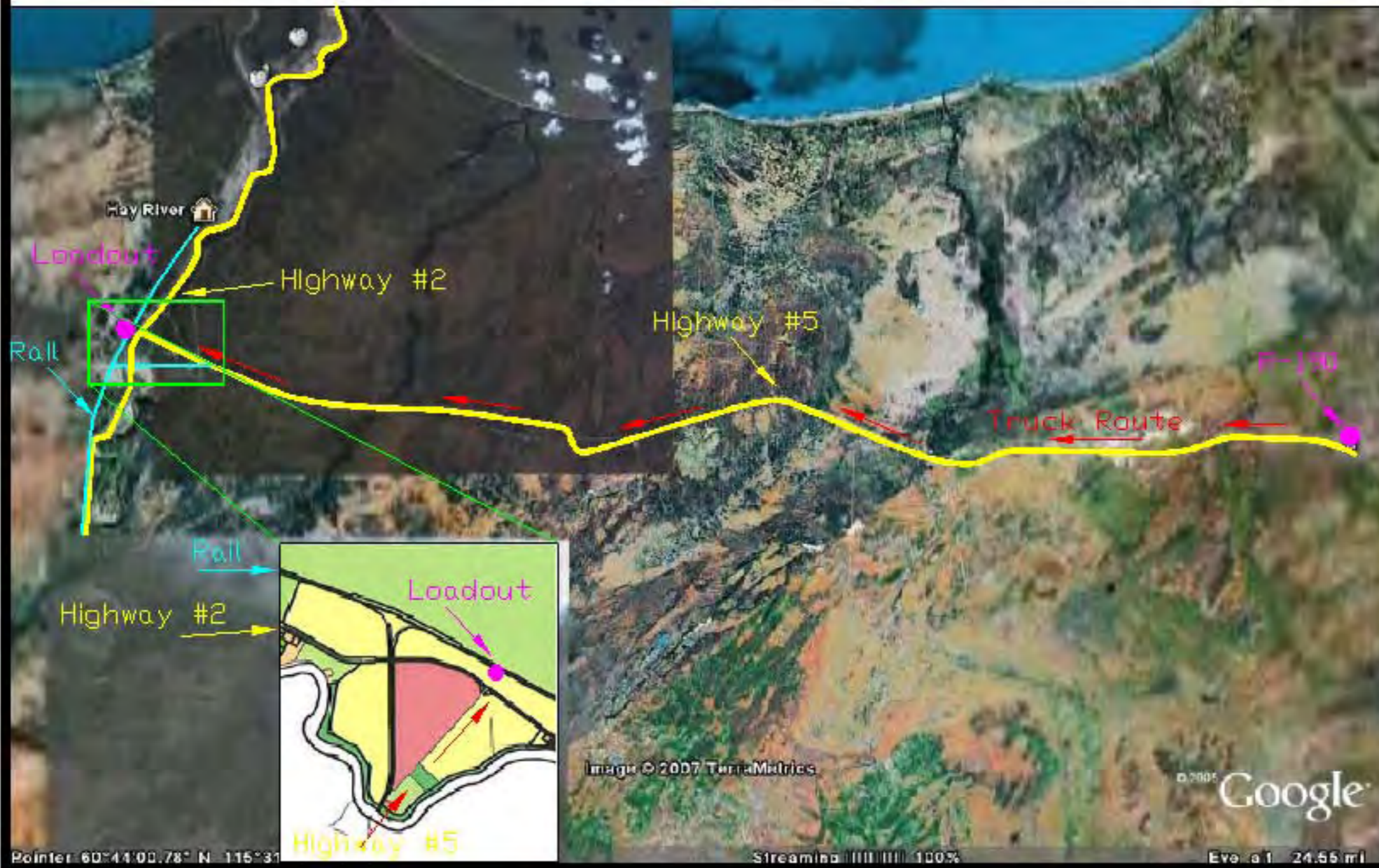
- 1. A map of the exact route the processed ore will be transported along in the Town of Hay River, to either the priority Transfer Facility or any identified alternate locations, with a description of any elements of the surrounding environment (e.g., school zones) that merit special consideration;*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

Response

1. Through discussions and meetings with CN and the Katlodeeche, Tamerlane has determined that the earlier proposed rail loading site is no longer a viable option due to CN operational issues. CN along with the Hay River City Council have proposed a location that is adjacent to the old site located on the West side of Highway 2. This location is preferred by CN because it will allow the rail loading site to be located along CN’s existing rail sidings and will be much more operationally friendly. Additionally, this location enables ideal traffic flow by mitigating any traffic along Highway 2. The processed ore will be hauled from the R-190 site onto Highway 5 at highway marker 41.6. The trucks will travel West on Highway 5 until reaching the intersection with Highway 2. The trucks

will NOT turn onto Highway 2. Rather, they will cross the highway and make their way to the unloading area along the rail siding (see attached figure).

TAMERLANE VENTURES TRUCK ROUTE



2. During the scoping session, Tamerlane's intention was to provide further decreased traffic mitigation by operating the haul trucks during the graveyard (night) shift. In recent discussions and meetings with CN, Tamerlane may need to schedule hauling to coincide with rail loadout facility operations during the dayshift. Based on table 4.4-1 of the DAR, page 169, Highway 5 would see a relatively small increase in traffic on the underutilized highway and are not considered to have any effects on current road usage. Tamerlane also considered safety and quality of life for the truck drivers if a graveyard (night) shift schedule was introduced versus a dayshift schedule. In conclusion, Tamerlane would prefer hauling during the dayshift so as to utilize the daylight hours and coincide with the rail loading operations conducted by CN.

3. Tamerlane will require the haul trucks to follow all operating regulations imposed in the Northwest Territories and operate within the posted speed limits. Tamerlane will expect its contractors or subcontractors to comply with Federal, Governmental and Company policies. Non-compliance will be dealt with and outlined in Tamerlane's to-be-developed disciplinary procedures.

4. The Tamerlane project plans to use approximately 10 trucks to transport the lead/zinc product to the Hay River railhead. The Average weight of the loaded trucks will be 20 to 30 tonnes. The typical average number of truck trips from the PPPP site to Hay River will be 50-65 return trips per day over the course of an 8-12 hour workday. It is estimated that each truck will require 1.5 hours to complete one roundtrip. Therefore, an 8-10 hour shift should more than accommodate shipment of the concentrates without additional manpower. Tamerlane envisions that trucking will occur over the production life of the Pilot Project and will encompasses 12-15 months starting after construction is complete. Tamerlane does not anticipate any accidents to occur. However, in the unforeseen event that a truck accident occurs and the truck loses its load of concentrate, Tamerlane will respond in the following manner:
 - Tamerlane's first priority will be to assist local authorities by securing the safety of the truck driver and other vehicle traffic.
 - When the safety of all personnel has been mitigated and approvals to proceed are granted by local authorities, Tamerlane will scoop up the concentrate and load it into another truck. The truck will then haul the concentrate to either the rail loadout site or back to the facility for reprocessing.

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

Preamble

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

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

Requests

Please provide the following:

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

5. *Please identify the elevation of the proposed site above the Hay River, whether the site is in an area prone to flooding, and provide a 1:2000 Flood Risk Map (available from the Town of Hay River) with the proposed location delineated on it, for the public record.*

Responses

1. As previously discussed in IR0607-002-05 Response #1, Tamerlane has determined through its recent discussions and meetings with CNR and the Katlodeeche that the earlier proposed rail loading site is no longer a viable option due to CNR operational issues. CNR and the town of Hay River have proposed a location that is adjacent to the old site located on the West side of Highway 2. This location is currently owned by the town of Hay River. The Hay River city council and CNR are working through arrangements that will allow CNR to utilize this ideal area for Tamerlane's rail loadout facility.
2. Tamerlane and CNR are positively progressing through the details of the newly proposed rail loadout facility. Tamerlane will update MVEIRB as soon as new information is made available.
3. Since the primary site was deemed to be operationally deficient, Tamerlane anticipates the newly proposed site, adjacent to the old site located on the West side of the Highway 2, to be the final proposed location.
- 4a. The newly proposed rail loadout area for the PPPP has no current uses or tenants. See attached map "Sub-Arctic Surveys Ltd, project #05-21-HR"
- 4b. The proposed property site is bordered on all four sides by rail and road infrastructure. The South and West side of the property is bordered by Canadian National Railway Corporation's right-of-way while the East side of the property is bordered by Territorial Highway 2. The North side of the property is bordered by a small vehicle access road.
- 4c. Anticipated additional infrastructure for the rail loadout facility will require the construction of approximately 600-800 metres of access road starting directly across from Highway 5 at the Highway 2 intersection. Additionally, approximately one (1) metre of ballast will need to be added alongside the existing rail spur for additional rail spurs. The specific details are currently being worked on by CNR. Tamerlane and CNR envision the loadout facility to contain the following:
 - Concentrate will be handled in a fully enclosed shelter;
 - The facility size will be large enough to ensure rail loaders and haul truck traffic in and out;
 - The facility will be constructed with a concrete floor;

- The facility will contain, treat and recycle all wash water on site;
- The facility will be supported by CN's environmental policy and standards

Please see the attached conceptual site layout figures.

- 4d. Tamerlane and CNR envision the rail loadout facility to employ a supervisor and 5-6 employees during a single 8, 10 or 12 hour shift. The facility will contain its own small-scale water treatment plant that will capture and reuse all facility wash water.
- 4e. The limited amount of road dust that may be associated with the concentrate trucks and other vehicles driving into and out of the rail loadout facility will be effectively mitigated with the application of water if necessary. Apart from the concentrate that will be temporarily stored in the covered concentrate storage area prior to loading onto the CNR trains, no other potential contaminants of consequence will be associated with the railhead storage and loading area. As a result there will be no environmental consequences associated with this activity.
5. Tamerlane's newly proposed rail loadout facility is located alongside CNR's existing rail infrastructure which has operated for many years without incident of flooding.

PLAN AND FIELD NOTES OF SURVEY OF LOT 1917

HAY RIVER COORDINATED SURVEY AREA
 HAY RIVER, NORTHWEST TERRITORIES

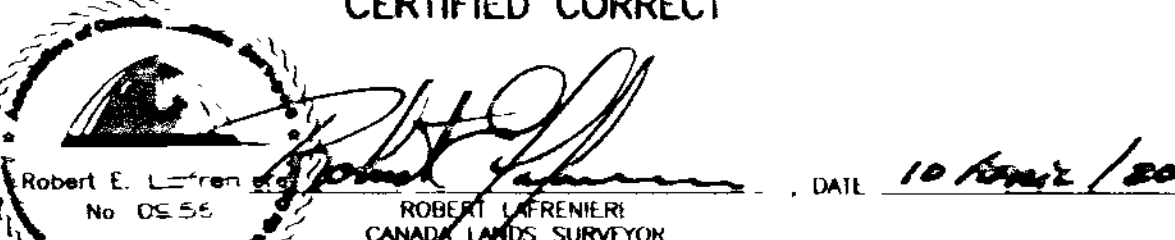
NOTE: LANDS DEALT WITH BY THIS PLAN ARE UNSURVEYED CROWN LANDS

THIS SURVEY WAS EXECUTED DURING THE PERIOD MAY 30, 2005 TO APRIL 04, 2006 BY ROBERT LAFFRENIERE, C.L.S.

