

Mackenzie Valley Land and Water Board
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YELLOWKNIFE, NT X1A 2P6
Phone (867) 669-0506 • FAX (867) 873-6610

March 4, 2002

File: N3L2-0004

Distribution List

Dear Sir/Madame:

Water Licence Application
North American Tungsten Corporation Ltd. - N3L2-0004
Renewal of Mining and Milling Operation - Cantung Minesite

Attached for your review and comments is the aforementioned water licence application. Your comments will be used in the evaluation and Preliminary Screening of this application. Please note that this license is within Water Management Area number 3, Mackenzie River Area

Please submit your comments in writing by to me **May 10, 2002** quoting Water Licence N3L2-0004. Should you find that additional time is required to complete further studies or investigations, contact me prior to this date.

If you have any questions regarding the water license application, contact me at (867) 669-0506 or email mvlwbpermit@mvlwb.com.

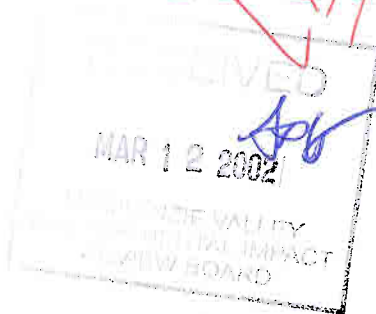
Yours sincerely,

A handwritten signature in black ink, appearing to be "Laurie Cordell".

Laurie Cordell
Regulatory Officer

Attachment

CD is in the binder front pocket.



Water Licence Application N3L2-0004

DISTRIBUTION LIST

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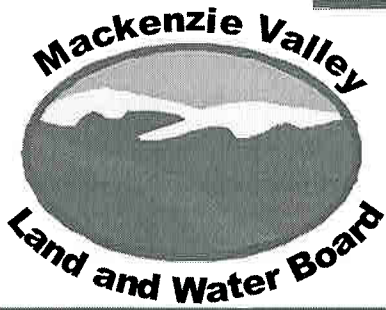
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FAX (867) 873-6610

**APPLICATION FOR WATER LICENCE, AMENDMENT OF LICENCE,
 OR RENEWAL OF LICENCE**

Application/License No: N3L2 - 0004 (RENEWAL)

<p>1. Name and Mailing Address of Applicant</p> <p>North American Tungsten Corporation Ltd. Suite 1400, 1188 West Georgia Street Vancouver, B.C., V6E 4A2</p> <p>Telephone: 604 684 5300</p> <p>Fax: 604 684 2992</p>	<p>2. Address of Head Office in Canada if Incorporate</p> <p>North American Tungsten Corporation Ltd. Suite 1400, 1188 West Georgia Street Vancouver, B.C., V6E 4A2</p> <p>Telephone: 604 684 5300</p> <p>Fax: 604 684 2992</p>
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3. Location of Undertaking (describe and attach a map, indicating watercourses and location of any proposed waste deposits).

Latitude 61° 57' North

Longitude 128° 16' West

4. Description of Undertaking (describe and attach plans)

See accompanying completed Questionnaire for mine development information and maps.

5. Type of Undertaking.

- | | | | |
|-----------------------|---------------|------------------|-------|
| 1. Industrial | _____ | 5. Agriculture | _____ |
| 2. Mining and Milling | _____ X _____ | 6. Conservation | _____ |
| 3. Municipal | _____ | 7. Recreation | _____ |
| 4. Power | _____ | 8. Miscellaneous | _____ |

6. Water Use

To obtain water	<u> X </u>	Flood control	<u> </u>
To cross a watercourse	<u> </u>	To divert water :	<u> </u>
To modify the bed or bank of a watercourse	<u> </u>	To alter the flow of, or store water	<u> </u>

Other (describe):

To obtain water for mining, milling, domestic and associated uses from the Flat River as per existing Water Licence Number N3L2 – 0004.

7. Quantity of water involved (litres per second, litres per day or cubic meter per year, including both quantity to be used and quality to be returned to source.

Not to exceed 45,000 cubic metres of water per week as per existing Water Licence N3L2 – 0004. No changes to the operations, the project or the Licence are being proposed.

8. Waste deposited (quantity, quality, treatment and disposal)

Minewater and exfiltrated mine effluent drainage from existing Tailings Pond 3 and Polishing Pond 4. The quantity and quality of wastewater, treatment and disposal methods are discussed in the accompanying completed Questionnaire.

9. Other persons or properties affected by this Undertaking (give name, mailing address and location. Attach a list if necessary.

Not Applicable.

10. Predicted environmental impacts of Undertaking and proposed mitigation.

No significant change to existing water quality in Flat Creek is anticipated. All wastewater will be discharged in compliance with conditions specified in Water Licence N3L2 – 0004.

11. Contractors and sub-contractors (names, addresses and functions). Attach a list if necessary.

See accompanying completed Questionnaire.

12. Studies undertaken to date. Attach a list if necessary.

See accompanying completed Questionnaire.

13. Proposed time schedule.

Start date: Ongoing Operation Completion date: 7 years

Name (print): Mr. Udo E. von Doehren

Signature: _____

Title (print): President and Chief Executive Officer

Date: _____

FOR OFFICE USE ONLY

Please make all cheques payable to "Receiver General of Canada"

Application Fee Amount: \$ _____ Receipt No: _____

Water Use Deposit Amount: \$ _____ Receipt No: _____

MACKENZIE VALLEY LAND AND WATER BOARD

**MINING INDUSTRY QUESTIONNAIRE FOR WATER LICENCE
APPLICATIONS**

**Completed by EBA Engineering Consultants Ltd.
On behalf of
North American Tungsten Corporation Ltd.**

January 2002

INTRODUCTION

This questionnaire was developed by the Mackenzie Valley Land and Water Board (MVLWB) to solicit supplemental information from an applicant to support their application for a water licence (or renewal). The completion of this questionnaire is intended to reduce possible delays arising from the Mackenzie Valley Land and Water Board having to solicit additional information after an application has been submitted. This information will also be useful during the pre-screening of an application, which must be undertaken prior to development and approval of a water licence (see Section 8).

North American Tungsten Corporation Ltd. (NATCL) has completed the questionnaire, based on all available information, recognizing that some questions may not be relevant to the CanTung Mine. For questions that do not relate to this existing operation, NATCL has indicated this lack of applicability as and where appropriate.

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SECTION 1 – GENERAL**DATE:****January 31, 2002**

- 1.1 APPLICANT North American Tungsten Corporation Ltd. 604-684-5300**
 (company, corporation, owner) (telephone no.)

Suite 1400, 1188 West Georgia, Vancouver, BC. V6E 4A2
 (postal address)

PROPERTY NAME: CanTung Mine

**CLOSEST COMMUNITIES: Watson Lake, Ross River (Yukon),
 Nahanni Butte, Fort Liard (Northwest Territories)**

LATITUDE/LONGITUDE: 61° 57' North; 128°16' West

- 1.2 ENVIRONMENTAL CONTACT: Richard Hoos, EBA Engineering
 Consultants Ltd. (name)
Senior Environmental Director, Arctic Division, Phone 604 685 0275
 (title) (telephone no.)**

- 1.3 INDICATE THE STATUS OF THE MINE AND/OR MILL ON THE DATE OF APPLICATION. (check the appropriate space)**

	MINE	MILL
Design	<u>Completed</u>	<u>Completed</u>
Under construction	<u>Completed</u>	<u>Completed</u>
In operation	<u>1962 - 1986</u>	<u>1962 - 1986</u>
Suspended	<u>1986</u>	<u>1986</u>
Abandoned	<u>Not Applicable</u>	<u>Not Applicable</u>

- 1.4 IF A CHANGE IN THE STATUS OF THE MINE OR MILL IS EXPECTED, INDICATE THE NATURE AND ANTICIPATED DATE OF SUCH CHANGE.**

Both the mine and the mill were re-commissioned in December 2001 in accordance with the requirements of existing Water Licence N3L2-0004.

1.5 INDICATE THE PRESENT (OR PROPOSED) MINE/MILL OPERATING SCHEDULE.

	MINE	MILL
hours per day	22	24
days per week	7	7
weeks per year	52	52
shift periods	11 hrs	12 hrs
number of employees	49	49

1.6 ATTACH A DETAILED MAP DRAWN TO SCALE SHOWING THE RELATIVE LOCATIONS OF THE (PROPOSED) MINE, MILL, WATER TREATMENT FACILITIES, SEWAGE AND SOLID WASTE FACILITIES, AND TAILINGS AREAS. THE PLAN SHOULD INCLUDE THE WATER INTAKE AND PUMPHOUSE, FUEL AND CHEMICAL STORAGE FACILITIES, ANY EXISTING AND PROPOSED CONCENTRATE, ORE AND WASTE ROCK STORAGE PILES, ANY EXISTING AND PROPOSED DRAINAGE CONTROLS, PIPING DISTRIBUTION SYSTEMS, GAS, ELECTRIC AND WATER UTILITY ROUTE LOCATIONS, AND TRANSPORTATION ACCESS ROUTES AROUND THE SITE. THE MAP ALSO SHOULD INCLUDE ELEVATION CONTOURS, WATERBODIES AND AN INDICATION OF DRAINAGE PATTERNS FOR THE AREA.

See Appendix I, Figures 1, 2 and 3.

- 1.7 IF APPLICABLE, PROVIDE A BRIEF HISTORY OF PROPERTY DEVELOPMENT WHICH TOOK PLACE BEFORE THE PRESENT COMPANY GAINED CONTROL OF THE SITE. INCLUDE SHAFTS, ADITS, MILLS (GIVE RATED CAPACITY, ETC.); WASTE DUMPS, CHEMICAL STORAGE AREAS, TAILINGS DISPOSAL AREAS AND EFFLUENT DISCHARGE LOCATIONS. MAKE REFERENCES TO THE DETAILED MAP.**

Mining began in 1962. The first mining was in an open pit on the hill above the townsite; the ore was trucked over a surface road to a mill close to the townsite. In 1971, diamond drilling discovered a deeply buried ore body, named the E Zone, which was mined underground through an adit driven from the valley bottom close to the townsite. In 1986, mining ceased due to low tungsten prices; the property remained in a state of care and maintenance until December, 2001, when the mine was recommissioned.

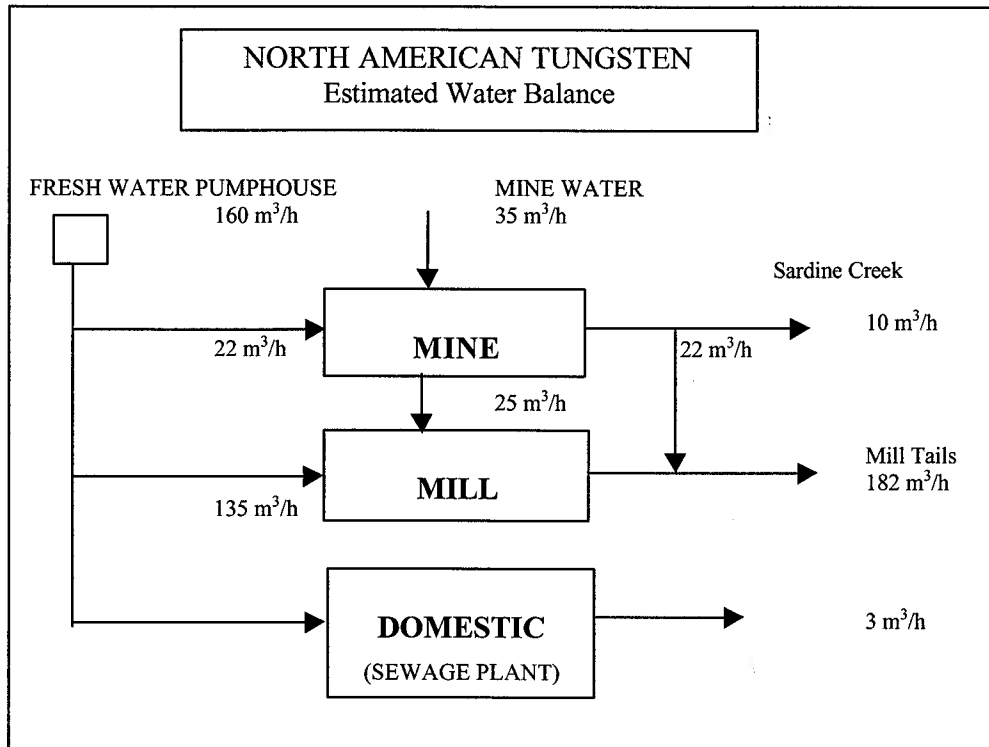
Commencing in July, rehabilitation of the mine, mill and plant infrastructure was undertaken, leading to restart of the mine in December 2001. Further information on this subject is provided in the CanTung Mine Operating Plan (NATCL 2001a) on file with the Mackenzie Valley Land and Water Board.