SCALE: 1 : 2000
 100 80 60 40 20 0 150 300 METRES

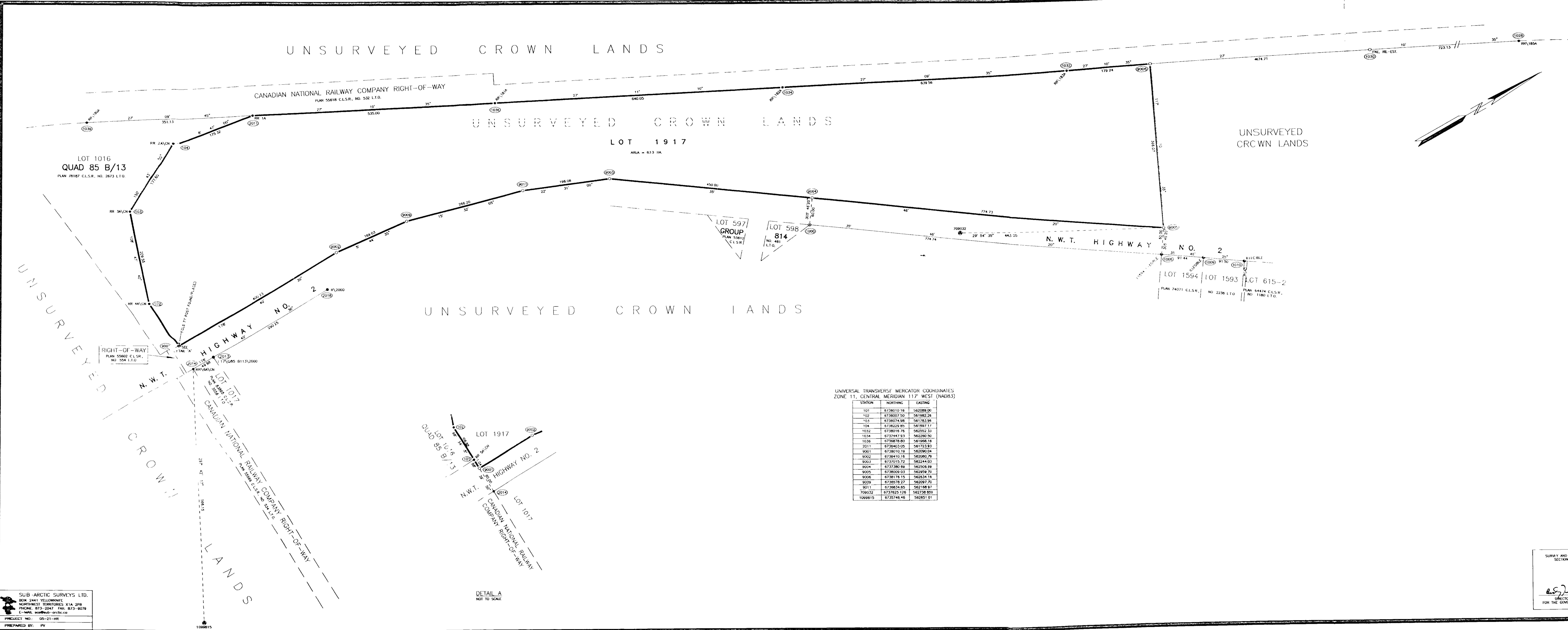
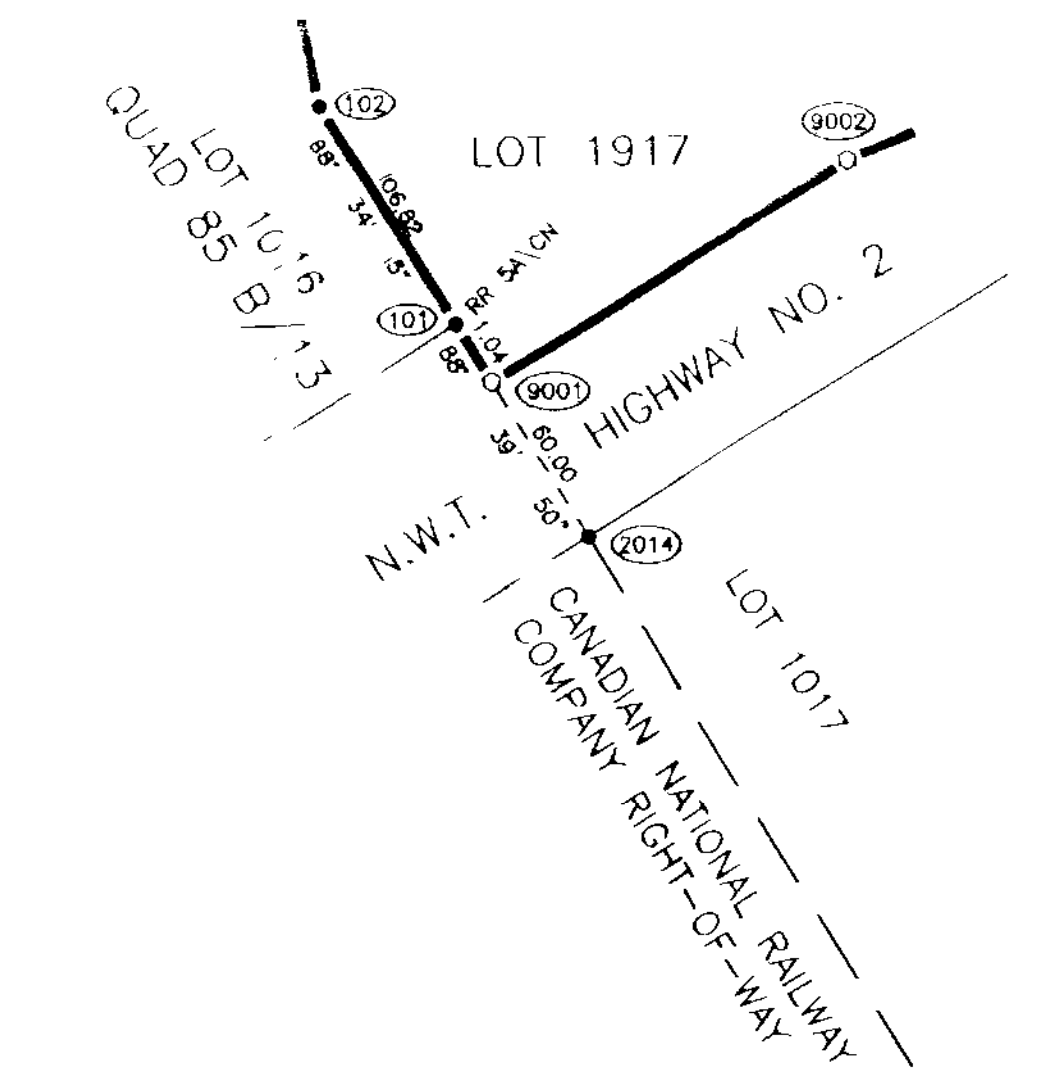
LEGEND
 BEARINGS ARE GIVEN AND ARE REFERRED TO THE CENTRAL MERIDIAN OF U.T.M. ZONE 11 (117 WEST)
 DISTANCES SHOWN ARE EXPRESSED IN METRES AND ARE HORIZONTAL AT GENERAL GROUND LEVEL
 ALL POINTS PLACED ON THE COURSE OF THIS SURVEY ARE MARKED WITH APPROPRIATE LOT NUMBERS, THE YEAR 2006, AND "S" FOR STATION WHERE APPLICABLE
 TO COMPUTE U.T.M. COORDINATES, DISTANCES HAVE BEEN REDUCED TO SEA LEVEL AND PROJECTION PLANE BY APPLYING A COMBINED SCALE FACTOR OF 0.999206

COORDINATE CONTROL POINTS FOUND:
 C.L.S. 777 POST PLAZA
 C.L.S. 777 POST PLAZA
 C.L.S. 789 POST PLAZA
 OLD PATERN RIVER POST FOUND
 TRANSVERSE LINES
 LANDS DEALT WITH BY THIS PLAN ARE BOUNDARY THIS

CERTIFIED CORRECT

 ROBERT E. LAFFRENIERE
 No. 0555
 DATE: 10 April 2006
 CANADIAN LAND SURVEYOR

UNIVERSAL TRANSVERSE MERCATOR COORDINATES
 ZONE 11, CENTRAL MERIDIAN 117 WEST (NAD83)

STATION	NORTHING	EASTING
101	6736010.16	561829.00
102	6736007.50	561882.26
103	6736074.98	561783.96
104	6736229.85	561997.77
1032	6738016.76	562552.33
1034	6737442.93	562280.50
1036	6736878.80	561968.18
2011	6736403.00	561723.93
9001	6738010.19	562090.04
9002	6736410.15	562090.79
9003	6737015.72	562244.03
9004	6737380.69	562206.99
9005	6738029.03	562099.70
9006	6738178.15	562634.16
9009	6738078.27	562097.70
9011	6738054.80	561768.97
709032	6737825.128	562738.850
1029815	6737548.46	562851.01

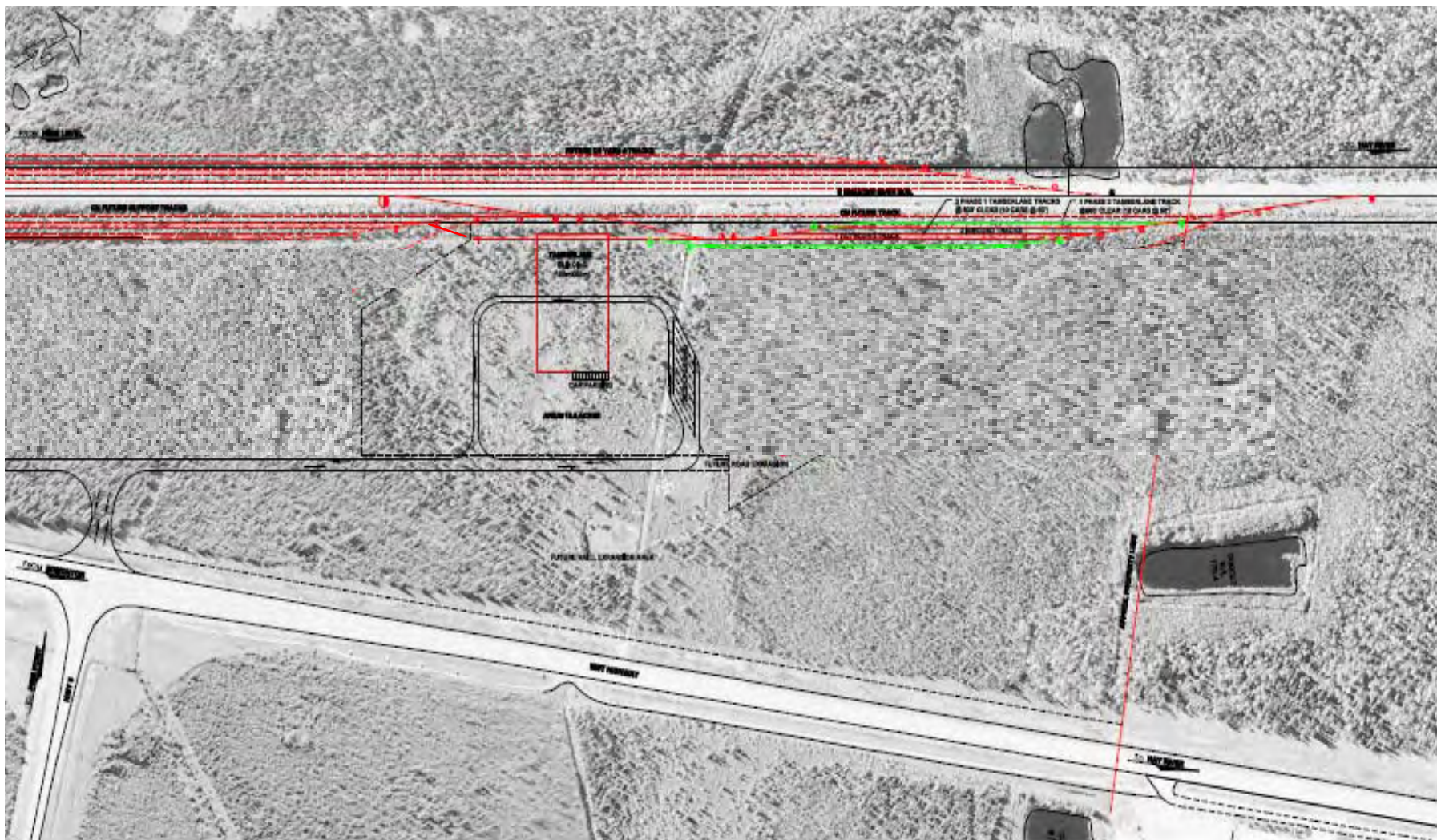


SUB-ARCTIC SURVEYS LTD.
 BOX 2441 YELLOWKNIFE
 NORTHWEST TERRITORIES X1A 2P8
 PHONE: 873-2047 FAX: 873-9079
 E-MAIL: info@sub-arctic.ca

SURVEY AND PLAN ARE SATISFACTORY PURSUANT TO SECTION 29, CANADA LANDS SURVEYS ACT

DEPARTMENT OF NATURAL RESOURCES
 SECTION 29, CANADA LANDS SURVEYS ACT
 CORRECTED

James I. McNeil
 9 June 2006
 JAMES I. MCNEIL, C.L.S., A.S.
 DEPUTY SURVEYOR GENERAL, NORTH
 CANADA CENTRE FOR CADASTRAL MANAGEMENT



PLAN

 1:250

IT IS A PROFESSIONAL DOCUMENT. ALL INFORMATION IS OBTAINED FROM APPROVED SOURCES.
 IF UMA ENGINEERING LTD. ALL RIGHTS RESERVED. DOCUMENT IS PROTECTED BY COPYRIGHT LAW. YOU NOT BE REPRODUCED IN ANY MANNER, OR FOR PURPOSES EXCEPT AS THE WRITTEN PERMISSION OF UMA ENGINEERING LTD.