- 1.8 GIVE A SHORT DESCRIPTION OF THE PROPOSED OR CURRENT FRESHWATER INTAKE FACILITY, THE TYPE AND OPERATING CAPACITY OF THE PUMPS USED AND THE INTAKE SCREEN SIZE.**

The fresh water intake system at the CanTung Mine consists of an enclosed pump house situated on a concrete sump adjacent to the Flat River (See Appendix I, Figure 2). Water access to the sump flows through a screen with approximately 20 mm openings. Three vertical, 8-stage 'Peabody Floway' pumps, complete with 60 HP motors, supply water requirements for process and domestic use. Maximum flows with 1, 2, or 3 pumps operating are 120, 220 and 270 m³/hr, respectively.

- 1.9 AT THE RATE OF INTENDED WATER USAGE FOR OPERATIONS, EXPLAIN WATER BALANCE INPUTS AND OUTPUTS IN TERMS OF ESTIMATED MAXIMUM DRAW DOWN AND RECHARGE CAPABILITY OF THE RIVER OR LAKE FROM WHICH FRESH WATER WILL BE DRAWN.**

Estimated water usage is 4,440 cubic metres per day. The water balance for the CanTung mine is illustrated as follows:



1.10 WILL ANY WORK BE DONE THAT PENETRATES REGIONS OF PERMAFROST?

YES _____ NO X

1.11 IF "YES" ABOVE, IS THE PERMAFROST CONTINUOUS OR DISCONTINUOUS?

Not Applicable

1.12 WERE (OR WILL) ANY OLD WORKINGS OR WATERBODIES (BE) DEWATERED IN ORDER TO BRING THE PRESENT PROPERTY INTO PRODUCTION?

YES _____ NO X

1.13 IF "YES" ABOVE, INDICATE THE NAME OF THE WATERBODY, THE TOTAL VOLUME OF WATER TO BE DISCHARGED AND THE CHEMICAL CHARACTERISTICS OF THAT WATER.

WATERBODY Not Applicable

TOTAL VOLUME Not Applicable cubic meters

bands, separated by almost barren limestone and quartz layers. The E Zone ore consists of 30-40% pyrrhotite, with minor chalcopyrite and sphalerite, including 1-2% scheelite. Copper values range from 0.2 to 0.5% and have been extracted in the past. Zinc, which occurs as dark brown and black sphalerite, and minor bismuth are also present but values are commercially insignificant. Other minerals present are calcite, epidote and apatite.

The geological characteristics of the CanTung mine area and the ore zone are illustrated in Appendix I, Figure 4. This information was previously provided in the CanTung Mine Operating Plan (NATCL 2001a), which is on file with the Mackenzie Valley Land and Water Board.

2.2 BRIEFLY DESCRIBE THE PHYSICAL NATURE OF THE OREBODY, INCLUDING KNOWN DIMENSIONS AND APPROXIMATE SHAPE.

Figures 4 and 5 in Appendix I illustrate the physical nature, dimensions and approximate shape of the ore bodies at the CanTung Mine.

2.3 BRIEFLY DESCRIBE THE COUNTRY ROCK IN THE GENERAL VICINITY OF THE OREBODY (FROM THE SURFACE TO THE OREBODY).

The CanTung mine is situated in a mountainous area composed of folded and faulted sedimentary rocks with igneous intrusions. The geology of the Tungsten area has been described by Blusson (1968), Cummings and Bruce (1977), Mulligan (1984) and others, and is summarized here. The sedimentary rocks consist of argillites, shales, dolomites and limestones. They range in age from Cambrian to Ordovician (345-500 million years on the geological timetable) and form part of the Selwyn Basin that formed at that time. The CanTung mine is situated on the eastern edge of the basin. These rocks were later folded and faulted.

During the Cretaceous era (about 65-136 million years ago on the geological time table) granitic magmas intruded the sedimentary rocks and gave rise to skarn-type scheelite deposits in the limestones. CanTung is one of several known skarn-type scheelite deposits in the so-called Selwyn Tungsten Belt running from Mayo, YT, along the Yukon/NWT border and south to the northern border of British Columbia.

2.4 PROVIDE A GEOLOGICAL DESCRIPTION OF THE ORE MINERALS OF THE DEPOSIT. (IF POSSIBLE INCLUDE THE PERCENTAGE OF METALS.)

The mineralization of the CanTung deposit is described by Westervelt (1984) and others. Scheelite is the only tungsten mineral identified in the CanTung deposit. The tungsten ore occurs in the form of scheelite (calcium tungstate), accompanied

by pyrrhotite (iron sulphide), chalcopyrite (copper sulphide), sphalerite (zinc sulphide) and minor amounts of bismuth. The sulphides occur in the form of bands, separated by almost barren limestone and quartz layers. The E Zone ore consists of 30-40% pyrrhotite with minor chalcopyrite and sphalerite, including 1-2% scheelite. Copper values range from 0.2 to 0.5% and have been extracted in the past. Zinc which occurs as dark brown and black sphalerite and minor bismuth values are also present. Other minerals present are calcite, epidote and apatite.

The most recent estimate of ore reserves dates from 1995. Using a cut-off of 1.50% WO_3 , the mineable reserve was estimated at 694,000 tons, indicating a remaining mine life of 2-3 years at a planned production rate of 680 tonnes (750 short tons) per day. However, future exploration in the mine area and re-evaluation of the existing ore reserves could add to the current mine life.

2.5 DESCRIBE THE GEOCHEMICAL TESTS WHICH HAVE BEEN (OR WILL BE) PERFORMED ON TAILINGS SOLIDS AND DIFFERENT GEOLOGICAL UNITS OF ORE, COUNTRY ROCK AND WASTE ROCK TO DETERMINE THEIR RELATIVE ACID GENERATION AND CONTAMINANT LEACHING POTENTIAL. OUTLINE METHODS USED (OR TO BE USED) AND PROVIDE TEST RESULTS IN AN ATTACHED REPORT (IE. STATIC, KINETIC TESTS).

Extensive geochemical testing has been conducted over the years on the tailings solids and waste rock generated by the CanTung Mine. A number of reports on this subject were provided, initially to the former Northwest Territories Water Board and more recently to the Mackenzie Valley Land and Water Board. These include the following reports:

Aur. 1997. CanTung Mine Plan for Restoration and Abandonment, May, 1997. Prepared by Watermark Consulting Inc. for Aur Resources Inc.

EBA. 2001a. CanTung Mine Abandonment and Restoration Plan. Nov, 2001. Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.

Robertson. 1995. Assessment of Data on Acid Generation Potential from Tailings. Prepared for Canada Tungsten Inc.

Robertson. 2001. Assessment of the Results of Recent Geochemical Testing of the CanTung Tailings. Prepared for EBA Engineering Consultants Ltd. by Robertson GeoConsultants Inc.

A brief summary of this information follows:

Waste Rock

In 1995 waste rock samples were obtained for geochemical testing. They were selected to represent the full range of rock types found on site. Citing from Aur (1997) and EBA (2001):

Samples WR-1 through WR-3 and WR-6 represented the bulk of the waste rock. Samples WR-4 and WR-5 were specifically selected from the ore stockpile to represent potential 'worst case' samples in terms of either iron staining or visible sulphide content.

All of the waste rock samples tested were slightly to strongly acid consuming with comparatively low metal contents. Waste rock sample pH values were consistently alkaline, ranging from pH 8.9 to 9.6. One of the ore stockpile samples, WR-4, was potentially net acid generating, with an NNP of 794 kg CaCO₃ eq/tonne and had a slightly lower but still near neutral paste pH of 6.8. These samples had been exposed in the field for a minimum of ten years and did not show net acidic conditions. With the exception of the WR-4 sample, sulphur contents were low and long-term acid generation was not expected from the waste rock.

Short-term extraction tests were completed on three of the rock samples to evaluate the extent of metal dissolution and potential metal leaching. These tests showed that the soluble metal content associated with the rock samples was very low, below the detection limit for most parameters. The ore sample had slightly elevated concentrations of iron and manganese (0.17 and 0.89 mg/L, respectively). Sulphate concentrations and loadings were very low in all of the samples, ranging from 12 to 118 mg/kg in the waste samples, to 132 mg/kg in the ore sample, indicating there had been minimal oxidation during the 11 years that this material had been exposed. These results were consistent with site water quality monitoring data, which showed no significantly elevated levels of dissolved metals in site drainage or receiving water.

Tailing Solids

The tailings deposited in Tailings Pond 3 are overall acid consuming, with significant neutralization potential (Robertson 2001). The results of recent test pit sampling have shown that there are pockets of potentially acid generating material at depth in the pond. However, the extent of these zones, which appear to be small, has not been clearly defined in the sampling programs undertaken to date. If limited in extent, and occurring only at depth, these zones should not represent an acid generation concern because of limitations on the rate of oxidation by the high moisture content and overlying tailings, which limit the supply of oxygen.

Historic Tailings on the Flood Plain of the Flat River

In the early years of operation (1960s), approximately 172,000 tons of tailings were deposited in the flood plain of the Flat River. These tailings have been tested over the years and the results reported in Robertson (1995), Aur (1997) and EBA (2001a). The results indicated that exposed tailings along the Flat River were acidic with characteristic iron staining evident in some areas. It was also determined that oxidation and net acid generation processes have been well established in the tailings and is expected to continue as alkalinity is consumed.

The tailings along the Flat River flood plain were covered, irrigated, fertilized and seeded in 1996 and are stable at this time. Annual water quality monitoring conducted over the years in accordance with the requirements of Water Licence N3L4 - 0004 has demonstrated no adverse effects on water quality in the Flat River as a result of drainage from the reclaimed tailings deposits in the flood plain.

2.6 ESTIMATE THE PERCENTAGE OF SULPHIDES IN THE OREBODY:

pyrite	<u>NIL</u>
pyrrhotite	<u>30 – 40%</u>
pyrite/pyrrhotite mixture	<u>NIL</u>
arsenopyrite	<u>NIL</u>

As described in Section 2.4, the sulphides occur in the form of bands, separated by almost barren limestone and quartz layers.

SECTION 3 -- THE MINE

3.1 INDICATE THE TYPE OF MINING METHOD TO BE USED ON THE PROPERTY:

OPEN PIT	_____
UNDERGROUND	_____ X _____
STRIP MINING	_____

OTHER MINING ACTIVITY? EXPLAIN.

None

3.2 OUTLINE ANY POSSIBLE OPERATIONAL CHANGES AND WHEN THEY MIGHT OCCUR. (EG. OPEN PIT TO UNDERGROUND)

No operational changes are expected to be implemented.

3.3 DESCRIBE THE TYPE(S) OF EXPLOSIVES TO BE USED IN MINING OPERATIONS.

The types of explosives being used at the mine include:

1. ANFO
2. Cartridged, water-based emulsion.

3.4 INDICATE THE NUMBER OF SHAFTS OR OTHER OPENINGS THAT ARE PRESENTLY ON THE PROPERTY. SIGNIFY WHETHER OR NOT THE OPENINGS ARE PRESENTLY IN USE: (submit measurements in metres)

Shaft (name or number) depth	Present depth	Proposed
<u>None</u>	<u>Not Applicable</u>	<u>Not Applicable</u>
Adit (name or number) depth	Present length	Proposed
<u>815 In use</u>	<u>1400 m</u>	<u>No change</u>
<u>950 In use</u>	<u>750 m</u>	<u>No change</u>

Open Pit (name) No name, disused

Present surface length 300 m

Maximum future surface length No change

Present surface width 150 m

Maximum future surface width No change

Present depth 100 m

Maximum future Depth No change

Open Pit

Waste rock dump No name (valley fill dump)

Area occupied Indeterminate hectares

Height Consistent with natural slope angle of repose

Dimensions are indeterminate because historically waste rock from the open pit area was deposited along the side of the valley adjacent to and below the open pit. Slope angles are equal to the natural angle of repose.