CONCEPT FOR DISCUSSION ONLY

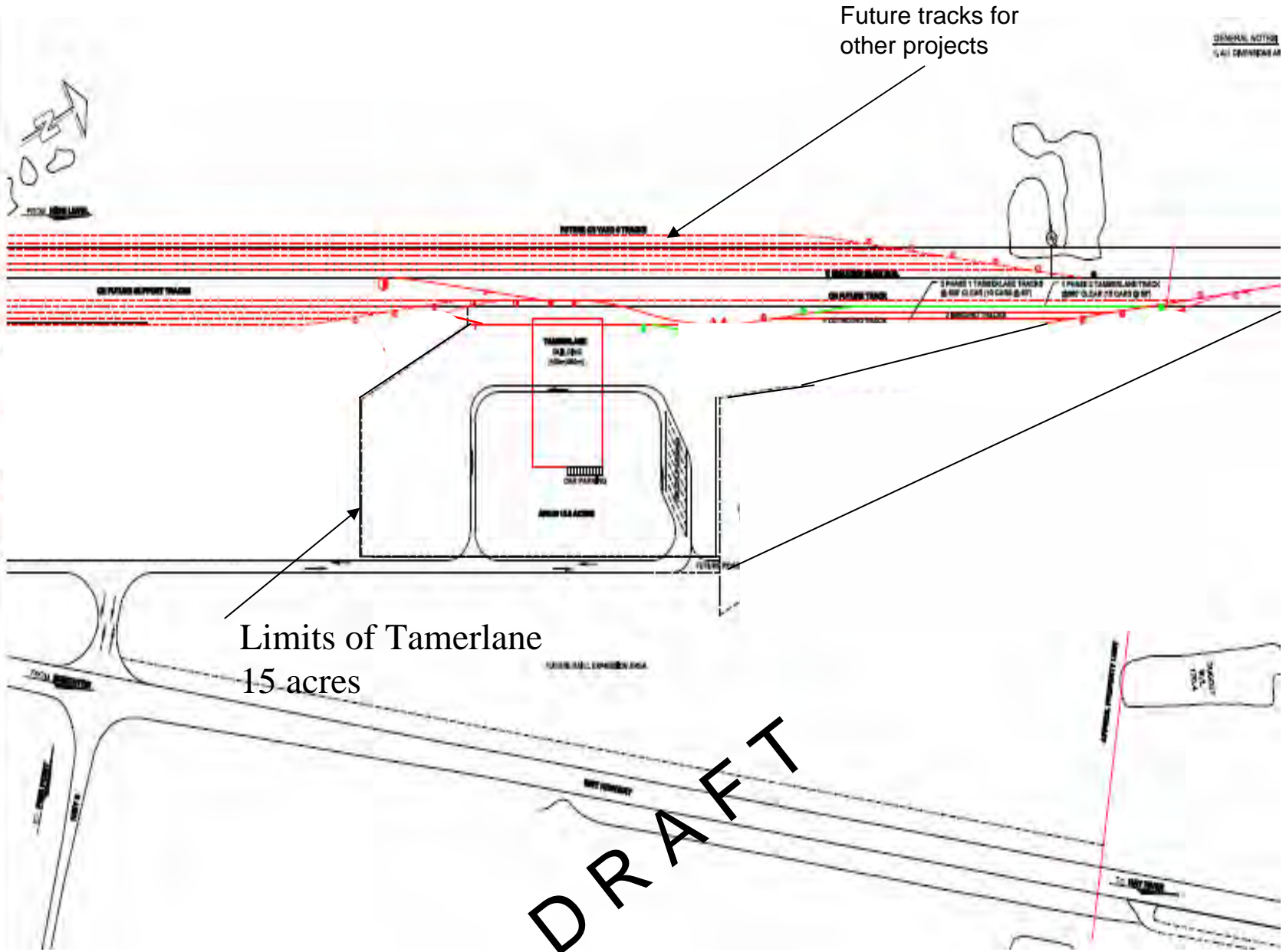
05	TOWARD	WALKER BENCH DESCRIPTION	URS	CTM	GR	GR	CTP	CTP	CTP		

UMA | **AECOM**

CN KSA 2007-07 Proposed Tamberlane Transload Facility - Hay River, NWT		
PROJECT NUMBER	DRAWING NUMBER	ISSUE/VERSION
0431-418-07	05-CT1004	A

© 2011 BENTON & BOWLES

10/11/11 10:00 AM



Future tracks for other projects

Limits of Tamerlane
15 acres

DRAFT

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

Preamble

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

Requests

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

Response

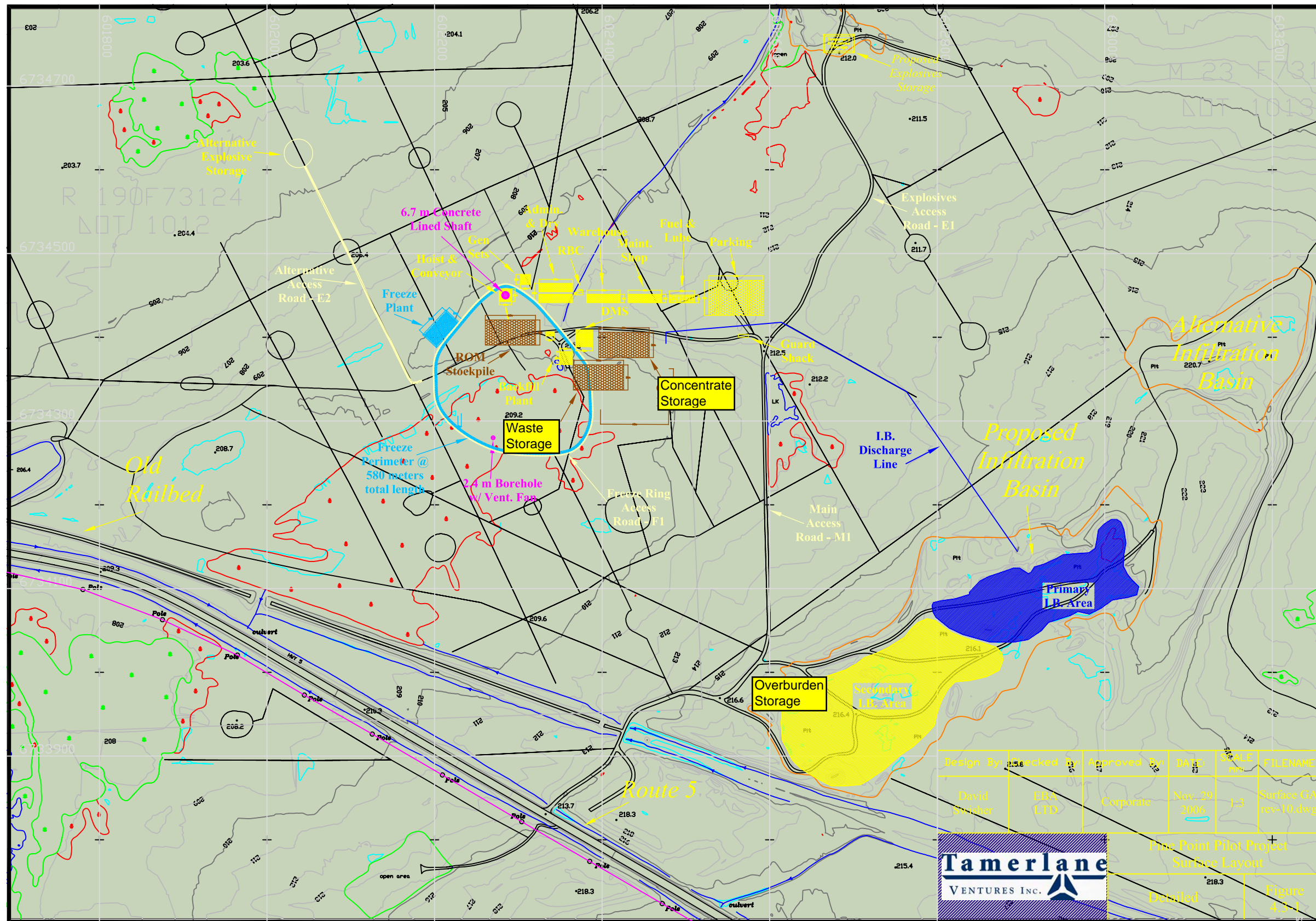
1. For the purpose of consistency in terminology, the following terms will be used when referring to the main three (3) materials storage facilities:
 - ROM Stockpile – No changes necessary in the DAR
 - Waste Storage – This is referred to in the DAR as both “aggregate stockpile” and “waste rock storage pad” and should be updated by the reviewers in the DAR at the following locations:
 - Section 4.3, page 151, third sentence of the second to last paragraph “aggregate storage”;
 - Figure 4.3-1, “Aggregate Stockpile”;
 - Table 4.3-1, “Aggregate Stockpile”;
 - Section 4.3.1, page 154, third sentence of the last paragraph, “waste rock pile”;
 - Section 4.3.3, page 158, first sentence of first paragraph “storage pile”;
 - Section 4.3.4, page 159, fourth sentence of first paragraph “waste rock storage”;
 - Section 4.3.4, page 160, third sentence of fourth paragraph “waste rock pile”.
 - Concentrate Storage – This is referred to in the DAR as “stored product”, “ore pad”, “product stockpile”, and should be updated by the reviewers in the DAR at the following locations:
 - Section 4.3, page 151, fourth sentence of the second to last paragraph “stored product”;
 - Figure 4.3-1, “Ore Pad”;
 - Table 4.3-1, “Product Stockpile”;
 - Section 4.3.3, page 158, second sentence of first paragraph “storage area”;
2. Please see attached revised infrastructure diagram Figure 4.3-1. The revised diagram includes the appropriate revised storage facility names.
3. Please see below revised Table 4.3-1. The revised table denotes the “Railhead Product Stockpile” as having a concrete pad.

Table 4.3-1
Dimensions of PPPP Surface Structures

Structure	Estimated Dimensions						Concrete Slab
	Width		Length		Height		
	(m)	(ft)	(m)	(ft)	(m)	(ft)	
Administration	10	32	40	131	2.4	8	No
Dry	10	32	40	131	2.4	8	No
Warehouse	10	32	40	131	8	26	Yes
Maintenance Shop	10	32	40	131	8	26	Yes
DMS Plant	20	65	20	65	16	52	Yes
Secondary Crusher	5	16	10	32	8	26	Yes
Backfill Plant	15	49	15	49	10	33	No
Head-frame & Vertical Conveyor	15	49	15	49	30.5	100	Yes
Generator Building	12	39	12	39	4	13	Yes
Freeze Plant	20	65	38	124	4	13	Yes
Sewage Treatment Plant	3	10	6	20	4	13	No
Fuel & Lube Structure	9	29	30	98	4	13	No
Guard Shack	3.5	12	12	40	2.4	8	No
Parking Area	40	131	60	196	---	---	No
ROM Stockpile	30	98	60	196	8	26	No
Concentrate Storage	30	98	60	196	8	26	Yes
Waste Storage	30	98	60	196	8	26	No
Railhead Product Stockpile	30	98	60	196	8	26	Yes

4. The formerly named “Product Stockpile,” now known as the “Concentrate Storage,” will have a concrete pad as indicated in revised table 4.3-1 located above. Paragraph 3 on page 154 of the DAR is correct.

5. Tamerlane plans to place the removed overburden at the south end of the infiltration basin in a previously disturbed and abandoned area. Please see updated attached Figure 4.3-1.



Design By:	Checked By:	Approved By:	DATE:	SCALE:	FILENAME:
David Suter	EBA LTN	Corporate	Nov 29 2006	1:1	Surface GA rev-10.dwg

Tamerlane
VENTURES INC.

Pine Point Pilot Project
Surface Layout
Detailed
Figure 4.3.1

LEGEND

NOTES
Source: Source: Tamerlane Ventures

CLIENT



PINE POINT PILOT PROJECT

Surface Layout

EBA Engineering
Consultants Ltd.



PROJECT NO. 1740149.005	DWN KW	CKD RH	REV 0
OFFICE EBA-VANC	DATE December 13, 2006		

Figure 4.3-1

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

Preamble

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

Requests

Provide more information on:

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

Response

- 1. No method is necessary to maintain the product in a “moist” condition as it will already be in that state. The use of the word “moist” on page 323 of the DAR refers to the isolated storage in the truck bed during transport to the Hay River rail loadout facility. Transporting the product in this manner will prevent it from drying.*

2. The ROM material on the surface is expected to have a moisture content between 3 - 5% before passing through the surface crusher. Once passing through the crusher, a negligible decrease is expected due to energy exchange of the crushing process. The finer crushed ROM material will then pass through the DMS process. The float material reporting to the waste storage area will contain between 3-5% moisture content. The sink material reporting to the concentrate storage area will contain between 4-8% moisture. Because most areas in the surface process facility are enclosed, it is anticipated that precipitation will have a negligible effect on the waste or ore.

3. The onsite truck loading facility will be built on a concrete foundation. It will be fully enclosed and large enough to allow flow-through truck traffic. As explained in IR0607-002-04, Tamerlane does not anticipate any accidents to occur, however, in the unforeseen event that a truck accident occurs and the truck loses its load of concentrate, Tamerlane will respond in the following manner:
 - Tamerlane's first priority will be to assist local authorities by securing the safety of the truck driver and other vehicle traffic.
 - When the safety of all personnel has been mitigated and approvals to proceed are granted by local authorities, Tamerlane will scoop up the concentrate and load it into another truck. The truck will then haul the concentrate to either the rail loadout site or back to the facility for reprocessing.

Additionally, please refer to IR0607-002-06 regarding the potential for product to enter into the surrounding environment. In conclusion, Tamerlane does not expect the introduction of product into the surrounding environment and will take positive steps to address any spills. Recognizing that the product is not a hazardous waste, Tamerlane will still follow its cleanup procedures as outlined in Tamerlane's Hazardous Materials Spill Contingency Plan.