3.5 ARE ANY ENTRANCES TO SHAFTS, ADITS, ETC. BELOW GROUNDWATER LEVEL?

No

3.6 ARE PERMAFROST CONDITIONS EXPECTED?

YES _____ NO X

3.7 INDICATE THE EXPECTED LIFE OF THE MINE.

The mine is presently expected to operate for another 3-5 years depending on the results of future exploration and economic conditions.

3.8 INDICATE THE PRESENT AVERAGE RATE OF PRODUCTION FROM ALL ORE SOURCES ON THE PROPERTY.

The mine will be operated at estimated production rates ranging from 680-910 tonnes (750-1,000) short tons) per day, similar to the production rates before suspension, using the same methods and equipment.

3.9 INDICATE THE EXPECTED MAXIMUM RATE OF PRODUCTION FROM ALL ORE SOURCES ON THE PROPERTY.

The expected maximum rate of production will be approximately 910 tonnes (1,000 short tons) per day.

3.10 OUTLINE ALL WATER USAGE IN THE MINE, INDICATING THE SOURCE AND ESTIMATED VOLUME OF WATER FOR EACH USE.

	Source	Use	Volume
1.	<u>Flat River</u>	<u>Mine</u>	<u>528 m³/day</u>
2.	<u>Mine water</u>	<u>Mine</u>	<u>840 m³/day</u>
3.	<u>Flat River</u>	<u>Mill</u>	<u>3,840 m³/day</u>
4.	<u>Mine water</u>	<u>Mill</u>	<u>600 m³/day</u>
5.	<u>Flat River</u>	<u>Domestic uses</u>	<u>72 m³/day</u>

3.11 INDICATE THE VOLUME OF NATURAL GROUNDWATER PRESENTLY GAINING ACCESS TO THE MINE WORKINGS.

840 m³/day

3.12 OUTLINE METHODS USED (PLANNED) UNDERGROUND TO DECREASE MINE WATER FLOW. (FOR EXAMPLE: RECYCLING)

Mine water drains to a sump on the 815 adit level where suspended solids settle out and the water is recycled.

3.13 INDICATE THE AVERAGE DAILY VOLUME OF WATER TO BE DISCHARGED FROM THE MINE DURING NORMAL OPERATIONS.

There is no direct discharge of mine water. All excess mine water is directed to the mill for reuse.

3.14 IF A MILL WILL BE OPERATING ON THE PROPERTY IN CONJUNCTION WITH MINING, WILL ALL MINEWATER (UNDERGROUND, OPEN PIT, ETC.) BE DIRECTED TO THE MILL FOR REUSE?

As indicated in Section 3.13, all mine water is directed to the mill for reuse.

3.15 IF NOT, INDICATE THE PROPOSED POINT AND VOLUME OF DISCHARGE FOR THE MINEWATER.

Point of discharge Not Applicable

Volume of discharge Not Applicable

3.16 WHAT ARE THE CHEMICAL AND PHYSICAL CHARACTERISTICS OF THE PRECEDING MINEWATER?

T/Cu	<u>0.012</u>	mg/L	Total Ammonia	<u>N/A*</u>
T/Pb	<u><0.05</u>	mg/L	Suspended solids	<u>10 mg/L</u>
T/Zn	<u>0.022</u>	mg/L	Specific conductivity	<u>379 uhmo/cm</u>
T/Ag	<u><0.01</u>	mg/L	pH	<u>8.31</u>
T/Mn	<u>0.022</u>	mg/L	Oil and Grease	<u><5 mg/L</u>
T/As	<u><0.2</u>	mg/L		
T/Hg	<u>N/A</u>	mg/L	<u>Other</u>	
T/Cr	<u><0.01</u>	mg/L	<u>Average annual value (N=5)</u>	
T/Cd	<u><0.01</u>	mg/L	<u>for minewater from E-Zone (4-13)</u>	
T/Ni	<u><0.05</u>	mg/L	<u>samples collected in 2001.</u>	
T/Fe	<u>0.922</u>	mg/L	<u>* Not Analyzed</u>	

3.17 ARE THERE ANY TREATMENT PLANS FOR MINEWATER AND WILL ANY CHEMICALS BE USED IN SUCH TREATMENT? EXPLAIN.

There is no need for treatment of the minewater as all of this water is directed to the mill for use and is recycled as much as possible in the mill. The combined mine and mill process water is directed to the primary tailings impoundment.

SECTION 4 -- THE MILL

- 4.1 ATTACH A COPY OF THE (PROPOSED) MILL FLOW SHEET. INDICATE THE POINTS OF ADDITION OF ALL THE VARIOUS REAGENTS (CHEMICALS) THAT ARE (OR WILL BE) USED.**

A simplified process flow diagram is provided in Figure 6 of Appendix I. This figure was included in the CanTung Mine Operating Plan (NATCL 2001a), which is on file with the Mackenzie Valley Land and Water Board.

- 4.2 IF MILLING IS IN PROGRESS ON THE PROPERTY AT THE PRESENT TIME, INDICATE THE RATE OF MILLING.**

_____ not applicable (check) OR 710 tonnes/day

- 4.3 WHAT IS THE PRESENT (OR PROPOSED) MAXIMUM CAPACITY OF THE MILL?**

1,000 short tons or 910 tonnes/day

- 4.4 LIST THE TYPES AND QUANTITIES OF ALL REAGENTS USED IN THE MILL PROCESS (IN KG/TONNE ORE MILLED).**

Reagent	Use	Consumption (g/t)
Potassium Amyl Xanthate	Sulphide mineral collector	65
Dowfroth 250	Frother	50
Copper Sulphate	Sulphide mineral activator	70
Depramin 96	Talc mineral depressant	150
Soda Ash (sodium carbonate)	Scheelite mineral modifier	850
Caustic Soda (sodium hydroxide)	Scheelite mineral modifier	150
Quebracho	Calcite mineral depressant	40
Sodium Silicate "N"	Silicate mineral depressant	1400
Pamak 4	Scheelite mineral modifier	55
Emcol K-8300	Frother	10

- 4.5 IS THE (PROPOSED) MILLING CIRCUIT BASED ON AUTOGENOUS GRINDING?**

The CanTung mill circuit is not based on autogenous grinding. The mill circuit involves primary, secondary and tertiary crushing followed by grinding and classification. The mineral processing circuit at the CanTung Mine is described in the Operating Plan for the CanTung Mine (NATCL 2001a). Copies of this plan are on file with the Mackenzie Valley Land and Water Board.

4.6 INDICATE THE AMOUNT(S) OF CONCENTRATE(S) PRODUCED IN THE MILL.

Gravity I 10-12 t/day

Flotation 8-12 t/day

Gravity I 1-2 t/day

Total 19-26 t/day

4.7 WILL FRESH WATER UNDERGO TREATMENT PRIOR TO USE IN THE MILL PROCESS? EXPLAIN.

The primary process water for the mill is drawn from the Flat River as regulated by Water Licence N3L2-0004. The water is clean and requires no particular treatment prior to use in the mill process.

4.8 INDICATE ALL USES OF WATER IN THE MILL. INCLUDE THE QUANTITY AND SOURCE OF THE WATER FOR EACH USE.

	<u>Use</u>	<u>Source</u>	<u>Volume</u>
i.	<u>Crushing</u>	<u>Flat River</u>	<u>120 m³/day</u>
ii.	<u>Grinding</u>	<u>Flat R./Mine water</u>	<u>1,320 m³/day</u>
iii.	<u>Screens</u>	<u>Flat R./Mine water</u>	<u>720 m³/day</u>
iv.	<u>Gravity</u>	<u>Flat R./Mine water</u>	<u>360 m³/day</u>
v.	<u>Flotation</u>	<u>Flat R./Mine water</u>	<u>1,320 m³/day</u>
vi.	<u>Other</u>	<u>Flat R./Mine water</u>	<u>528 m³/day</u>
vii.	<u>Domestic sewage</u>	<u>Flat R.</u>	<u>72 m³/day</u>
viii.	<u>Total</u>	<u>Flat R./Mine water</u>	<u>4,440 m³/day</u>

4.9 INDICATE THE TOTAL VOLUME OF WATER DISCHARGED FROM THE MILL

The total volume of water discharged to the tailings impoundment area is 185 m³/hr or 4,440 m³/day.

4.10 OF THE PRECEDING VOLUME, WHAT QUANTITY IS (WILL BE) RECYCLED TO OTHER AREAS ON THE PROPERTY (MINE, MILL, ETC)? INDICATE LOCATION OF USE AND QUANTITY.

Location

Not Applicable

0 m³/d

4.11 BASED ON YEARLY PRODUCTION, INDICATE THE AVERAGE QUANTITY OF TAILINGS (DRY WEIGHT) DISCHARGED FROM THE MILL

The estimated volume of tailings solids to be directed to the tailings impoundment area will be 690 tonnes/day based on a mill production rate of 710 tonnes/day.

4.12 WHAT IS THE AVERAGE LIQUID-SOLID RATIO OF TAILINGS LEAVING THE MILL?

By weight $\frac{4.85}{\text{Liquid}}$: $\frac{1}{\text{solid}}$ By volume $\frac{13.5}{\text{liquid}}$: $\frac{1}{\text{solid}}$

4.13 IF APPLICABLE, IDENTIFY ANY CHEMICAL TREATMENT APPLIED TO THE LIQUID PHASE BEFORE BEING DISCHARGED TO THE TAILINGS AREA. (Attach flow sheet if available.)

Not Applicable. No additional chemical treatment is applied to the mill effluent prior to discharge to the tailings area.

4.14 BASED ON PRESENT PRODUCTION OR BENCH TEST RESULTS, DESCRIBE THE CHEMICAL AND PHYSICAL CHARACTERISTICS OF LIQUID MILL WASTES DIRECTED TO THE TAILINGS AREA.

D/Cu	<u><0.02</u>	mg/L	Total Ammonia	<u>N/A</u>
T/Pb	<u>N/A*</u>	mg/L	Suspended solids	<u>approx. 30%</u>
D/Zn	<u><0.02</u>	mg/L	Specific conductivity	<u>N/A</u>
T/Ag	<u>N/A</u>	mg/L	pH	<u>9.5-10.5</u>
T/Mn	<u>N/A</u>	mg/L	Alkalinity	<u>N/A</u>
D/Ni	<u><0.02-0.06</u>	mg/L	Hardness	<u>N/A</u>
T/Fe	<u>N/A</u>	g/L	Total Cyanide	<u>0.00 mg/L</u>
T/Hg	<u>N/A</u>	mg/L	Oil and Grease	<u>N/A</u>
T/As	<u>N/A</u>	mg/L		* Not Analyzed
T/Cd	<u>N/A</u>	mg/L		
T/Cr	<u>N/A</u>	mg/L		
T/Al	<u>N/A</u>	mg/L		

The foregoing is based on a summary of 1986 data from sampling point 4-30 (Tailings discharge into Tailings Pond 3).

4.15 PROVIDE A GEOCHEMICAL DESCRIPTION OF THE SOLID FRACTION OF THE TAILINGS.

The geochemical composition of the solid fraction of unprocessed ore, as determined from 1995 ICP analysis of ore stockpile sample WR- 4, is as follows:

Cu	>10000	mg/g	Al	1.0	%
Pb	1.0	mg/g	Fe	>15	%
Zn	117	mg/g	Hg	N/A	mg/g
Ag	0.9	mg/g	Ni	1.0	mg/g
Mn	683	mg/g	As	1.0	mg/g
Cr	1.0	mg/g	CN	0.0	mg/g
Cd	0.10	mg/g			

4.16 IDENTIFY THE CURRENT SOURCE OF POWER PRODUCTION.

Four diesel generators produce approximately 4 megawatts of power required for the mine, mill and camp infrastructure.

4.17 OTHER PROPERTIES (OR WILL THE MILL BE HANDLING ANY IN THE FUTURE)?

None identified at this time.

4.18 IF SO, SPECIFY ORE CHARACTERISTICS AND DESCRIBE ANY MILL PROCESSES WHICH WILL CHANGE AS A RESULT.

Not Applicable

4.19 IF TAILINGS ARE BEING RECOVERED IN THE MILL OR ELSEWHERE FOR USE AS BACKFILL (ETC.) IN THE MINE (ETC.), INDICATE THE QUANTITY OF SOLID TAILS (TONNES/DAY) RECOVERED FROM THE MILL PROCESS.