4. The zinc and lead concentrates are valuable commodities and will be carefully handled and shipped off-site for custom smelting and refining. Tamerlane does not expect any leachate to enter the surrounding environment. The concentrates will be comprised of approximately 46% sulphides (sphalerite, galena and pyrite/marcasite) and 54% alkaline calcite and dolomite (host rock).

5. Even in its concentrate form, a majority of the concentrate (54%) will be in an alkaline form made up of calcite and dolomite. No impacts are expected.

6. It is expected that all product leaching will be captured and recycled through the process facility. However in the unplanned event that there is a spill or intrusion into the surrounding environment,

and recognizing that any leachate is not considered a hazardous material, Tamerlane will still treat any spills as outlined in Tamerlane's Hazardous Materials Spill Contingency Plan.

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

Preamble

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

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

Requests

Provide:

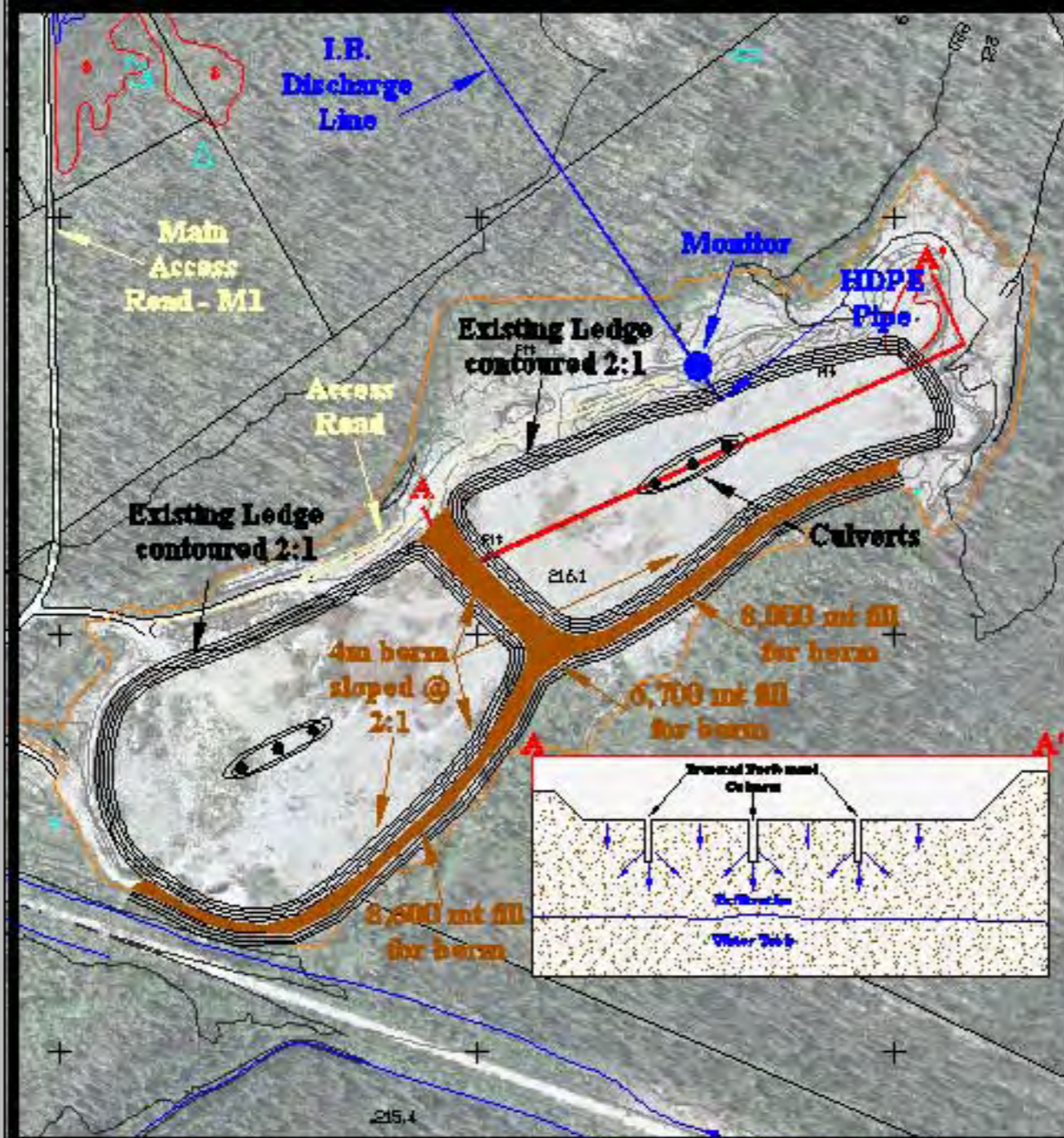
- 1. A graphic depiction of the likely layout of infrastructure in the infiltration basin, including locations of the proposed wet drain, berms, piping infrastructure, and monitoring stations.*
- 2. Details of dyke construction plans and when/why they would be implemented. Also, provide a graphic depiction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

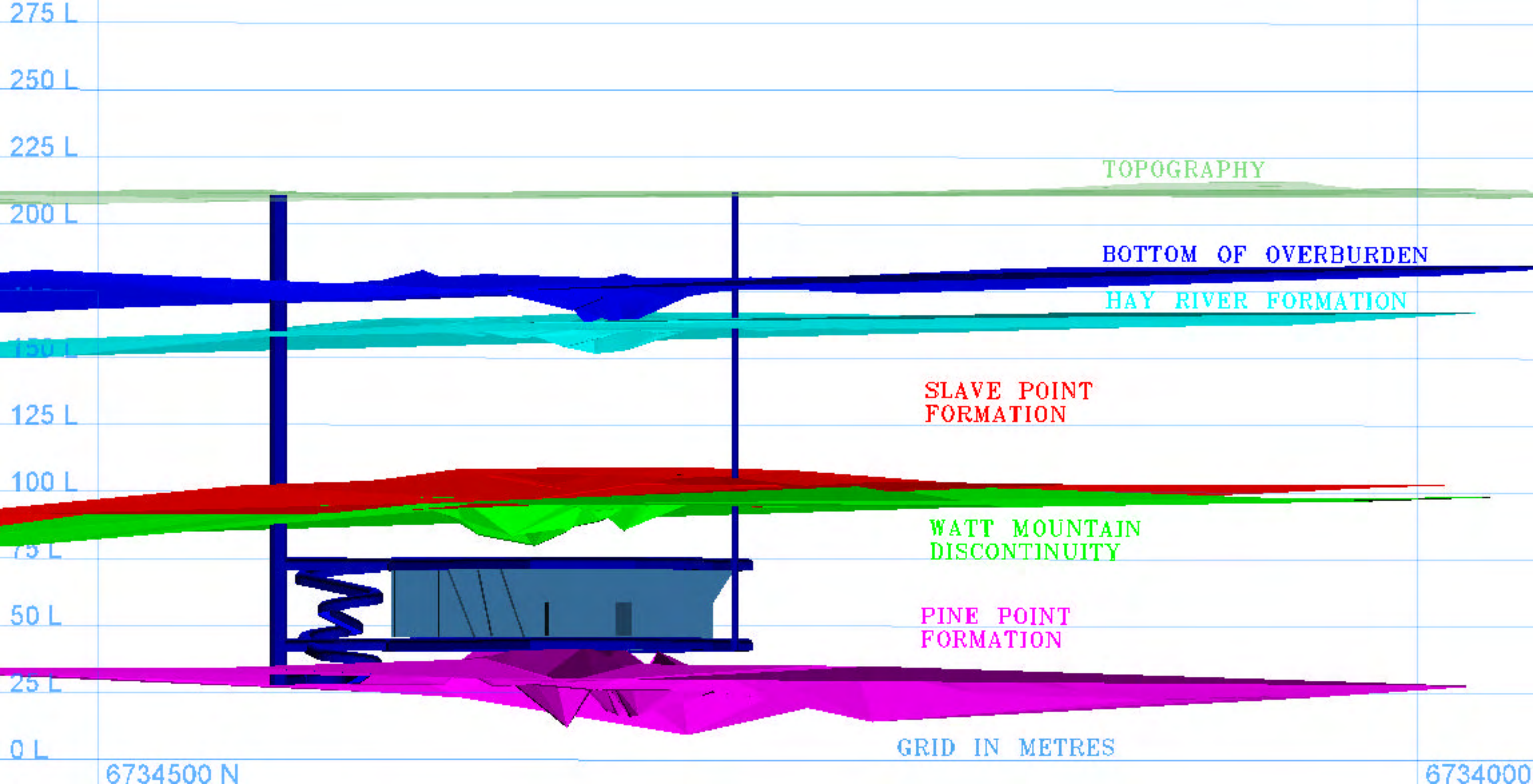
Response

1. Please see the attached updated figure outlining a graphic depiction of the infiltration basin layout. Monitoring guidelines will accompany the permit. Therefore, Tamerlane requests detailed assistance from the MVLWB as to suggested monitoring points and methods.
2. Please see the attached figure. The infiltration basin will require the construction of two berms for the primary site and one berm for the secondary site. Berm construction material will be utilized from cleanup rock during construction of the project footprint as well as dolomites and limestones extracted from the shaft sinking development. Construction of the infiltration basin will take place throughout the course of the 12-15 months construction phase of the project.

The existing ledge of the proposed infiltration basin will be contoured at a 2 to 1 slope utilizing a dozer. The already existing access road will be utilized and re-graded along the West side of the Basin. Dump Trucks will haul excess material from the project footprint and shaft development to the infiltration basin. This material will be pushed into place with a dozer to form the berms at a slope of 2 to 1. As noted on the attached figure, the estimated 23,300 tonnes of material needed for berm construction will form the two sides of the primary basin and one side of the secondary basin. The two berms required for the primary basin make up approximately 14,700 tonnes out of the 23,300 total tonnes estimated.

3. The infiltration basin is located within the Devonian sedimentary beds south of the Great Slave Lake. Since 1975, more than 500,000 feet of diamond drilling has been completed in 885 drill holes (Great Slave Reef Project Summary Reports, February 1989, Westmin Resources Ltd). From this extensive diamond drill data, combined with modeling in Vulcan modeling software, the overburden in the LSA is consistently 25-30 metres below the surface (see attached figure). Overburden is generally glacial till and frequently includes boulders. The till is overlain with muskeg up to three metres in thickness in many areas. Although the infiltration basin is a previously mined out quarry, inverted perforated culverts (wet drains) will be installed in the middle of the basin to help facilitate proper percolation rates. The exfiltrating water will seek the path of least resistance, and combined with gravitational pressures, will flow near vertical until reaching the existing water table.
4. The secondary infiltration basin will only be utilized if overflow is necessary from the primary infiltration basin. This is not expected to occur. The alternative infiltration basin is only necessary if no agreement can be met between the Department of Transportation and Tamerlane for the use of the primary infiltration basin. Tamerlane feels confident that all of the DOT's requirements can and will be met in order to obtain the use of the primary infiltration basin.





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

Preamble

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

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

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

Requests

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

Response

1. Due to the remote nature of the project site, Tamerlane felt that a perimeter fence was not necessary. Having worked through arrangements with the local aboriginal groups to minimize outside traffic, Tamerlane feels confident that continued consultations with these groups will help ensure the awareness and safety of individuals who may want to access the area. Additionally, there is only one access road to the site which will be guarded at all times. No other easy means of access are available. Since there will be 24 hour by 7 day per week activity on site, Tamerlane feels confident that animals will steer clear of the area due to the human activity.
2. External access to the PPPP will only be possible via the existing roadway. The guard shack will be positioned such that no walking or driving access will be possible without checking into the guard shack first.
3. Appropriate signage will be posted along all visible points surrounding the project site. In the event that unauthorized human access is attempted, the individual(s) personal information will be gathered and they will be turned around at the guard shack. The guard will provide a brief explanation for the reason the area is restricted access before departing. In the event a repeat of such an incident occurs by the same individual(s), then the local authorities will be notified. In the event of unauthorized access by animals, the animal will be escorted/encouraged to move to the perimeter of the site and the incident will be logged. In the unexpected event an animal repeats its visits to the site, local wildlife officials will be called in for counsel.
4. Due to the project's close proximity to Highway 5 and in order to ensure the safety of its employees, Tamerlane will post appropriate signage indicating a no shooting zone between the highway and the project site. Tamerlane intends to consult on a consistent basis with the local Aboriginal groups to ensure that traditional land users are aware of the project and its boundaries.

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

Preamble

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

The developer has committed to providing bus transport from Hay River and Fort Resolution to all interested employees. Transportation and/or housing options for workers from the more distant community of Fort Smith are not discussed in the DAR, despite the fact that the Ellis Consulting report (page 370 of the DAR) predicts potential for both local and in-migrant workers to reside in Fort Smith during the PPPP. More information is also required on how the developer will provide incentives to maximize the use of company-provided transport from home to work.

Requests

Provide the following:

- 1. A description of the proposed shift scheduling for the PPPP, as well as alternatives and decision factors on which shift scheduling will be determined (if a variety of shift schedules are proposed, please note them all, by type of worker);*
- 2. The developer’s strategy for temporarily housing (or transporting) workers from Fort Smith during their work week (including a rationale for why no company transportation is currently envisioned from Fort Smith, given its likelihood as a labour pool).*
- 3. The developer’s strategy for housing in-migrant workers, particularly contractors.*

A discussion, given the differences between distances of different South Slave communities from the PPPP, of whether the developer envisions pressures for families or individuals to move from these communities to Hay River during the PPPP.