Not Applicable

4.20 WILL EXITS BE BERMED TO PREVENT SPILLS FROM ESCAPING THE MILL?

Yes. In addition, any spill incident occurring at the mine or mill site(s) will be responded to in accordance with the procedures outlined in the CanTung Mine Spill Contingency Plan (EBA 2001b). This plan is on file with the Mackenzie Valley Land and Water Board.

4.21 WILL ALL SUMPS FOR PROCESS TANKS HAVE THE REQUIRED 110% HOLDING CAPACITY OF THE LARGEST TANK?

The largest 'tank' in the mill is a thickener. The mill basement will not hold 110% of its contents, but a complete loss of the thickener contents is considered highly unlikely. The mill basement will retain any spillage that could result from a power failure.

SECTION 5 -- THE TAILINGS AREA

5.1 IS THE TAILINGS CONTAINMENT AREA (BEING) DESIGNED FOR TOTAL CONTAINMENT?

The tailings impoundment system at the CanTung Mine has been designed and constructed to contain all tailings to be produced throughout the remaining life of the mine.

5.2 DETAILED SCALE PLAN DRAWINGS OF THE PROPOSED (OR PRESENT) TAILINGS AREA

Appendix I, Figure 2, extracted from the Operating Plan for the CanTung Mine (NATCL 2001a) illustrates the general location of the current and former tailings impoundment areas and their proximity to the Flat River. More detailed engineering information on the current tailings impoundment area (Pond 3) is provided in two documents that are on file with the Mackenzie Valley Land and Water Board. These are:

- EBA. 2001c. Report on Proposed Improvements to Tailings Pond 3 at CanTung Mine. Prepared by EBA Engineering Consultants Ltd.
- EBA. 2001d. Construction Report – Tailings Pond 3 Raise - CanTung Mine, Tungsten, NWT. Prepared by EBA Engineering Consultants Ltd.

5.3 CHOICE OF LOCATION FOR THE TAILINGS POND AND DESIGN

The tailings impoundment areas (ponds 3 and 4) being used for the current mining/milling operation are the same ones that were used at the time of mine suspension in 1986. Modifications approved by the Mackenzie Valley Land and Water Board were carried out in 2001 to increase the capacity of the Tailings Pond 3 to meet projected needs.

5.4 TOTAL AREA OF EXISTING TAILINGS BASIN

The total surface area of the interior of the existing tailings basin (Tailings Pond 3) is approximately 71,000 m² (EBA 2001d).

5.5 AVERAGE DEPTH/CAPACITY OF TAILINGS BASIN

Tailings Pond 3 has an estimated remaining capacity of 318,000 m³ with a 2 % tailings beach profile. See Section 5.6 for further details.

5.6 TOTAL CAPACITY OF EXISTING TAILINGS AREA

Following construction of the raise on Tailings Pond 3 during the fall of 2001, a survey on 50-metre centres was completed on top of the existing tailings in the

pond. Using these data, the new remaining capacity of Tailings Pond 3, based on a 2 % tailings beach profile, with 1 m of freeboard was estimated to be 318,000 m³. Complete details pertaining to this development are on file with the Mackenzie Valley Land and Water Board and are presented in EBA (2001d).

Tailings Impoundment Area Water Balance

The following discussion on the water balance of the tailings impoundment system at CanTung Mine is derived from EBA (2001c) with modifications to reflect current operating experience.

The areas of Ponds 3 and 4, which are required in the calculation of precipitation inputs and exfiltration rates, are approximately 7.1 ha and 1.7 ha, respectively. Annual precipitation ranges from 480 mm to 760 mm (Golder Associates 1977). For the purpose of this water balance, mean annual precipitation at the minesite is assumed to be 600 mm. This translates to an equivalent mean daily water loading to the ponds of 117 m³/day for Pond 3 and 28.6 m³/day for Pond 4.

Evaporative losses are small in comparison to precipitation. Pan evaporation rates at the site are equivalent to 28 mm/year, with most evaporation occurring during the summer months (Golder Associates 1977). This translates to a mean daily evaporation rate of approximately 0.8 m³/day per hectare of ponded water.

Surface water runoff cannot flow into the ponds because of the containment dykes and has therefore been assumed for the purpose of the water balance to be negligible.

Domestic wastewater from sanitary facilities at the minesite is also discharged to the ponds. The current daily wastewater load is 3 m³/hr, or 72 m³/day.

Phase 1

A water flow sheet for Phase 1 of the tailings disposal process is presented in Appendix I, Figure 7. The water balance presented is a "flow through" balance and assumes no change in water storage in Pond 3. As shown, water inputs result from process water, domestic wastewater and direct precipitation. Water losses occur as exfiltration through tails in the base of Pond 3, exfiltration into permeable sands and gravels on the upstream side of Pond 3, or by evaporation.

Exfiltration through the base of Pond 3 is estimated using Darcy's law:

$$Q = k i A$$

Where:

Q = base exfiltration rate

k (hydraulic conductivity of the tails) = 1.6×10^{-7} m/s

i (hydraulic gradient) = unity (1m/m)

A (area available for exfiltration) = 1m² (i.e. per unit area)

$$Q = (1.6 \times 10^{-7} \text{ m/s}) (1 \text{ m/m}) (1 \text{ m}^2)$$

$$Q = 1.6 \times 10^{-7} \text{ m}^3/\text{s per m}^2 \text{ or } 0.014 \text{ m}^3/\text{day per m}^2$$

The hydraulic conductivity of the tails ($1.6 \times 10^{-7} \text{ m/s}$) is based on measurements made by Golder Associates (1977). Assuming standing water covers 1 ha in Pond 3 (equivalent to approximately 15% of the pond area), water loss through base exfiltration is approximately $140 \text{ m}^3/\text{day}$.

Based on this, and accounting for evaporative losses from a 1 ha pond, the required infiltration losses through the native sands and gravels on the upstream face is $4,448 \text{ m}^3/\text{day}$. This volume is close to the estimated process water discharge rate of $4,400 \text{ m}^3/\text{day}$ because losses through base exfiltration balance most of the inputs from precipitation and domestic wastewater.

Based on the previously reported performance of the pond, it is anticipated that the required exfiltration capacity can be accommodated using Pond 3 during Phase 1. However, it may be necessary to scarify the surface near the upslope side of Pond 3 to ensure that there is sufficient hydraulic connection between the ponded water and underlying sands and gravels.

Phases 2 and 3

During Phases 2 and 3, tails will be discharged along the western side of Pond 3 resulting in decreased hydraulic connection with the native sands and gravels exposed on the upslope embankment. As a result, water will pond in the north area of Pond 3 prior to being mechanically decanted into Pond 4. This is a procedure that has proven successful in the past.

A water flow sheet for Phase 2 and Phase 3 of the proposed tailing disposal process is presented in Appendix I, Figure 8.

5.7 INDICATE THE TOTAL CAPACITY FOR ANY PROPOSED TAILINGS AREA BY USING WATER BALANCE AND STAGE VOLUME CALCULATIONS AND CURVES. (ATTACH A DESCRIPTION OF INPUTS AND OUTPUTS ALONG WITH VOLUME CALCULATIONS).

As discussed in Section 5.6, following construction of the raise on Tailings Pond 3 during the fall of 2001, a survey on 50-metre centres was completed on top of the existing tailings in the pond. Using these data the new remaining capacity of Tailings Pond 3, based on a 2 % tailings beach profile, with 1 m of freeboard was estimated to be $318,000 \text{ m}^3$. Complete details pertaining to this development are on file with the Mackenzie Valley Land and Water Board and are presented in EBA (2001d).

5.8 WILL THE PRESENT TAILINGS AREA CONTAIN THE ENTIRE PRODUCTION FROM THE MINE-MILL COMPLEX FOR THE LIFE OF THE PROJECT?

Yes. An additional one-metre lift may need to be added to the existing top of the containment dyke as the present capacity is utilized.

5.9 IF "NO" ABOVE, OR IF PRODUCTION OUTPUT INCREASES TAILINGS VOLUMES, INDICATE WHAT PLANS HAVE BEEN MADE FOR FUTURE TAILINGS DISPOSAL ON THE PROPERTY.

The one-metre lift to the containment dyke has already been designed and can be constructed with available onsite material.

5.10 HAS ANY LAND IN THE IMMEDIATE AREA BEEN IDENTIFIED AS NATIVE OR CROWN LAND OR WITHDRAWN PENDING NATIVE CLAIM SETTLEMENT?

The CanTung Mine Leases are located on Crown Land. No lands have been withdrawn pending native claim settlement in the immediate area of the CanTung Mine. The Kaska Nation and people of the Deh Cho have identified that the CanTung mine area falls within the boundaries of their respective traditional lands.

5.11 DO THE TAILINGS AREA AND ALL RELATED TREATMENT FACILITIES LIE ON COMPANY HELD CLAIMS?

Yes, the tailings area and all related infrastructure are located within company held claims.

5.12 IF NOT, INDICATE MINE CLAIM BOUNDARIES (AND OWNERS) ON TAILINGS AREA PLAN MAP (see Q.58). ALSO, ATTACH A COPY OF ALL PERTINENT AGREEMENTS SIGNED WITH THE OWNERS OF THE CLAIMS NOT HELD BY THE COMPANY.

Not Applicable

5.13 WILL THE PROPOSED TAILINGS AREA ENGULF OR OTHERWISE DISTURB ANY EXISTING WATERCOURSE?

No

5.14 IF "YES", ATTACH ALL PERTINENT DETAILS (NAME OF WATERCOURSE, PRESENT AVERAGE FLOW, DIRECTION OF FLOW, PROPOSED DIVERSIONS, ETC.).

Not Applicable

- 5.15 IF ANY NATURAL WATERCOURSE WILL GAIN ACCESS TO THE PROPOSED TAILINGS AREA, WHAT METHODS WILL BE USED TO DECREASE THE AMOUNT OF RUNOFF WATER ENTERING THE CONTAINMENT AREA? INDICATE THE VOLUME OF WATER WHICH WILL ENTER THE TAILINGS AREA FROM THE SOURCE(S) IN QUESTION AND ATTACH ALL PERTINENT DETAILS OF PROPOSED DIVERSIONS.**

Name of source	Volume (m ³ /day)
1. <u>Not Applicable</u>	<u>Not Applicable</u>

Nature of Diversion(s):

Not Applicable. No stream diversions are needed.

- 5.16 INDICATE ON THE TAILINGS AREA PLAN DRAWING (see Q.61) ALL SOURCES OF SEEPAGE PRESENTLY ENCOUNTERED IN THE VICINITY OF THE TAILINGS AREA, THE VOLUME OF EACH SEEPAGE FLOW (m³/day), AND THE DIRECTION OF EACH FLOW.**

There are no sources of seepage in the vicinity of the tailings impoundment area.

- 5.17 ARE THE SEEPAGE FLOWS FROM THE PROPERTY PRESENTLY BEING TREATED CHEMICALLY? IF SO, DESCRIBE HOW:**

Not Applicable

- 5.18 IF NOT, EXPLAIN.**

Not Applicable

- 5.19 PLEASE ATTACH A CONCEPTUAL ABANDONMENT AND RESTORATION PLAN FOR ALL TAILINGS AREAS BEING DEVELOPED. DESCRIBE THE MEASURES THAT HAVE BEEN (OR WILL BE) TAKEN TO CONTAIN AND STABILIZE THE TAILINGS AREA(S) AGAINST LEACHING AND SEEPAGE AFTER OPERATIONS ON THE PROPERTY CEASE.**

The 2001 edition of the CanTung Mine Abandonment and Restoration Plan (EBA 2001a) is on file with the Mackenzie Valley Land and Water Board. This plan describes all of the measures that were previously undertaken to progressively reclaim certain components of the mine over the years. The plan also reviews the proposed reclamation activities that will be carried out for all components of the mine in the future.

5.20 DESCRIBE THE PROPOSED OR PRESENT OPERATION, MAINTENANCE AND MONITORING OF THE TAILINGS AREA.

The tailings area, mine water, groundwater and receiving water (Flat River) have and continue to be monitored in accordance with the requirements and conditions of Water Licence N3L2-0004. The complete results of the monitoring program have been reported annually in March to the former Northwest Territories Water Board and more recently to the Mackenzie Valley Land and Water Board. Copies of the Annual Reports are on file with the Mackenzie Valley Land and Water Board.

SECTION 6 -- WATER TREATMENT

- 6.1 DESCRIBE THE METHODS OF CHEMICAL TREATMENT THAT ARE PRESENTLY BEING USED AND/OR WILL BE USED TO CONTROL THE QUALITY OF THE TAILINGS EFFLUENT. ATTACH ENGINEERING DRAWINGS WHERE APPLICABLE AND A PROCESS FLOW CHART. IF A PILOT TEST HAS BEEN CONDUCTED PLEASE ATTACH DESCRIPTION OF METHODOLOGY AND RESULTS.**

No chemical treatment is required for the mine effluent before entering the tailings pond. The water in Pond 3 will exfiltrate from this pond as described in Section 5.6. During Phases 2 and 3, excess water from Tailings Pond 3 will be decanted to a polishing pond (Pond 4) for exfiltration into the Flat River Watershed, in accordance with the requirements and conditions of Water Licence N3L2 – 0004.

- 6.2 LIST THE NAMES OF CHEMICALS TO BE USED IN THE WATER TREATMENT PROCESS.**

Not Applicable

- 6.3 WHAT IS THE PROPOSED OR PRESENT AVERAGE RATE OF EFFLUENT TREATMENT OF THE PLANT (if applicable)?**

Not Applicable

- 6.4 WHAT IS THE PROPOSED OR PRESENT MAXIMUM EFFLUENT TREATMENT CAPACITY OF THE PLANT (if applicable)?**

Not Applicable

- 6.5 WILL TREATED EFFLUENT BE DISCHARGED DIRECTLY TO A NATURAL WATERBODY OR WILL POLISHING OR SETTLING PONDS BE EMPLOYED? DESCRIBE LOCATION, CONTROL STRUCTURES AND PROCESS OF WATER RETENTION AND TRANSFER. ATTACH ANY RELEVANT DESIGN DRAWINGS.**

As indicated in Section 6.1 above, the process and other waters directed to Tailings Pond 3 will exfiltrate from the pond. During phases 2 and 3, excess water from Pond 3 will be decanted to a polishing pond (Pond 4) prior to exfiltration into the Flat River Watershed in accordance with the requirements and conditions of Water Licence N3L2 – 0004.

- 6.6 NAME THE FIRST MAJOR WATERCOURSE THE DISCHARGE FLOW ENTERS AFTER IT LEAVES THE AREA OF COMPANY OPERATIONS.**

Surface and groundwaters in the CanTung mine area flow into the Flat River Watershed.

6.7 IN TERMS OF RATE OF EFFLUENT RELEASE, AND VOLUME AND FLUSHING RATE OF THE RECEIVING WATERCOURSE, ESTIMATE THE EXTENT OF THE MIXING ZONE WITHIN THE RECEIVING WATERS AND WHERE BACKGROUND LEVELS OF CONSTITUENTS FOR THAT WATERCOURSE WILL BE ATTAINED.

There is no direct discharge of mine effluent into the Flat River. Water directed to Tailing Pond 3 will exfiltrate from the pond. During phases 2 and 3, excess mine water from Tailings Pond 3 will be decanted to a polishing pond (Pond 4) prior to exfiltration into the groundwater regime in the vicinity of the Flat River. As a result, there is no need for a mixing zone within the Flat River. Long term monitoring conducted in compliance with the requirements of Water Licence N3L2 - 0004 has demonstrated that background water quality conditions have been maintained in the Flat River in the immediate vicinity of the mine site and downstream. This condition is not expected to change in the future.

6.8 DESCRIBE THE PRESENT CHEMICAL AND PHYSICAL CHARACTERISTICS OF THE TAILINGS EFFLUENT (DECANT).

As indicated in Section 6.7, there is no tailings effluent decant from the tailings impoundment system at the CanTung Mine.

SECTION 7 -- ENVIRONMENTAL MONITORING PROGRAM

7.1 HAS ANY BASELINE DATA BEEN COLLECTED FOR THE MAIN WATER BODIES IN THE AREA PRIOR TO DEVELOPMENT?

Upstream, downstream and groundwater quality monitoring has been conducted in accordance with the requirements of Water Licence N3L2 – 0004 from the early 1980s to the present. These data are considered to be representative of baseline water quality conditions in the Flat River.

7.2 IF “YES”, INCLUDE ALL DATA GATHERED ON THE PHYSICAL, BIOTIC AND CHEMICAL CHARACTERISTICS AT EACH SAMPLING LOCATION. IDENTIFY SAMPLING LOCATIONS ON A MAP.

The Annual Reports submitted in accordance with Water Licence N3L2 – 0004 provide considerable information on the physical and chemical characteristics of the surface and ground waters in the mine area. These reports are on file with the Mackenzie Valley Land and Water Board.

7.3 PROVIDE AN INVENTORY OF HAZARDOUS MATERIALS ON THE PROPERTY AND STORAGE LOCATIONS.

The primary hazardous materials stored on site are the mill reagents and diesel fuel. The following on-site inventory of reagents is equivalent to a two-month supply:

Potassium Amyl Xanthate	3.5 t
Dowfroth 250	2.7 t
Copper Sulphate	3.8 t
Depramin 96	8.1 t
Soda Ash (sodium carbonate)	45 t
Caustic Soda (sodium hydroxide)	8.1 t
Quebracho	2.2 t
Sodium silicate “N”	75 t
Pamak 4	3 t
Emcol K-8300	0.5 t

All of these materials are stored in the mill complex.

7.4 ATTACH THE PRESENT OR PROPOSED CONTINGENCY PLAN WHICH DESCRIBES COURSE OF ACTION, MITIGATIVE MEASURES AND EQUIPMENT AVAILABLE FOR USE IN THE EVENT OF SYSTEM FAILURES AND SPILLS OF HAZARDOUS MATERIALS.

The 2001 editions of the Mine Spill Contingency Plan (EBA 2001b) and the Emergency Response Plan (NATCL 2001b) for the CanTung Mine are on file with the Mackenzie Valley Land and Water Board.

7.5 PROVIDE A BRIEF OVERVIEW OF THE CONCEPTUAL ABANDONMENT AND RESTORATION PLAN FOR THE SITE.

The 2001 edition of the CanTung Mine Abandonment and Restoration Plan (EBA 2001a) is on file with the Mackenzie Valley Land and Water Board.

The plan describes prevailing conditions at the time of mine re-opening in December of 2001, reviews the progressive reclamation work that was conducted during previous operations and the shutdown period, and provides an updated interim plan for final abandonment and restoration of the CanTung Mine area.

The specific objectives of the plan are:

1. To ensure that mine facilities, mine waste disposal sites and tailings areas will be closed in such a manner that the requirement for long-term maintenance and monitoring is minimized.
2. To identify sources of contaminants and to prevent the release of contaminants or wastes to the environment.
3. To return affected areas to a state compatible with the original undisturbed conditions, giving due consideration to practical factors including economics, aesthetics, future productivity and future users.

The plan outlines the facilities and features of the site and the activities to be completed to achieve these objectives. It is based on NATCL's current understanding of the site, closure technologies, and the effectiveness of previously completed reclamation activities. The plan will continue to be reviewed and updated to reflect the results of progressive reclamation activities.

SECTION 8 -- PRESCREENING

In addition to providing sufficient technical and related information for licensing to proceed, applicants must provide adequate descriptive information to ensure that an initial pre-screening decision can be made prior to a project proceeding for regulatory approvals.

Your application and other project details, such as this questionnaire, will be sent out for review by local aboriginal as well as territorial and federal government agencies. Their comments (e.g. regarding the significance of project impacts) are considered before a decision is made to allow the project to proceed.

8.1 HAS THIS PROJECT EVER UNDERGONE AN INITIAL ENVIRONMENTAL REVIEW, INCLUDING PREVIOUS OWNERS?

The CanTung Mine has been operating under the provisions of Water Licence N3L2 - 0004 since 1962. Prior to first issuance and during the process of each Licence renewal, environmental issues were considered and addressed to the satisfaction of the former Northwest Territories Water Board and other regulatory agencies with an interest at that time.

8.2 HAS ANY BASELINE DATA COLLECTION AND EVALUATION BEEN UNDERTAKEN WITH RESPECT TO THE VARIOUS BIOPHYSICAL COMPONENTS OF THE ENVIRONMENT POTENTIALLY AFFECTED BY THE PROJECT (e.g. wildlife, soils, air quality), i.e. in addition to water related information requested in this questionnaire?

YES NO UNKNOWN

8.3 HAS ANY METEOROLOGICAL DATA BEEN COLLECTED AT OR NEAR THE SITE? (e.g. precipitation, evaporation, snow, wind)

Meteorological data have been recorded at Tungsten for approximately 25 years from 1966 to 1990. In addition complementary data are also available from a number of nearby regional climate stations including Watson Lake Airport, Y.T. (period of record, 1938-present) and Fort Simpson Airport, NWT (period of record, 1963 to present).

These and other regional data have been employed over the years in support of various engineering design and construction projects, reclamation planning and implementation, and for the annual reporting of environmental monitoring program results in compliance with the requirements of Water Licence N3L2 - 0004.

Copies of the more recent reports are on file with the Mackenzie Valley Land and Water Board.

8.4 IF NO, ARE SUCH STUDIES BEING PLANNED? BRIEFLY DESCRIBE THE PROPOSALS.

Not Applicable

8.5 HAS AUTHORIZATION BEEN OBTAINED OR SOUGHT FROM THE DEPARTMENT OF FISHERIES AND OCEANS FOR DEWATERING OR USING ANY WATERBODIES FOR CONTAINMENT OF WASTE?

Since the CanTung Mine did not involve dewatering activities or the use of any natural waterbodies for the containment of waste, no authorizations have been obtained from the Department of Fisheries and Oceans to date.

8.6 PLEASE ATTACH AN OUTLINE BRIEFLY DESCRIBING ANY OPTIONS OR ALTERNATIVES CONSIDERED OR REJECTED FOR THE VARIOUS MINE COMPONENTS OUTLINED IN THIS QUESTIONNAIRE (e.g. mill site, water supply sources, locations for ore and waste piles).

Not Applicable. The mine has been in existence since 1962 and current operations simply represent a refined continuation of past operations.

8.7 HAS A SOCIO-ECONOMIC IMPACT ASSESSMENT OR EVALUATION OF THIS PROJECT BEEN UNDERTAKEN? (This would include a review of any public concerns, land, water and cultural uses of the area, implications of land claims, compensation, local employment opportunities, etc.)

The socio-economic effects of the CanTung Mine were historically reviewed on an annual basis with the federal and territorial governments.

More recently, with the proposed re-opening and subsequent startup of the mine, NATCL has communicated regularly with the Government of the Northwest Territories, the Government of Yukon and nearby communities, including Nahanni Butte and Fort Liard in the Northwest Territories and Watson Lake and Ross River in Yukon, regarding the socio-economic benefits of mine re-opening.

8.8 IF YES, PLEASE DESCRIBE BRIEFLY.

See Section 8.7

8.9 IF NO, IS SUCH A STUDY BEING PLANNED?

Not Applicable. See Section 8.7.

RECEIVING WATERCOURSE Not Applicable

DEWATERING FLOW RATE INTO ABOVE N/A cubic meters/sec

CHEMICAL CHARACTERISTICS OF DISCHARGE:

Not Applicable

1.14 WAS (OR WILL) THE ABOVE DISCHARGE (BE) TREATED CHEMICALLY?

Not Applicable

SECTION 2 -- GEOLOGY AND MINERALOGY

2.1 PHYSIOGRAPHY: PROVIDE AN ANALYSIS AND INTERPRETATION OF THE GEOLOGIC AND HYDROLOGIC ENVIRONMENT IN THE IMMEDIATE VICINITY OF THE MINE OR PLANT. THE INVESTIGATION SHOULD EXTEND FROM GROUND SURFACE DOWNWARD TO THE BASE OF THE GLACIAL DRIFT. INCLUDE LARGE SCALE TOPOGRAPHIC MAP(S) COVERING THE AREA WHERE THE MINE, MILL AND WASTE DISPOSAL BASIN ARE (OR ARE LOCATED). THE MAP(S) SHOULD PROVIDE INFORMATION ON GROUNDWATER PATTERNS AND PERMAFROST VARIATIONS IN THE AREA.