- 4. The developer’s strategy for maximizing the number of employees utilizing the bus service, rather than driving.*

Response

1. The PPPP will be a 24 hour per day, 7 day per week operation in order to achieve Tamerlane’s production requirements. Although Tamerlane may need to change schedules throughout the project, it is envisioned that the following schedules will apply:
 - Four crews (A,B,C,D) working in underground operations, maintenance, electrical and support will work the following 12 hour schedule:

Crew	Days of the Month																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	Days of the Week																														
	M	t	w	T	f	s	s	m	t	w	t	f	s	s	m	t	w	T	f	s	s	m	t	w	t	f	s	s	m	t	
d=day / n=night																															
A	d	d	d	d								n	n	n	n				n	n	n		d	d	d				d	d	
B					d	d	d	d				d	d	d		n	n	n				n	n	n	n						
C	n				n	n	n		d	d	d				d	d	d	d									n	n	n	n	
D		n	n	N				n	n	n	n								d	d	d	d				d	d	d		n	

- Surface operations including the processing facility, maintenance, electrical and security will also work the above 12 hour schedule.
- Administration and staff will work 5-6 days per week 8-10 hour days.
- Haulage and Rail loading activities will occur during the dayshift hours 5-6 days per week, 8-12 hour shifts.

The above schedules were developed to allow each crew the opportunity to have two weekends off each month plus 7 days off each month. This also provides flexibility for the company if overtime is required while still providing the worker significant time off. This schedule is thought to be preferable because it also allows individuals to partake in traditional activities while still maintaining employment. Finally, the rotating schedule ensures that no individual is married to the night shift. From an operational perspective, having the crews rotate through dayshift ensures accurate and timely communications throughout the organization.

2. Although Fort Smith is more than a two hour drive from the project site, Tamerlane is hopeful that it will be able to work out a scenario that will accommodate workers from that area. One scenario may involve a weekly transport of workers from Fort Smith to Hay River. These individuals could potentially be boarded in local housing during their shifts. Due to the distance and time required to travel from the project site to Fort Smith, Tamerlane does not plan to provide daily transportation.

3. Tamerlane will not be directly housing in-migrant workers, but will be working with local communities and business owners to accommodate housing during the construction and operations phase of the project. As noted in the Ellis Consulting Services, Socioeconomic report, section 1.15, page 24, the local communities have indicated that they have sufficient capacity to accommodate the projects in-migration numbers in rental and other short-term accommodations. Additionally in Section 1.1, page 3, paragraph 7, “It is predicted that the PPPP will not have a negative impact on community infrastructure as the communities of Hay River and Fort Smith have indicated that they have sufficient capacity to accommodate this level of in-migration in rental and other short-term accommodation.”
4. Tamerlane’s scenario outlined in Response #2 above, addresses this request by mitigating, to the greatest extent possible, individual or family pressures that may be present from the Fort Smith area. As with other Northern Mining operations, Tamerlane will not have a fly-in, fly-out scenario, or an on-site camp which may result in increased family pressures.
5. Past experience throughout the mining industry indicates that a very small portion of individuals will drive to the project site for one fundamental reason. Employees driving to and from the project site will be responsible for their own vehicle’s wear and tear, as well as fuel and lubrication costs. Because of this, Tamerlane anticipates that a high percentage of employees will utilize the company provided transportation.

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

Preamble

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

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

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

Requests

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

Response

The responses to the above requests merit a preliminary discussion regarding the methodology employed for the Traditional Knowledge studies. Using the MVEIRB’s “Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment 2005,” the questions asked during the qualitative interviews encouraged participants to discuss their 1) knowledge about the environment, 2) knowledge about use and management of the environment and 3) values about the environment.

Individuals aged 45 years or older in the community were the primary focus of the study. A representative sample of Deninu Ku'e and Metis elders and individuals with extensive land-use experience and knowledge of the South Slave Region was the preferred sample population. Youth were not targeted as a sample for the studies because Traditional Knowledge infers a level of life experience and knowledge that is not typically associated with youth.

The Community Representatives from Fort Resolution and Hay River identified, contacted and scheduled all of the study participants for the qualitative interviews using their discretion regarding age and gender. The final sample size for the two studies included 29 participants. Eight (35%) of the participants were under the age of 45 and three (10%) were women. Tamerlane is grateful to the Fort Resolution and Hay River Communities, the Community Representatives and all of the participants for their participation in the Traditional Knowledge Studies.

1. The terms “youth” or “young people” do not identify a specific age group. Tamerlane has not had and does not plan to have direct interactions with the children in the primary communities regarding their “desires and concerns” regarding Tamerlane’s Pine Point Pilot Project. However, Tamerlane has had consultations with young adults that appear to be in their 20s and 30s. These consultations have occurred within the context of community meetings, council meetings, informal conversations and during the Traditional Knowledge Studies (five participants ranged in age from 30-38). These consultations identified several universal themes/concerns.

- Desire for jobs and increased income
- Desire for economic community development
- Desire for community benefits
- Concern that housing and the cost of living will be adversely impacted
- Concern that drug/alcohol use and crime may increase
- Concern that family well-being may be impacted
- Concern that physical access to the project area may be restricted and impact traditional harvesting
- Concern that the project may adversely impact the environment; specifically, area water bodies
- Concern that project traffic may pose a hazard and/or drive away wildlife
- Concern that project noise may drive away wildlife

Jobs and Community Development

As detailed in Section 8.1.1 and 8.1.2 of the DAR, Tamerlane is committed to employing northern and Aboriginal residents to the extent possible during the relatively short-term period of the initial PPPP. Tamerlane anticipates that a considerable proportion of the workforce required for the one-year PPPP construction phase and the 12 to 15 month mining operations phase can be filled by residents of the South Slave area.

Community Benefits

Since mid-August 2004, Tamerlane has made continuous and concerted efforts to engage and consult with potentially affected First Nations and the nearby communities to discuss all aspects of the proposed project, including potential benefits associated with the PPPP. Tamerlane has signed exploration agreements with two of the communities and is committed to continued discussions to this end.

Housing and Cost-of-Living

The Pine Point Pilot Project is limited in scope and short in duration. The Economic Analysis conducted by Roy Ellis (2007) and detailed in Section 8.2.1.1 of the DAR indicates that anticipated in-migration associated with the project will be very limited (approximately 220 persons during the life of the project), generally neutral and with no or low impact. As noted in DAR Section 8.2.1.4, the communities of Hay River and Fort Smith have indicated to Tamerlane that they have sufficient capacity to accommodate the anticipated low-level in-migration in rental and other short-term accommodation. Hay River's current available housing includes rental apartments, bed and breakfast units and private homes for sale. Based on this information, it is Tamerlane's view that the cost-of-living will not be impacted during the life of the PPPP. Tamerlane has not made any commitments regarding increases in the cost-of-living.

Drugs/Alcohol and Crime.

Tamerlane is aware that problems related to drugs, alcohol and crime in many communities throughout the NWT, including the South Slave Region remain a continuing source of concern to the affected communities and the social services agencies (GNWT Bureau of Statistics 2006 – Appendix D). Tamerlane cannot control ongoing issues related to these matters within the communities of the South Slave Region and will defer to the social services authorities of the respective communities and region to assist with managing these ongoing issues (DAR p. 372). Within its employee population, Tamerlane has committed to utilizing health and safety training as well as a zero tolerance drug policy to promote a healthy employee population and to help stem any drug use that may be related to higher incomes and consequent crime (DAR p. 394).

Family Well-being

Due in part to community members' concern for family well-being, Tamerlane made the decision to have employees commute daily rather than develop a rotational camp setting for the PPPP. To facilitate transportation, Tamerlane also committed to provide daily bus service from Fort Resolution and Hay River to the project site to assist employees with transportation costs. As described in DAR Section 8.2.1.10, Tamerlane believes that daily commuting is preferable to establishing a camp at the PPPP site to accommodate personnel for extended shift work periods. Having an accommodations camp would result in local PPPP employees and contractors being away from their home communities and families for 2 to 3 weeks at a time. This, in turn would make it more difficult for personnel to assist in taking care of important family-related health and well-being issues.

Physical Access

Tamerlane has committed to and is actively working with the communities' chiefs and councils to ensure that traditional land users who currently frequent the proposed project area will be accommodated during the life of the PPPP.

Environment

Environmental concerns have played a very important role during the planning and design of the proposed PPPP. Tamerlane's project design is based on and committed to minimizing the surface footprint, eliminating the need for massive groundwater pumping and no waste rock stockpiling. The proposed PPPP development description is detailed in Section 4.0 of the DAR.

Traffic

Tamerlane conducted extensive research regarding historic and current traffic patterns in the project area. The information, detailed in Section 7.5.2 of the DAR indicates that any additional traffic associated with the Pine Point Pilot Project will be negligible with no impacts. Tamerlane has committed that all PPPP traffic will comply with existing NWT traffic laws.

Noise

As detailed in Section 7.7.3 of the DAR, anticipated negative construction and operations-related effects, such as impacts on the noise environment and wildlife will generally be of an intermittent, very short-term (minutes to hours), highly localized, and rapidly reversible nature. Based on this information, Tamerlane has not made commitments regarding this concern.

2. Tamerlane has also had consultations with women within the context of community meetings, council meetings, informal conversations and during the traditional knowledge studies (three

participants were women). Almost universally, women shared the same desires and concerns identified by the young adults. In addition to the concerns already noted, one woman expressed concern about handling and funding child care if both parents are working.

As noted in DAR Section 8.2.1.6, Tamerlane anticipates that employees with child care needs during work periods will be able to address those needs within their community through their existing family and/or social support networks. In addition to social support networks, The First Nations and Inuit Child Care initiative gives parents a chance to work or learn. Child care spaces are located in 407 First Nations and Inuit communities across Canada. These are part of the Aboriginal Human Resources Development Strategy (AHRDS). Health Canada also has childhood development programs under its Head Start program. Tamerlane has not made any commitments regarding child care.

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

Preamble

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

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

Requests

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

Response

1. The estimated labour requirements in the DAR under section 8.1.1.2, page 348, is the most recent information available and consequently the most accurate estimate for the PPPP. Appendix F, Hazardous Materials Spill Contingency Plan, was last updated in May of 2006, and therefore does not reflect the most recent labour numbers. Tamerlane’s Hazardous Materials Spill Contingency Plan has since been updated to reflect the same labour requirements as stated in the DAR. In addition, after reviewing Appendix F in greater detail, Tamerlane determined that no other updates are required.

- 2a. Tamerlane has utilized lessons learned regarding labor requirements from its operating sister company Century Mining Corporation. Due to the differences in mining techniques between the PPPP and other Northern mines, an accurate comparison cannot be made.

- 2b. Tamerlane is unsure what inconsistencies MVERIB is referring to in Table 8.1-5 of the DAR. As discussed in IR0607-002-05 Response 4, there is an adequate assessment of labor needs for trucking. Tamerlane feels that Table 8.1-5 of the DAR remains an accurate estimation of the required workforce for the PPPP.

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

Preamble

The ToR requested the developer to “Assess the requirements for any training, education, and other improvements necessary to maximize employment of residents of potentially-affected communities in the workforce of the mine, and compare this to existing educational and training initiatives available in the NWT”. The ToR also requested that the developer “provide information on any identified barriers to employment, advancement and retention for Northern workers (with particular emphasis on residents of smaller potentially-affected communities and aboriginals), including minimum skill requirements, hiring policies related to criminal records or substance addictions, availability of willing employees, and lack of training opportunities for community members “.

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

Requests

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

5. *Identify when training programs will have to begin prior to the onset of the development in order for local and aboriginal people to take advantage of PPPP jobs, and how Tamerlane plans to contribute to these programs.*

Response

1. Tamerlane has made continuous and concerted efforts to engage and consult with potentially affected First Nations and the nearby communities to discuss all aspects of the proposed project, including training and employment. Tamerlane has signed exploration agreements with two of the communities. The confidential agreements include employment and training commitments Tamerlane has made through the life of the project.

Tamerlane is proud of the relationships it is building with the communities and believes that continued collaboration with them will help overcome several employment barriers Aboriginals encounter when looking for a job. Specifically, it is planned that continued collaboration with the communities to identify, communicate, develop and implement training will help mitigate the top three employment barriers identified by the Aboriginal Human Resource Development Council of Canada: 1) few or no jobs, 2) education/experience mismatch, and 3) inadequate job information (25%) (AHRDC web 2007).

2. Tamerlane is exploring several programs that may assist with the Company's training needs. Each program has specific criteria established by its governing organization that employers must meet to become eligible for participation. Tamerlane will contribute to the training program(s) it utilizes by following the governing organization's established criteria and guidelines. Programs Tamerlane is currently considering are listed below.

Mines Training Society

- Aboriginal Skills and Employment Partnership (requires multi-year training-to-employment plan).