The CanTung mine is situated in a mountainous area composed of folded and faulted sedimentary rocks with igneous intrusions. The geology and mineralization of the Tungsten area have been described by Blusson (1968), Cummings and Bruce (1977), Mulligan (1984) and others, and are summarized here. The sedimentary rocks consist of argillites, shales, dolomites and limestones. They range in age from Cambrian to Ordovician (345-500 million years on the geological timetable) and form part of the Selwyn Basin that formed at that time. The CanTung mine is on the eastern edge of the basin. These rocks were later folded and faulted.

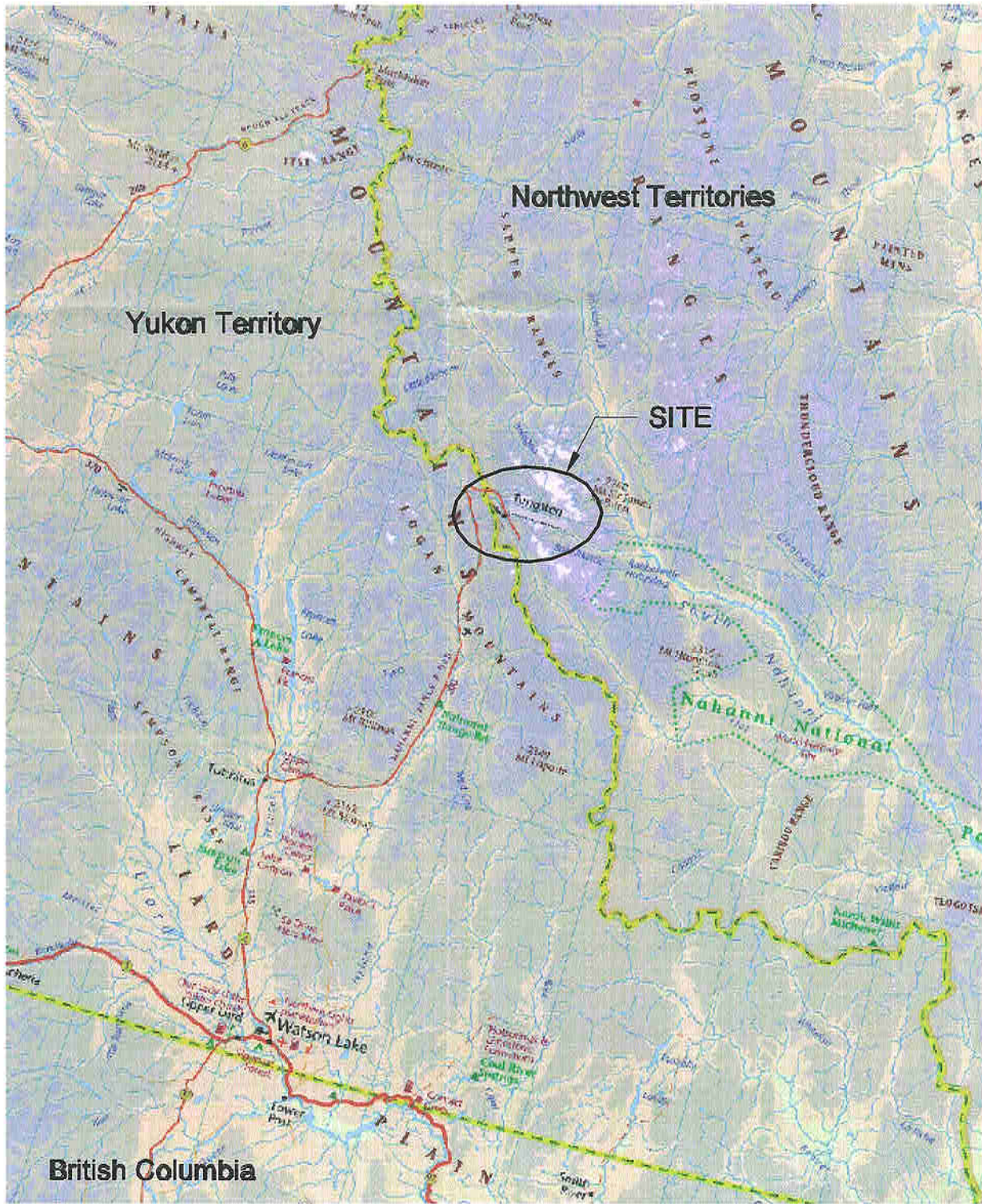
During the Cretaceous era (about 65-136 million years ago on the geological time table) granitic magmas intruded the sedimentary rocks and gave rise to skarn-type scheelite deposits in the limestones. CanTung is one of several known skarn-type scheelite deposits in the so-called Selwyn Tungsten Belt running from Mayo, YT, along the Yukon/NWT border and south to the northern border of British Columbia.

The CanTung scheelite deposits and host skarn were formed by metasomatism within the thermal aureole of the Mine Stock, a late Cretaceous granodiorite – quartz intrusion in the core of the Flat River syncline. The tungsten-bearing skarns occur in two sedimentary units, the Ore Limestone and the Swiss Cheese Limestone units. The configuration of these two limestone units, as encountered in diamond drilling and underground workings, is interpreted as a recumbent fold, with the open pit ore body in the upper limb of the fold and the E Zone in the lower. The open pit contains both units, while the E Zone is a stratabound tabular mass about 925 m. long and 200 m. wide, which is essentially confined to the Ore Limestone unit. A large, granodiorite intrusion underlies the lower limb.

The mineralization of the CanTung deposit is described by Westervelt (1984) and others. Scheelite is the only tungsten mineral identified in the CanTung deposit. The tungsten ore occurs in the form of scheelite (calcium tungstate), accompanied by pyrrhotite (iron sulphide), chalcopyrite (copper sulphide), sphalerite (zinc sulphide) and minor amounts of bismuth. The sulphides occur in the form of

APPENDIX I -- LIST OF ATTACHMENTS**Titles of Reports Cited - On File with the Mackenzie Valley Land and Water Board**

1. NATCL. 2001a. Operating Plan for CanTung Mine, NWT. Report Prepared by North American Tungsten Corporation Ltd.
2. NATCL. 2001b. Emergency Response Plan for CanTung Mine, NWT. Report Prepared by North American Tungsten Corporation Ltd.
3. NATCL. 2001c. 2000 Annual Report – Water Licence N3L2-0004, Tungsten, NWT. Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.
4. Aur. 1997. CanTung Mine Plan for Restoration and Abandonment, May, 1997. Prepared by Watermark Consulting Inc. for Aur Resources Inc.
5. EBA. 2001a. CanTung Mine Abandonment and Restoration Plan. Nov, 2001. Report Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.
6. EBA. 2001b. CanTung Mine Spill Contingency Plan. Report Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.
7. EBA. 2001c. Report on Proposed Improvements to Tailings Pond 3 at CanTung Mine. Report Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.
8. EBA. 2001d. Construction Report – Tailings Pond 3 Raise - CanTung Mine, Tungsten, NWT. Report Prepared by EBA Engineering Consultants Ltd. for North American Tungsten Corporation Ltd.
9. Robertson. 1995. Assessment of Data on Acid Generation Potential from Tailings. Prepared for Canada Tungsten Inc.
10. Robertson. 2001. Assessment of the Results of Recent Geochemical Testing of the CanTung Tailings. Prepared for EBA Engineering Consultants Ltd. by Robertson GeoConsultants Inc.



PREPARED BY
EBA Engineering Consultants Ltd.



PROJECT

CANTUNG MINE OPERATING PLAN

NORTH AMERICAN TUNGSTEN

LEUNG
 WAT

TITLE

SITE LOCATION PLAN

DATE 2002/01/25

DWN.

ML

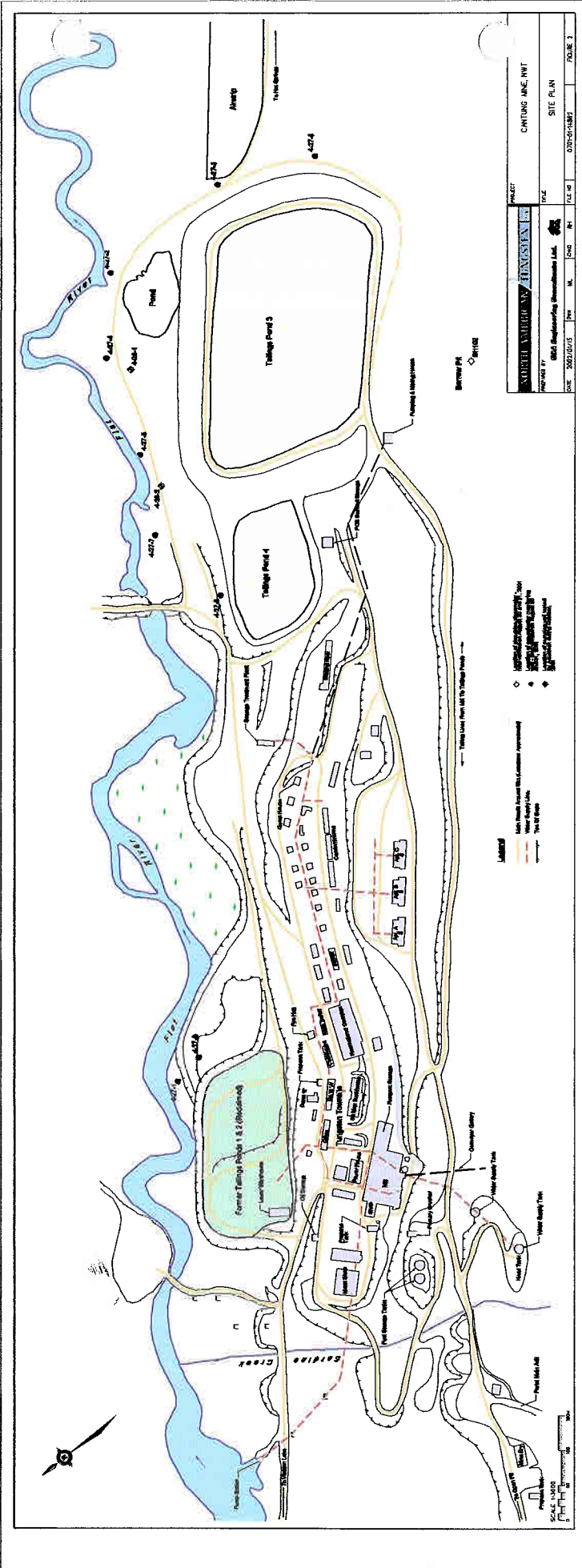
CHKD.

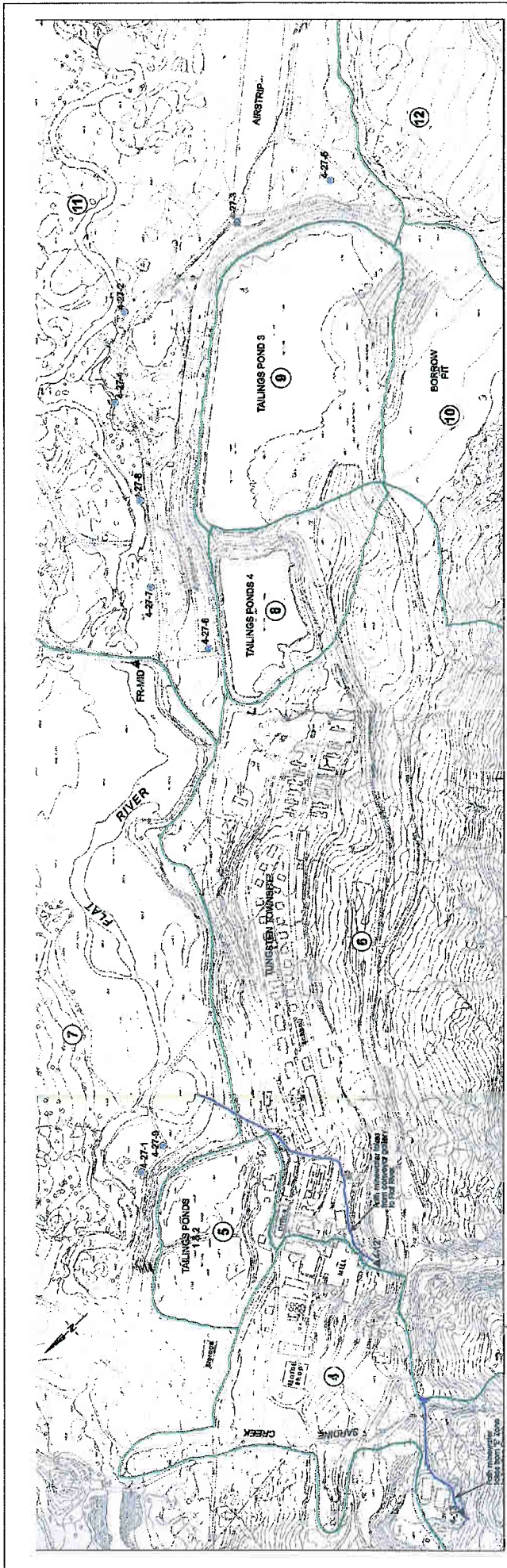
SJP

FILE NO.