Aboriginal Human Resources Development Council of Canada

- Project Partnerships

Service Canada

- Job Creations Partnerships

Northwest Territories Culture, Education and Employment

- Apprenticeship - Subsidized Wages
- Training on the Job - Subsidized Wages

- Training Plan Development
 - Wage Subsidy Programs
 - Employment Assistance Programs
3. Tamerlane is exploring several training avenues for the PPPP and has only preliminarily considered the Mines Training Society (MTS). To date, Tamerlane's primary focus has been to reach agreement with the communities. Now that agreements are in place, Tamerlane will evaluate training options and work with the communities to develop and implement a training program.
 4. Tamerlane is unable to provide comprehensive statistics regarding Aboriginal engagement in training programs in the South Slave region. A thorough review of the available literature suggests that this data is not publicly disclosed. In their 1999 report, "Aboriginal Partnership in Apprenticeship: Making it Work," the Canadian Labour Force Development Board noted that "sometimes it is difficult to know when a large apprenticeship project has succeeded in improving participation because so little information on Aboriginal people in apprenticeship is collected by any level of government or by Aboriginal groups themselves" (Canadian Labour, p. 63 1999).
 5. The start date for training will depend entirely on the training program(s) utilized. Tamerlane will commence training at some point after receipt of its environmental permits and will schedule training to coincide with the project's phases in order for local and aboriginal people to take advantage of PPPP opportunities. As already noted in response 2, Tamerlane will administratively and financially contribute to its training efforts.

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

Preamble

On page 358 of the DAR, Tamerlane states that “To assist in raising local northern business capacity, Tamerlane will outsource its workforce requirements to northern businesses as and when appropriate.”

On pages 359-60 the DAR, a commitment is made to “prioritize Aboriginal and northern (South Slave) businesses”, with five stated commitments to bolster the opportunities of local companies. More detail is required.

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

Requests

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

Response

- 1. Tamerlane will seek out bid packages from all local communities and aboriginal groups for the non-specialized services required for the PPP. Tamerlane will work first with the Aboriginal groups to determine and demonstrate capacity, competitiveness, regulatory requirement compliance and Tamerlane’s operational requirements. If this cannot be achieved, then Tamerlane will encourage joint venturing with local business that meet these requirements. Tamerlane will also work closely**

with the Aboriginal groups to create potentially longer-term business and employment opportunities.

2. The following bulleted items are responses that correspond to the five bulleted items on pages 359-360 of the DAR:
 - Preparing annual business opportunities forecast to identify foreseeable procurement requirements for mining equipment, operations and maintenance support services. Tamerlane already has and continues to speak with the local Aboriginal groups about specific services required for the PPPP. Tamerlane will continue to do so during both the construction and operations phases.
 - Providing technical support and assistance in accessing sources of commercial capital. Tamerlane has since followed up with this and realized that the Aboriginal groups have their own business managers with whom Tamerlane is in close contact with. We will provide support at their request. Most Northern businesses already have the capacity to support services required for the PPPP.
 - Working closely with local First Nations interests and communities to co-operatively achieve success in creating longer-term business and employment opportunities and in increasing business capacity. While Tamerlane is working closely with the local aboriginal groups and Northern businesses, the construction and operation of the PPPP will provide a critical understanding of the longer-term services the local communities feel comfortable investing in. This process will begin at the beginning of the construction phase and will continue throughout the project's life.
 - Identifying project components at all stages of development and operations that should be targets for a northern business development strategy. Tamerlane has already had communications with local Aboriginal groups as well as local businesses regarding potential business opportunities. Tamerlane expects more of these communications to occur at the beginning of the construction phase of the project.
 - Facilitating subcontracting opportunities for northern businesses; and identifying possible opportunities for joint ventures with Aboriginal and northern businesses. Tamerlane has already identified potential business opportunities as outlined on page 349 of the DAR, Table 8.1-5, under the heading Contract Opportunities/Positions. The top nine listed items identify potential contract opportunities for the local communities. These items are not all inclusive. Additional subcontracting opportunities are anticipated to materialize once detailed engineering plans are developed contracts are finalized with the primary specialized contractors.
3. Tamerlane anticipates that the following potential elements will be available to local aboriginal groups and northern businesses. This list is not a guarantee nor is it all inclusive.

- Project site clearing
- Overburden removal and stockpiling
- Freeze perimeter roadway construction
- Roadway access enhancements
- Rail loadout area construction
- Temporary explosives storage roadway enhancements
- Project site leveling work
- Infiltration basin construction
- Development materials removal during shaft sinking
- All building infrastructure foundation and erection work

IR Number: IR0607-002-16
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.1.3
Terms of Reference Section: H – 1 (Direct and Indirect Employment – Employee Transition and Sustainable Development)

Preamble

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

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

Requests

- 1. Identify relevant case study material describing the presence or absence of “boom-bust effects” from short-lived, relatively high employing developments that have occurred in the Northwest Territories or other jurisdictions.*
- 2. Identify what government agencies and programs might be called upon to provide support to transitioning workers if the development does not proceed beyond the current proposal. In addition, identify whether there is sufficient capacity in the South Slave to accommodate any predicted level of increased demand on government services in the post-development period.*
- 3. Identify any plans the developer has to assist in the transition of PPPP employees into other employment opportunities, if the development does not proceed beyond the estimated 3 year life span.*
- 4. Identify the beneficial legacies the PPPP development, if it does not proceed beyond the current proposal, will leave behind.*

Response

- 1. 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 includes:*

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. Retrieved May 18, 2007 from http://www.infrastructure.gc.ca/eacc-ccevc/alt_formats/pdf/eacc_rep_ccevcRap_e.pdf

Infrastructure Canada. (November 2005). *Northern Communities: Boom Bust and the Role of Infrastructure*. Ministry of Municipal and Community Affairs, Government of the Northwest Territories. Retrieved May 18, 2007 from http://www.maca.gov.nt.ca/pipelineresource/documents/wr10_e.pdf

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. Retrieved May 18, 2007 from http://www.infrastructure.gc.ca/research-recherche/result/studies-rapports/rs10_e.shtml

Western Economic Diversification Canada. (2006). *The Resilient City: Hope for Resource-Based Communities*. Retrieved May 18, 2007 from http://www.wd.gc.ca/ced/wuf/resilient/3a_e.asp

Western Economic Diversification, Canada. (2006). *The Resilient City: Appendix 1 – Case Study Summaries*. Retrieved May 18, 2007 from http://www.wd.gc.ca/ced/wuf/resilient/3a_e.asp

2. A number of government agencies and programs exist to provide support services to transitioning Canadian workers at both the federal and territorial level. The following list includes agencies and programs that may be called upon to provide support if the proposed PPPP does not proceed to full-scale mining. Due to the small-scale and short duration of the proposed PPPP, Tamerlane does not anticipate an increased level of demand on government services in the post-development period.

The Canada Employment and Immigration Commission

The Canada Employment and Immigration Commission provides employment services to both clients and employers through a national network of more than 450 Canada Employment Centres. These centers offer programs and services related to counseling, registration, placement, and employer-market development. The Commission offers a number of programs applicable to transitioning workers including:

- The Canadian Jobs Strategy programs, available through Canada Employment Centres, provide employment training and development opportunities to those Canadians most in need.
- The Skill Investment program brings help to workers whose jobs are threatened by changing technology and economic conditions. Participants have the chance to learn new skills before they are laid off or their existing skills are no longer needed.
- The Skill Shortages program deals with the problem of critical skill shortages, filling employers' needs for workers with specialized training.
- The Community Futures program offers help for workers in communities facing chronic high unemployment, plant closures, and mass layoffs.

Human Resources Development Canada

HRSDC's mission is to build a stronger and more competitive Canada, to support Canadians in making choices that help them live productive and rewarding lives, and to improve Canadians' quality of life.

- Aboriginal Human Resources Development Strategy (AHRD) Eighty Aboriginal Human Resources Development Agreement (AHRDA) holders deliver labour market programming in over 400 locations in Canada. Fort Smith is the South Slave Region's AHRD holder location. According to the AHRD web site, each AHRDA holder has programs best suited to the community it serves and is the most direct access to training, upgrading skills, and/or finding a job. Other resources are also available.
- Employment Insurance (EI) provides Regular Benefits to individuals who lose their jobs through no fault of their own (for example, due to shortage of work, seasonal or mass lay-offs) and are available for and able to work, but can't find a job.
- The Job Centre was developed in response to the need for on-line Aboriginal employment and in response to Aboriginal Canada Portal user's feedback and as a place to post the name of the job posters sent to the ACP site. The Employment e-tool was also developed to assist Aboriginal job seekers to find jobs. This tool is available to all Aboriginal and non-Aboriginal employers interested in finding Aboriginal employees. Employers are invited to post their on-line employment opportunities.

Service Canada

Service Canada's mission is to improve the delivery of government services. It helps Canadians access a wide range of the government services and benefits they need quickly and easily.

- Employment Assistance Program assists unemployed individuals prepare for, obtain and maintain employment by providing them with services such as employment counseling, job search techniques, job placement and labour market information. This measure focuses on

measuring positive results and outcomes achieved by clients. It is available to all unemployed Canadians regardless of whether they have had an Employment Insurance claim.

- The Job Creation Partnerships (JCP) employment benefit is a program designed to support projects developed by sponsors that create jobs that will provide insured participants with opportunities to gain meaningful work experience. At the end of their participation, clients will have recent work experience to add to their resumes and this, together with the networking which participants are able to do while on a project, increases their chances of successfully finding long-term employment.
- Skills Development The purpose of the Skills Development Program is to provide support to unemployed Employment Insurance eligible individuals without marketable skills, to find the most direct route possible to employment, resulting in savings to the Employment Insurance Account

Industry Canada

Industry Canada has a broad range of programs and initiatives designed to benefit a diverse client base across Canada.

- CareerPLACE is a national career and recruitment site developed to assist Aboriginal people in finding meaningful employment and for Canadian businesses to reach qualified and skilled Aboriginal jobseekers.

GNWT Department of Education, Culture and Employment

The Department outlines training opportunities offered in partnership with federal and territorial government departments, NWT Aboriginal organizations, professional associations and other educational institutions.

- NWT Income Assistance program helps individuals to assess their financial, personal and social needs. The Income Assistance Program also provides financial assistance to people in order for them to become independent.
- Apprenticeship and Occupational Certification Apprenticeship programs are designed for people who are interested in working in a trade. While some of the program will be spent in class study, most of the instruction is on the job.
- Building Essential Skills helps unemployed people return to learning so they can develop the job related skills needed by employers. After short term training, participants are better able to find meaningful employment.
- Career Services allows individuals to access information about employment vacancies through local career centers. Job vacancies are listed nationally and locally using the internet, an electronic job bank, job board and advertisements.

- Employment Assistance Services enable Career Centres to enhance career delivery and development options at the Community level by providing funding to community partners to offer career development services to unemployed people. Employment Assistance Services can be tailored to the specific needs of the client and / or community, such as career counseling, testing services, job search, workshop delivery and coordination of special career events.
3. 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.
 4. 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: IR0607-002-17
Source: MVEIRB
To: Tamerlane Ventures Inc.
DAR Section: 8.2
Terms of Reference Section: H – 2 Society and Culture (Potential Impacts and Ability of Social Services to Manage)

Preamble

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

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

Requests

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

Response

1. Social impacts can be differently defined, and indicators of social impacts are evolving with time. Broadly, levels of population, employment, education, income, crime and indicators of the integrity of traditional life such as rates of language retention and participation in traditional activity are used to assess social impacts.

Cumulatively, the data are used to generate a general view of a community's social health. Beyond observing general trends, however, predicting social impacts (positive or negative) is problematic. Specifically, social impacts are a function of the whole range of factors, only some of which may be the result of putting in place or closing down a project like the PPPP.

It is Tamerlane's view that minimal social impacts are likely to occur and that current social services are adequate to deal with any residual social impacts. This view is based on individual's comments/concerns, Tamerlane's intent to employ a zero tolerance drug policy and health and safety training program, and predicted population impacts.

Tamerlane has actively consulted with potentially affected First Nations and the nearby communities to discuss all aspects of the proposed PPPP since approximately mid-August 2004. During that time, some stakeholders have raised the concern that "social problems" and/or "a repeat of Pine Point," namely drug/alcohol use and crime, may increase during the PPPP. These conversations occurred within the context of community meetings and Traditional Knowledge Studies.

Within these same stakeholder groups, individuals have noted that drugs, alcohol and crime are already present in the communities. Individuals have also identified positive social impacts that may result from the PPPP including community benefits, employment opportunities and community development. A number of individuals (Traditional Knowledge Study participants) have also indicated that they do not foresee any social impacts resulting from the PPPP.

During the life of the project, Tamerlane has committed to utilizing health and safety training as well as a zero tolerance drug policy to promote a healthy employee population and to help stem any drug use that may be related to higher incomes and consequent crime (DAR p. 394). From a larger perspective, Tamerlane's project will provide employment, training and income that will provide resources for people to improve their quality of life and that of their families. It is expected overall that this represents potential for the reduction in negative "social impacts" in the population at large.