0701-01-14862

FIGURE 1



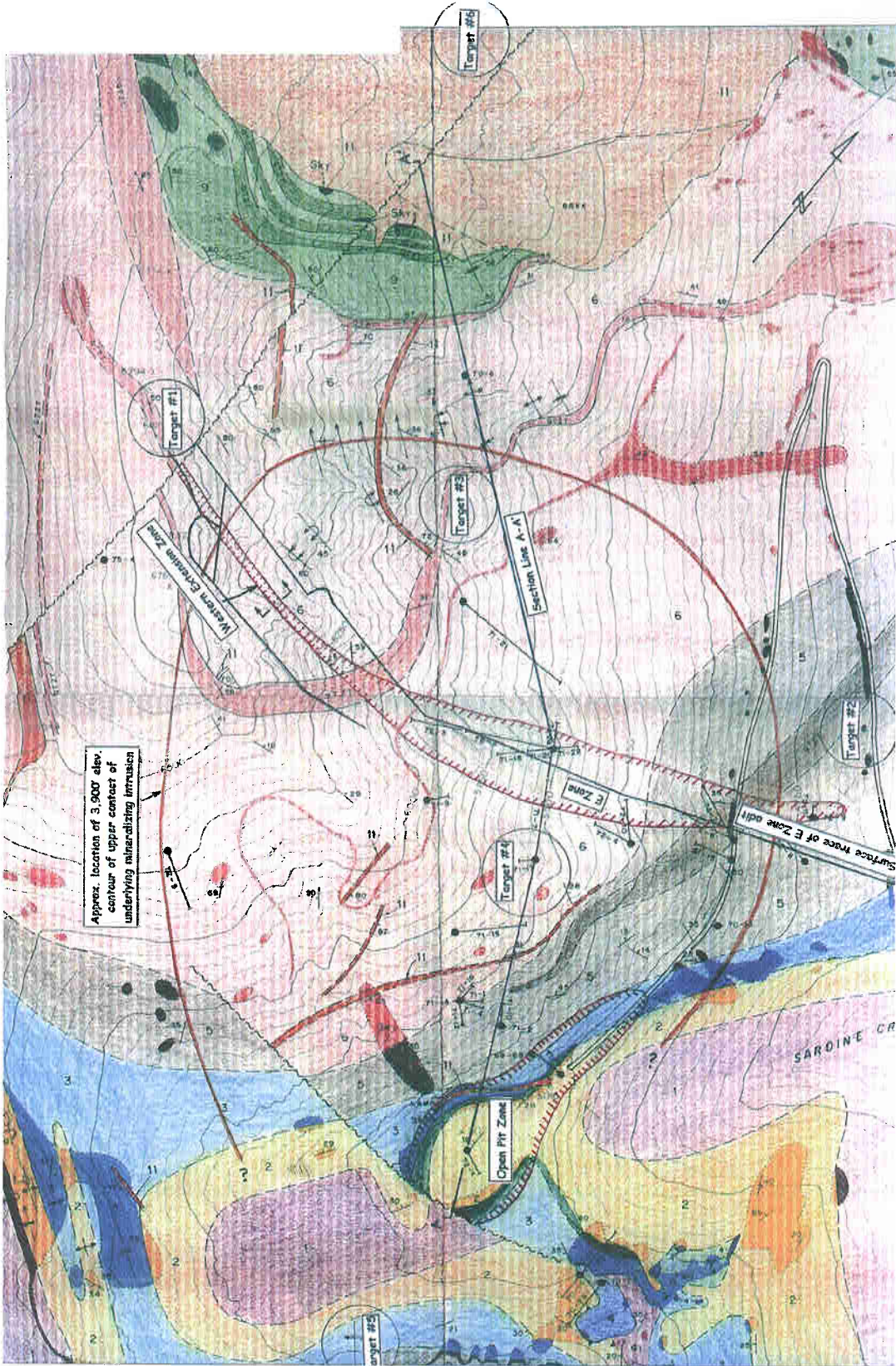


LEGEND


- Subcatchment Boundary
- Subcatchment ID Number
- Surface Water Quality Monitoring Station
- Groundwater Monitoring Station
- Mine Water Discharge

Approximate Scale
 METERS
 0 30 60 90 120

ESA Engineering Consultants Ltd.		PROJECT	CANTUNG MINE AREA SITE ELEVATIONS
NORTH AMERICAN TUNGSTEN CORP.		TITLE	CATCHMENTS IN VICINITY OF CANTUNG MINE
DATE	2020/02/04	REV	07/01-1482
		REV	FOUR










Source: "Review of Exploration Potential at Cantung Mine" by Andean Engineering, April 2000


PROJECT	CANTUNG MINE, N.W.T.
TITLE	EXPLORATION TARGETS IN CANTUNG MINE AR
PREPARED BY:	 ES&A Engineering Consultants Ltd.
DATE	2001/06/28
DWN.	KW
CHKD.	
FILE	0701-01-14662
FIGURE	

CRETACEOUS

SKARN


	Sk 7	Pyrrhotite Skarn
	Sk 6	Biotite Skarn
	Sk 5	Pyroxene Skarn & Pyroxene-Garnet Skarn
	Sk 4	Garnet Skarn
	Sk 3	Actinolite Skarn
	Sk 2	Wollastonite-Tremolite Skarn
	Sk 1	Siliceous Skarn

INTRUSIVE ROCKS


	11 3	Lamprophyre
	11 2	Felsic Dyke
	11 1	Granodiorite
	11	Quartz Monzonite

STRATIGRAPHY



UPPER ORDOVICIAN

	10	Road River Formation
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

MIDDLE AND UPPER CAMBRIAN

	9	Rabbitkettle Formation
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LOWER AND/OR MIDDLE CAMBRIAN

	8	Dolomite
	7	Dolomite



LOWER CAMBRIAN

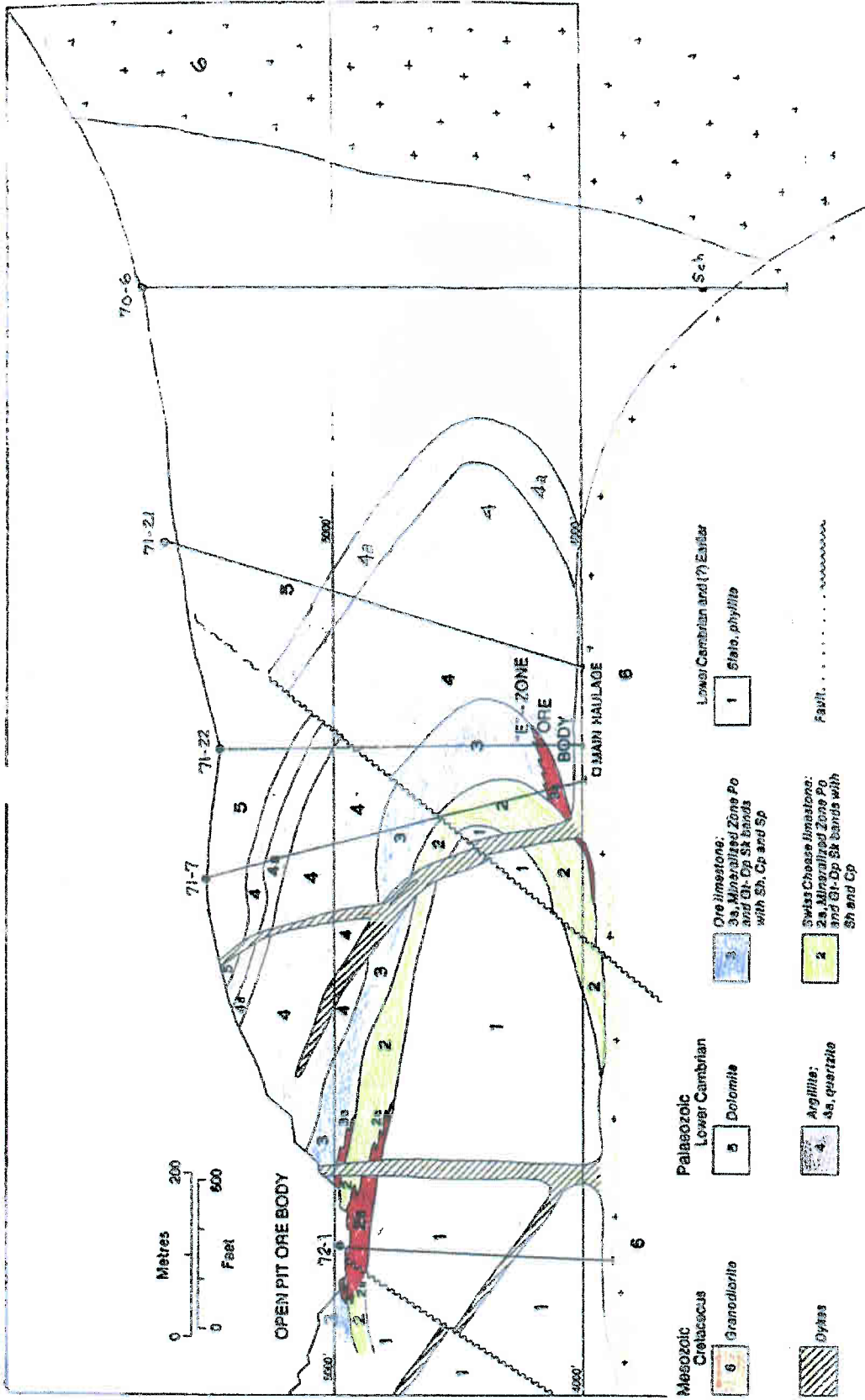
	6	Dolomite
	5	Upper Argillite
	4	Dolomite
	4 1	Argillite
	3	Ore Limestone
	2	Swiss Cheese Formation