Perhaps most significantly, the proposed PPPP will have very limited population impacts. Ellis (2007) noted that in-migrants will most likely move to the market-based communities of Hay River and Fort Smith because of the availability of housing and other services. Total in-migration during the three-year life of the project is estimated at 220. When the proposed PPPP ends in 2010, it is expected that all in-migrants will leave the north and move back south resulting in no or low impacts on the population (Ellis 2007). By extension, this information suggests that there will be no residual impacts on social services from this population following completion of the project.

2. The statement “support consistent with company policy to employees and their immediate families” is used seven times in the DAR. In each instance, the phrase “support consistent with company policy to employees and their immediate families” is followed by “in dealing with personal health and well-being issues. The statement is included on pages 372, 376, 377, 382 and three times on page 383.

The statement is a direct reference to the compensation, benefits (medical/dental) and training Tamerlane employees will be given. Medical/dental benefits will be available to employees and their immediate families. Training opportunities are planned to include (pre-employment, on-the-job, health and safety, environmental protection and archaeological resource protection)

It is anticipated that compensation, benefits and training will support employees’ and their families’ personal health and well-being. In turn, this support may directly or indirectly influence other elements of society and culture including access to health care, crime rates, access to child care, effects on vulnerable populations, physical, mental and cultural health and social services.

The topic, page number and specific quote for each use of the statement “support consistent with company policy to employees and their immediate families” are listed below.

Topic: Access to Health Care
 Page: 372
 Referenced Quote: “support consistent with company policy to employees and their immediate families in dealing with personal health and well-being issues.”

Topic: Crime Rates
 Page: 376
 Referenced Quote: “support consistent with company policy to employees and their immediate families in dealing with personal health and well-being issues.”

Topic: Access to Child Care
Page: 377
Referenced Quote: “support consistent with company policy to employees and their families in dealing with personal health and well-being issues, including possible concerns related to child care.”

Topic: Effects on Vulnerable Populations – Women, Children and Elders
Pages: 382, 383
Referenced Quote: “support consistent with company policy to employees and their immediate families in dealing with personal health and well-being issues, including, to the extent possible, issues related to the health and well-being of their families.”...and...“support consistent with company policy to employees and their families in dealing with personal health and well-being issues.

Topic: Physical, Mental and Cultural Health
Page: 383
Referenced Quote: “support consistent with company policy to employees and their immediate families in dealing with personal health and well-being issues, including, to the extent possible, issues related to cultural health.”

Topic: Social Services
Page: 383
Referenced Quote: “support consistent with company policy to employees and their immediate families in dealing with personal health and well-being issues, including, to the extent possible, issues related to the health and well-being of their families.”

3. The statement, “During the life of the PPPP, Tamerlane will encourage its employees and contractors to direct income and benefits generated from their employer to positive uses for themselves, their spouses, children and family elders,” is intended as a general operating philosophy. Tamerlane cannot require employees to direct income and benefits to anyone. However, Tamerlane is hopeful that successful administration of compensation, benefits and training to its workforce will create positive momentum that will extend into the community. No other specific policies, plans and programs are planned to this end.

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

Preamble

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

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

Requests

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

Response

1. Tamerlane specifically incorporated the Archaeologist’s recommendation into the DAR to demonstrate transparency and its commitment to implement the contractor’s recommendation.
2. During the early stages of construction, orientation sessions will be held with project personnel to address a variety of important issues including:
 - Site Safety
 - Environmental Protection
 - Archaeological/Heritage Resource Protection

The Heritage Resource component of the orientation will include information on legal, reporting and mitigation requirements related to the protection of Archaeological Heritage Resources in the event that any are found.

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

Preamble

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

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

Requests

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

Response

1. For the Developer's Assessment Report (DAR), the Run-of-Mine ore processing after crushing was only by gravity separation of the sulphides from the host rock. The bulk sulphide concentrate produced (direct shipment ore) was subsequently shipped off-site and the gravity separation reject was used for backfilling underground, mined-out areas. The only process additive to the crushed

ore was the ferrosilicone used to make a designated, artificial specific gravity slurry to control the gravity separation.

The analysis in Table 4.6 – 1 is currently under review. Tamerlane has had recent consultations with Dr. Roshon Bhappu, Mountain States Research and Development Institute. Dr. Bhappu informed Tamerlane that the test results should not have any metal content and that the ferrosilicone used for the test must have been old and used in another project. The data in Table 4.6-1 is therefore invalid. A new test is currently being conducted by an independent lab, SGS Lakefield, utilizing new ferrosilicone and the protocol of filtering samples that will be subjected to water quality analysis. Tamerlane expects to receive the test results during the next two weeks and will forward them to MVEIRB at that time.

- i. The water in the analysis was tap water from the laboratory of SGS Lakefield in Lakefield, Ontario.
 - ii. The crushed, ore sample plus Lakefield tap water plus ferrosilicone and Lakefield tap water plus ferrosilicone were each mixed and then allowed to sit on a laboratory bench for 24 hours at room temperature. Finally, the water was filtered from the solids of each test sample and submitted for chemical analysis. This procedure should be representative of the normal contact time for a day's operation of the gravity separation plant. A separate Lakefield tap water sample was also analyzed to provide background values.
 - iii. The process, Dense Media Separation (DMS), is a proven and conventional process. The use of ferrosilicone as the gravity medium is also proven technology that is used in the diamond recovery mills in the territories.
 - iv. The omission of Cadmium was an oversight when the list of elements requested for analysis was prepared. The quantity of Cadmium in the ore is in parts per million (very low) not in percentages as is the case for zinc, lead and iron.
2. Tamerlane anticipates that all water released from the infiltration basin to the groundwater receiving environment will meet MVLWB license criteria. Tamerlane also anticipates that the exfiltrated water from the infiltration basin will comingle with existing groundwater located within the relatively shallow phreatic water table associated with the overburden. Finally, Tamerlane anticipates that any effect of the exfiltrated water (including fugitive metals in whatever form they may take) on the existing water quality of the phreatic groundwater table would be extremely localized and likely non-detectable within 10-20 m downgradient of the infiltration basin.

3. Similar to the discussion presented in response to item 2 above for metals, Tamerlane anticipates that any loading of the shallow phreatic water table associated with the overburden with total dissolved solids that may exfiltrate from the infiltration basin would be extremely localized and likely non-detectable within 10-20 m downgradient of the infiltration basin.

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

Preamble

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

Requests:

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

Response

1. If lime treatment of the process water was required; this is proven technology. The contaminated process water would be aerated and agitated with lime slurry. The hydroxides would be settled/thickened and then mixed with the DMS "Float" reject plus cement for final deposition as backfill in the mined-out underground areas.
2. The natural pH of the host rock is >9.0. Any metal ions will be precipitated as hydroxides. The reason for only mentioning the metal ions is the simplicity of the process; there are no reagents added to the process. Inert ferrosilicone is a glass-like material.
3. The hydraulic conductivity estimates discussed on pages 274 and 275 of the DAR, indicate a deposit with moderate to high permeability that is favourable for construction of an infiltration basin. Based on conservative assumptions regarding the existing hydrogeological conditions of the site, EBA (2006f) estimated that the steady state discharge capacity of the proposed 1.8 ha infiltration basin will be at least 100 m³/hour of water infiltration, and likely greater. This compares to 33.86 m³/hour predicted in the water balance (DAR Figure 7.2-1).

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

Preamble

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

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

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

Requests

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

Response

1. The reference to “sewage discharge to the septic field” on page 430 of the DAR is a typo. Tamerlane plans to mix the high quality effluent with the mine water being sent directly to the infiltration basin.

Although sewage shipping is available from local Hay River businesses, Tamerlane did not consider it for three reasons. First, Tamerlane is not prepared to spend thousands of dollars per month for sewage disposal 48 kilometres from the town of Hay River. Second, and perhaps more importantly, Tamerlane’s planned 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/greywater disposal trucks would be required to make daily trips which would increase site congestion. Finally, the RBC sewage treatment facility produces instantaneous clean water (see table in Response #2) that would otherwise be placed in sewage ponds in Hay River, thereby decreasing the town’s surge capacity.

2. Please see the following 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 proposes to use.

All greywater and sewage will be piped into the sewage treatment facility for treatment. The effluent will be piped into the discharge line and comingled with the DMS discharge line reporting to the infiltration basin.

www.BIODISK.ca

BIODISK Corporation
21 Cliveden Avenue
Toronto, Ontario
M8Z 3M7
Canada

Office (416) 237-0214
Fax (416) 239-7880
email: rbcquy@BIODISK.ca

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		
10	<2	2	0.25	0.12	7.5	<1.8	26.3		
24	<2	1	0.14	0.20	7.5	<1.8	24.5		
30	<2	<1	0.17	<0.05	7.4	<1.8	24.9		
Sept 6	<2	2	0.21	0.06	7.6	<1.8	23.2		
14	<2	2	0.19	<0.05	7.3	<1.8	22.4		
20	<2	5	0.10	0.06	7.2	<1.8	21.1		



Driven by service and Science
www.maxxamanalytics.com

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
26 Oct 2006 09:22:26 -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		096745			096747			
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	1081926	
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		096745			
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					



Driven by service and Science
www.maxxamanalytics.com

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

Quality Assurance Report
Maxxam Job Number: MA6B2341

QA/QC Batch	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
Num. Init			yyyy/mm/dd				
1081428 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		%	35
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	
	RPD	Total Ammonia-N	2006/10/24	0.3		%	25
1084108 API	MATRIX SPIKE	Total Phosphorus	2006/10/25		112	%	75 - 125
	QC STANDARD	Total Phosphorus	2006/10/25		109	%	85 - 115
	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
1084493 SBU	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
	Method Blank	Total Kjeldahl Nitrogen (TKN)	2006/10/25	<0.1		mg/L	
	RPD	Total Kjeldahl Nitrogen (TKN)	2006/10/25	1.6		%	20
1084913 API	MATRIX SPIKE	Total Phosphorus	2006/10/25		94	%	75 - 125
	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	
	RPD	Total Phosphorus	2006/10/25	2.2		%	35
1085077 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	NC		%	25

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

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

Preamble

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

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

Requests

Provide:

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

Response

1. Tamerlane is unable to provide an estimate of the concentrations or overall quantities of nutrients likely to be found in the “end of pipe” water at this time. However, Tamerlane is employing a tertiary treatment system for the treatment of its domestic wastes, compared to the lagoon infiltration systems that serve the local communities of the Pine Point area. In addition, as indicated in the DAR, Tamerlane is committed to full compliance with the MVLWB license criteria, which

will be intended to ensure protection of the existing groundwater environment in the vicinity of the infiltration basin.

2. Due to the fact that any and all waters discharged from the PPPP will be directed to the infiltration basin for exfiltration into the shallow groundwater, Tamerlane is of the opinion that there is no unsafe level of nutrients that would report to the infiltration basin. Any nutrients that exfiltrate into the shallow groundwater table would be rapidly assimilated by the natural biological processes operating in the surface and shallow subsurface overburden of the area.
3. The gravelly, sandy, generally loose glacial till medium, and shallow phreatic water table which characterizes the surficial overburden deposits in the Pine Point area provides relatively ideal conditions for the “natural biological processes” promoting assimilation of nutrients to occur. The bacteria and micro-fauna living in the overburden, and the roots of vegetation cover and trees will be key participants in the natural biological processes that will lead to assimilation of available nutrients into the lower levels of the food chain in the vicinity of the infiltration basin.
4. The assimilation processes are expected to begin to occur almost immediately, including within the gravel bed of the infiltration basin as well as in the downgradient area. Such natural biological processes already occur in the vicinity of all of the sewage lagoons currently servicing the communities of the Pine Point area and in septic field systems in other areas of Canada (the grass is greener over the septic field).

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

Preamble

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

Additional discussion of contingency planning is also required.

Requests

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

Response

1. Tamerlane has already consulted with the Department of Transportation regarding the proposed infiltration basin currently under Transportation Reserve #85B/11-4. On December 18, 2006, Tamerlane conducted a phone interview with Art Barnes, Rhonda Batchelor and Patricia Hogg regarding concerns about Tamerlane's usage of the infiltration basin. The primary issues discussed centered on remediation of the infiltration basin in the event there are any contaminants left behind as well as contamination of remaining usable gravels. Tamerlane addressed this concern by indicating that Tamerlane would accept all responsibility for the proper cleanup of the already used portion of the infiltration basin if necessary. Additionally, Tamerlane will have a reclamation bond as assurance for funding if any cleanup is necessary. Tamerlane also indicated that the remaining gravel resources on this particular reserve will not be affected as the plan is to utilize the already mined out area of the gravel pit. Tamerlane also explained that it could utilize a different area for the infiltration basin but would prefer utilizing the already exhausted portion of the gravel pit so as not to disturb additional area near the project. Art Barnes explained to Tamerlane that they do have the ability to form a third party contract with Tamerlane regarding the proposed infiltration basin, but that Tamerlane would have to agree to accept all responsibility. Tamerlane is currently planning to meet with the DOT and representatives to further discuss a mutually agreeable arrangement.
2. Tamerlane is unable to provide an estimate of the amount of sediment, nutrients and metals that will be deposited in the gravel bed during its use as an infiltration basin at this time. However, Tamerlane is committed to full compliance with the MVLWB license criteria, which will be intended to ensure protection of the existing groundwater receiving environment in the vicinity of the infiltration basin. The proposed infiltration site is located in a portion of the former gravel deposit that has been exhausted for gravel extraction purposes. Therefore, it is not anticipated that this area will be used for future gravel extraction purposes. Regarding whether the gravel bed will be considered to be environmentally benign or contaminated, Tamerlane recommends that the evaluation of this issue be addressed as a condition of the anticipated water license.
3. Lime treatment is not anticipated to be required for the PPPP. However, whether lime is or is not used as a treatment tool during the operation of the PPPP, as indicated in response to item 2 above, it would be useful to address the need or lack of need to remove any precipitates formed in the infiltration basin through a condition of the anticipated water license.
4. The estimated total discharge for the life of the PPPP into the infiltration basin is 385,500 cubic metres. In the unlikely event that the infiltration basin does not exfiltrate according to the percolation test rates, the storage capacity is more than sufficient to accommodate the entire volume of water to be discharged over the life of the PPPP. To ensure success of the infiltration basin, wet drains will be installed in the middle of the basin to help facilitate proper percolation rates. In the unlikely event of a worst case scenario where unexpected flows hamper the use of the infiltration

basin, Tamerlane would seek permission to discharge ground to ground through ditching as was common practice during the dewatering processes conducted in the past.

5. The statement on page 192 of the DAR indicated that in the most unlikely event that the exfiltration process was somehow unable to function, the infiltration basin has been designed to hold the entire amount of water to be discharged throughout the life of the Pilot Project. However, the known high porosity of the bottom of the infiltration basin and the additional wet drains that will be installed to further promote exfiltration will ensure that this worse case consideration simply cannot arise.

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

Preamble

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

Request

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

Response

- 1a. Tamerlane does not anticipate that standing water will ever be present in the infiltration basin at any time during the project due to the extremely high natural percolation rate. This will be further ensured by the installation of a series of wet drains to further enhance the exfiltration capability of the system.

- 1b. Based on the response to item 1a above, this question is not applicable because there is not expected to be any standing water in the infiltration basin.

- 1c. The water quality of any water directed to the infiltration basin will be in compliance with water license quality criteria.

- 1d. Since there will be no standing water in the infiltration basin, wildlife are not expected to be attracted to the infiltration basin for any reason. Some wildlife may occasionally walk through the infiltration basin area, much as they do today, but no impacts on such animals are expected to occur.

- 1ei. No additional measures are required to keep standing water out of the infiltration basin.

- 1eii. There is no particular reason to discourage animals from using the area. Tamerlane plans to monitor and report the presence of wildlife that do move through the area.

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

Preamble

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

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

Requests

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

Response

1. The conceptual monitoring proposed by Tamerlane would include regular monitoring of the comingled effluent discharged into the infiltration basin, combined with upgradient and downgradient monitoring of the shallow groundwater in the vicinity of the infiltration basin. The proposed shallow groundwater water monitoring program is anticipated to include one upgradient (reference) site and one or two downgradient sites to monitor groundwater quality within the shallow phreatic groundwater table.

2. The person or persons responsible for conducting the water quality monitoring program as well as any other environmental management responsibilities, are expected to include locally-based personnel, who would also participate in reporting the results of such water quality testing and other environmental data gathering to the local communities.

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

Preamble

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

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

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

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

Request

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

Response

1. Tamerlane forwarded the information request noted above via email to Layne Christensen, Tamerlane's retained freezeway contractors for their response. The following paragraphs are Layne Christensen's response:

We (Layne Christensen) have reviewed the information request you forwarded via e-mail. In our original response to the "assessment of the likelihood of success of the freezeway technology", we had not initiated an engineering evaluation of the project in significant detail to address some of the concerns. Subsequent to our response Tamerlane Ventures, Inc. has authorized Layne to proceed with a more detailed engineering evaluation.

While several documents were in our possession at that time we had not completely evaluated the data presented. After further review it appears that there are sufficient baseline parameters needed to further evaluate the frozen earth barrier. The documents included in Layne's engineering analysis are as follows:

1. Proposed Engineering Services and Estimated Costs
Phase 2 Pine Point Mine Ground Freezing Project
EBA Engineering Consultants Ltd., July 6, 2006
2. Hydrogeology of R190 Mineralized Region
Great Slave Reef Project, Westmin Resources Limited
Stevenson International Groundwater Consultants, Ltd., November 1983
3. Vegetation/Ecosystem Baseline Studies
Pine Point Project
EBA Engineering Consultants Ltd., November, 2005
4. Feasibility Assessment (Phase 1) of Pine Point Mine Ground Freezing Project
EBA Engineering Consultants Ltd., May 2006

After further evaluation, these documents appear to provide the following information:

1. Verification of soil and rock stratigraphy across sufficient sections of the site to perform frozen earth barrier design;
2. Material and thermal properties of the subsurface strata to complete required finite element thermal analysis to determine refrigeration pipe spacing, time to freeze and heat load for refrigeration plant size determination;
3. Data to further evaluate hydraulic gradient in frozen earth wall vicinity; and
4. Water chemistry tests to evaluate freeze point depression.

After further analysis Layne believes that sufficient data is present to eliminate the need to conduct groundwater pumping tests at this time.

Layne is currently in the process of performing the engineering and cost evaluation. A site visit during the week of May 21 by Layne engineering and operations personnel will provide further information to complete our evaluation. Prior to the submission of our written report we will contact you if any data seems missing or incomplete. At this time, we believe we have sufficient information to finalize our report.

We hope this clarifies the information request. If you have any further questions, please feel free to contact us.

Sincerely,

Layne Christensen Company

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

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

Preamble

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

Requests

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

Response

1. Due to the vast drilling conducted in and around the R-190 deposit, Tamerlane was able to determine main rock layers 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 metres in depth. As discussed in the Stevenson International Groundwater Consultants report November, 1983, 97% of total water inflow occurs at the 122 metres depth. Water inflow drops off significantly at continuing depth down to 158 metres. The significant decrease of water inflows is primarily due to the sedimentary dolomites at depth from 122 metres. Tamerlane considered this information in its determination that the 185 metre depth freezeway should extend below the ore body and well into the sedimentary dolomites to ensure a solid foundation and minimal water inflows.

2. The pipes will extend to the bottom of the drill holes at 185 metres depth.
3. The freezeway depth will be 185 metres below the surface. Page 132 of the DAR indicates 185 metres (2000') which is a typo and should read 185 metres (600').
4. As discussed in Response #1 and as per Stevenson International Consultants report of November, 1983, 97% of the groundwater occurs 122 metres below surface and drops off significantly at depths to 158 metres. The frozen barrier will be extended to a depth of 185 metres, which is well below the primary water inflow and within a highly impervious layer of sedimentary dolomites. The estimated 55 cubic metres per hour of upwelling water into the shaft as shown in Figure 4.6-1 of the DAR is taken directly from prior hydrogeologic studies.

The frozen barrier will be developed before any excavations occur at depth which will allow for solid and continuous freeze barrier. Due to the expected low upwelling flow rates of water, minimal if any thermal erosion is expected as indicated by Layne Christensen.

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

Preamble

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

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

Requests

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

Response

- 1. As indicated in Figure 4.6-1 of the DAR, the daily water inflow rates are expected to be 1320 cubic metres. According to the Stevenson International Consultants report (November 1983), total flow rates were measured at 14,832 cubic metres per day, of which 97% of the flow occurred at 122 metres depth. Tamerlane has designed its pumping capacity to accommodate 54,500 cubic metres per day which will accommodate all water and eliminate the need to shutdown operations. Tamerlane wants to stress to the review board that this design was only precautionary for the safety*

of the underground workforce. Tamerlane does NOT expect pumping to exceed that shown in Figure 4.6-1 of the DAR.

2. As per Cominco's historical pumping during its 23 years of operation, no significant outflows are expected.
3. Please see IR0607-002-23 Response #4.

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

Preamble

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

Requests

Provide information on:

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

Response

1. The ambient air quality standards adopted by the GNWT from the Canadian Air Quality Objectives were presented in Table 2.3-4 of the DAR. More specifically the standard for Total Suspended Particulates (TSP) for 24 hours is 120 µg/m³. Similarly, for Fine Particulate Matter (PM_{2.5}), the 24-hour standard is 30 µg/m³. Tamerlane does not believe it will be necessary to measure the local levels of particulates in the air as it intends to judiciously employ dust suppression through watering as necessary to ensure that dust problems will not occur.
2. The 1 cubic metre of water per hour estimate of the amount of water needed for dust control is based on standard practices for the mining industry. The actual amount of water required to achieve effective dust control will vary depending on the specific weather and operational conditions that will be experienced at any particular time.

3. As suggested in response to item 2 above, there will be seasonal differences in the amount of water needed to achieve effective dust control. Drier summer periods are anticipated to require more dust control, while dust control activities will be more limited during wet periods and for most of the winter period.

4. The GNWT *Guidelines for Dust Suppression* specify other dust suppression agents that may be employed. However, Tamerlane intends to employ only water.

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

Preamble

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

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

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

Requests

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

Response

- 1. As reviewed in Section 2.12 of the DAR, several years of early science-based wildlife studies of the Pine Point area were conducted during the period 1976 to 1980 by BC Research (1983). In addition, during the PPPP site tour conducted as part of the MVEIRB scoping sessions in mid August 2006, and the Traditional Knowledge interviews conducted in October 2006, a number of the community*

participants discussed wildlife species found in the LSA and the general Pine Point region. Wildlife identified as living in and being harvested in the vicinity of the LSA included moose, woodland caribou, lynx, wolf, otter, black bear, rabbit, porcupine, prairie chicken, spruce chicken, ruffed grouse, waterfowl and upland game birds. Migrating wildlife observed from time-to-time include ducks, geese, swans, songbirds, whooping crane, prairie chickens and ptarmigan (Tamerlane 2006b, c).

The more recent wildlife studies carried out by EBA in 2005 and 2006 (EBA 2005c; 2006c) served to update and generally support the results of the earlier studies. The complete set of information has given Tamerlane's environmental assessment team great confidence in its quality, adequacy and usefulness in carrying out the environmental assessment included in the DAR. We sincerely hope that the public will concur with our view.

2. Tamerlane proposes to record all sighting of wildlife and wildlife behaviour and/or wildlife sign in a wildlife log book. All species observed will be identified with a particular priority placed on species such as Wood Buffalo, Woodland Caribou, Moose, Black Bear and other furbearers, Whooping Crane, Raptors and Waterfowl. The results of such monitoring can be reported on a monthly or seasonal basis to the communities and to ENR as per their wishes. Behavioral observations such as flight or avoidance responses in relation to particular activities will be used to adjust activities causing such disturbances as necessary.
3. Any observations of Whooping Cranes will be immediately reported by Tamerlane to Parks Canada – Wood Buffalo National Park and ENR- Fort Smith. Advice or guidance offered by these parties will be followed as appropriate.

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

Preamble

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

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

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

Requests

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

Response

1. As indicated on Page 320 of DAR Section 7.7.1, the PPPP emissions estimates presented in Table 7.7-1 were derived from the recent and applicable air quality assessment conducted for the Snap Lake Diamond Project (De Beers 2002) which employed widely accepted factors published by the U.S. EPA (1995). When available, equipment manufacturer’s data were used in that assessment in preference to emission factors.

The Snap Lake Project assessment was considered to be appropriate for estimating (on a prorated basis based on scale, number and types of emissions sources) Tamerlane's PPPP emissions because the daily production from the two projects is of a similar magnitude (Snap Lake - 3,000 t/d; Tamerlane PPPP - 2,800 t/d). Additionally, both projects are underground mines and employ DMS circuits.

2. As discussed on pages 322 and 323 of the DAR, SO₂ and NO₂ levels at the PPPP site are anticipated to be well below the applicable NWT standards both outside and within the active mine area based on similar predictions made for the Snap Lake Mine (De Beers 2002). Possible exceedences of the maximum 24-hour concentrations for TSP, PM10 within the active mine area can be readily addressed through the diligent application of water as the primary dust suppression agent.
3. Tamerlane's contributions to GHG and other emissions will be minimized through the application of the following mitigation measures:
 - Full compliance with Land Use Permit and Water License and license conditions to be issued by the MVLWB.
 - Conformance with the Guidelines for Ambient Air Quality Standards in the NWT.
 - Use of low sulphur diesel fuel and regular equipment and engine maintenance.
 - Conformance with GNWT Guideline for Dust suppression through the application of dust suppressants - e.g. water or approved dust suppressant products.
 - Use of existing highways for all PPPP-related vehicle traffic.
 - Secure containment of concentrate product during transportation to the Hay River railhead.
 - Conformance with GNWT and WCB standards for mine air quality.
 - Salvage of organic and mineral top soils for future reapplication during reclamation and revegetation of the site.
 - Disposal of all hazardous wastes in an approved manner.

In addition, Tamerlane continues to pursue negotiations with Northlands Utilities to access available power from the local power grid as a possible substitute for the diesel-fired power plant that is currently being proposed in the DAR. The use of electrical power from the grid would dramatically reduce the amount of GHG and other emissions released by the PPPP. Tamerlane will be pleased to advise the MVEIRB of any progress in its negotiations with Northlands Utilities.