LOWER CAMBRIAN AND (?) EARLIER

	1	Lower Argillite
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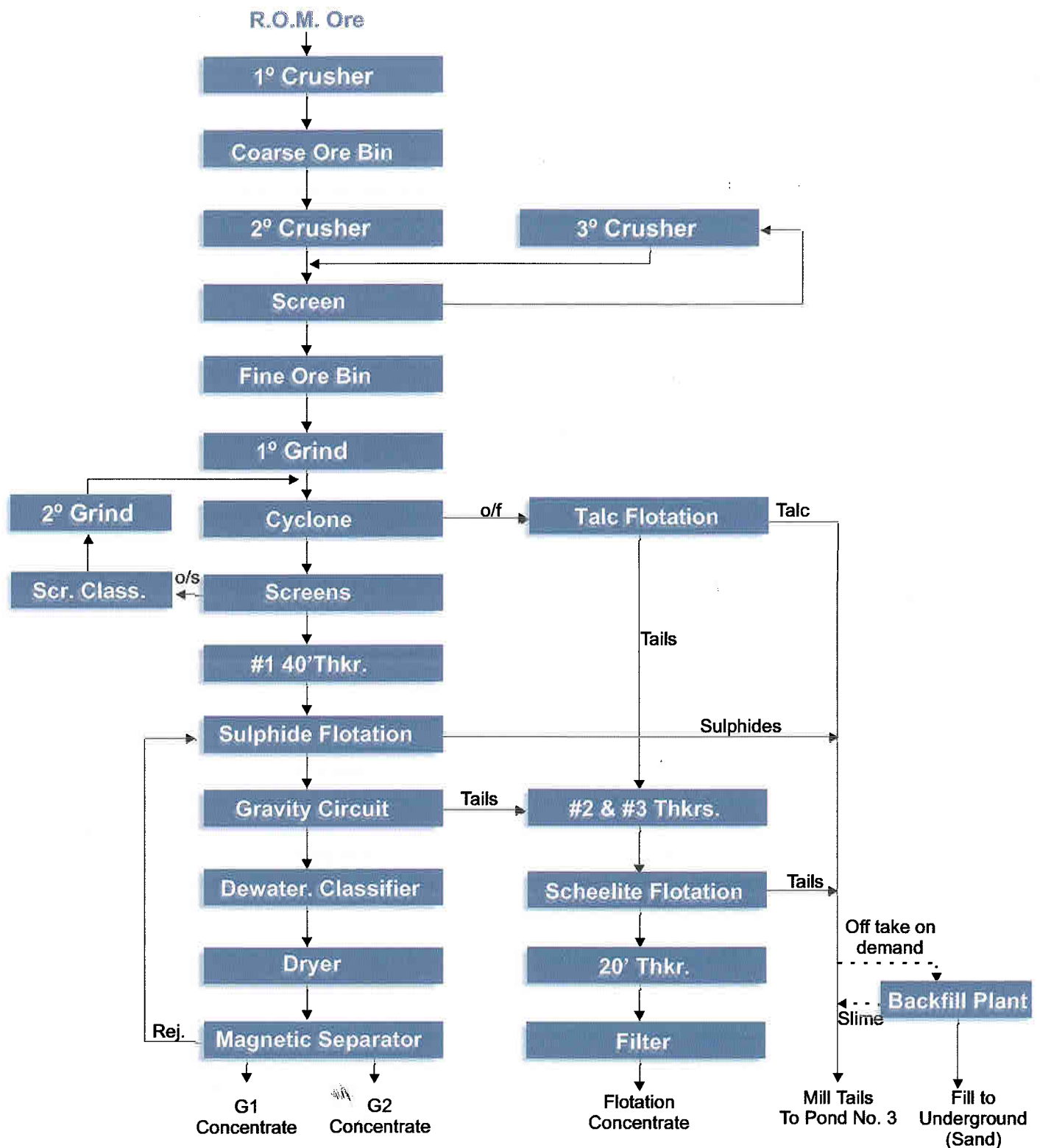
Source: "Review of Exploration Potential at Cantung Mine" by Andean Engineering, April 2000

		PROJECT CANTUNG MINE, N.W.T.	
PREPARED BY: EBA Engineering Consultants Ltd. 		TITLE GEOLOGICAL LEGEND FOR FIGURE 3	
DATE:	2001/06/25	DWN.	KMW
CHKD.	SP	FILE:	0701-01-14862
			FIGURE 4a

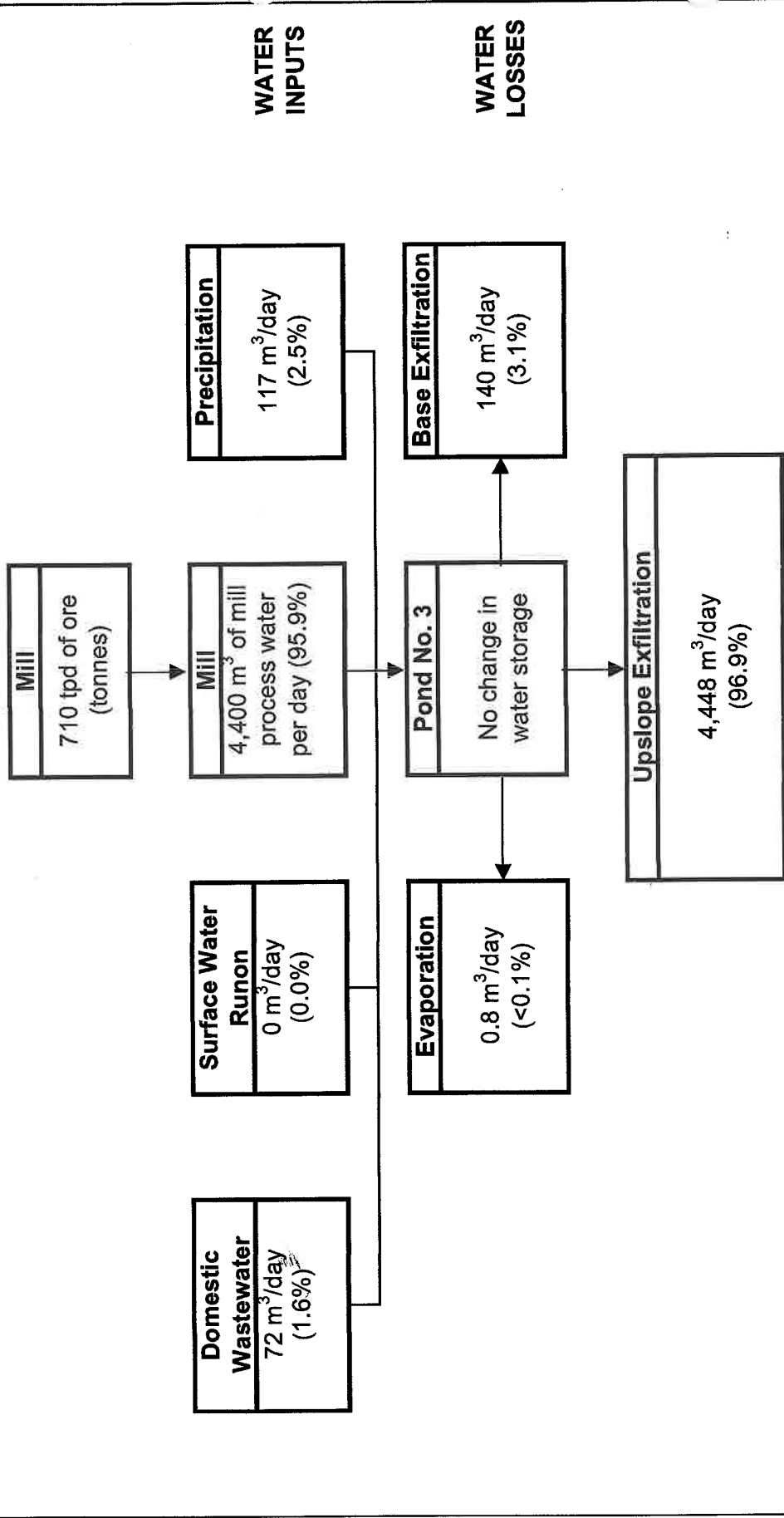


Source: "Review of Exploration Potential at Cantung Mine" by Andean Engineering, April 2000

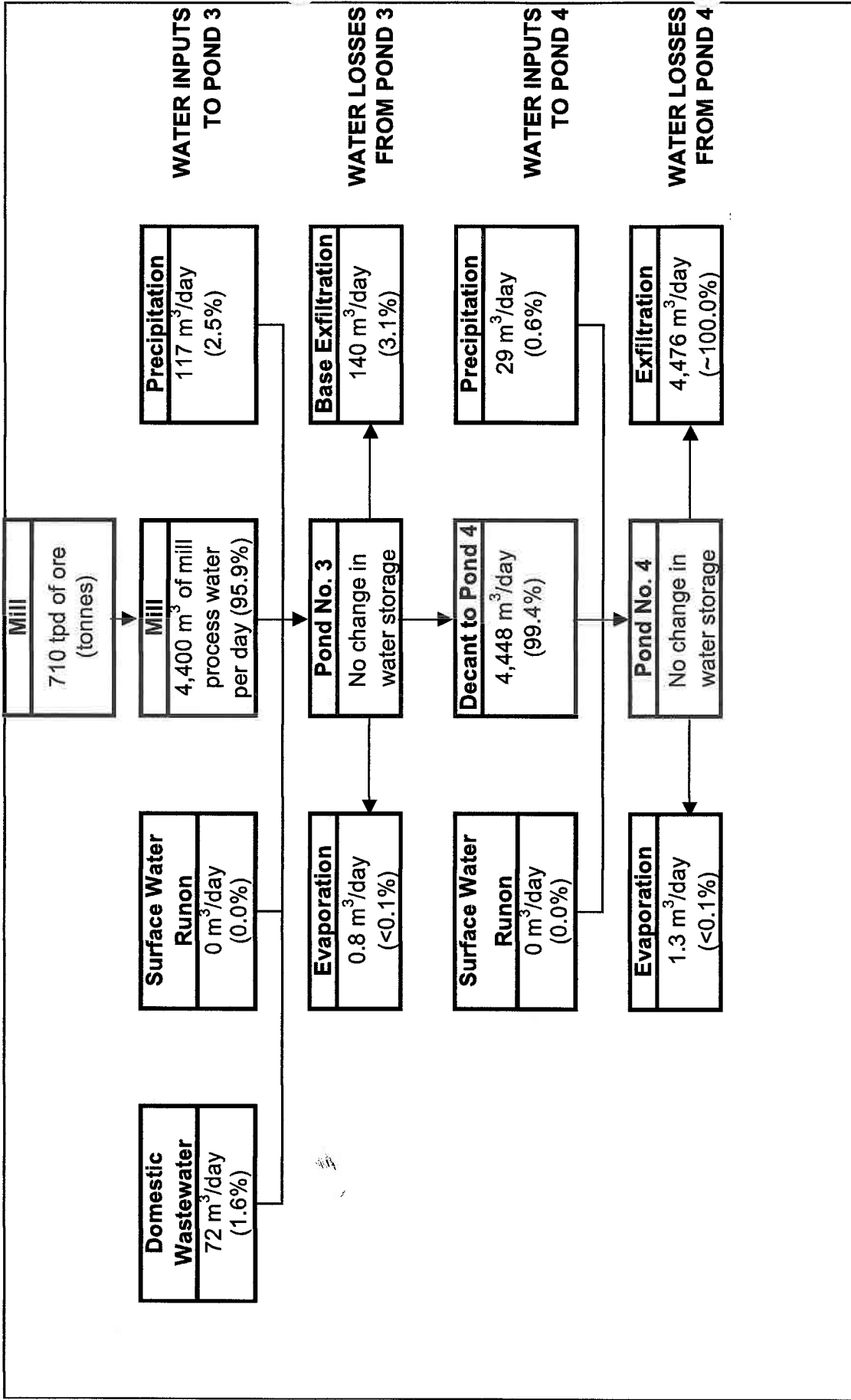
		PROJECT	CANTUNG MINE, N.W.T.
PREPARED BY: 		TITLE	CROSS-SECTION THROUGH THE OPEN PIT AND E ZONES, LOOKING SOUTHWEST (MODIFIED AFTER CUMMINGS AND BRUCE, 1997).
DATE: 2002/01/11	DWN. KW	CHKD. SP	FILE: 0701-01-14862
			FIGURE 5



				PROJECT CANTUNG MINE, N.W.T.				
PREPARED BY: <i>EBA Engineering Consultants Ltd.</i>				TITLE CANTUNG MILL SIMPLIFIED PROCESS FLOW DIAGRAM				
DATE:	2002/01/11	DWN.	KMW	CHKD.	SP	FILE:	0701-01-14862	FIGURE 6



EBA Engineering Consultants Ltd.				PROJECT: CANTUNG TAILING DISPOSAL IMPROVEMENTS	
CLIENT: NORTH AMERICAN TUNGSTEN		TITLE: WATER BALANCE FOR PHASE 1		FILE NO.: 0701-01-14862	
DATE: 1/29/02	DWN.: HH	CHKD.: JB	FIGURE 7		



**WATER INPUTS
TO POND 3**

**WATER LOSSES
FROM POND 3**

**WATER INPUTS
TO POND 4**

**WATER LOSSES
FROM POND 4**

Precipitation
117 m³/day
(2.5%)

Base Exfiltration
140 m³/day
(3.1%)

Precipitation
29 m³/day
(0.6%)

Exfiltration
4,476 m³/day
(~100.0%)

Surface Water Runon
0 m³/day
(0.0%)

Evaporation
0.8 m³/day
(<0.1%)

Surface Water Runon
0 m³/day
(0.0%)


Evaporation
1.3 m³/day
(<0.1%)

Domestic Wastewater
72 m³/day
(1.6%)

Pond No. 3
No change in
water storage

Decant to Pond 4
4,448 m³/day
(99.4%)

Pond No. 4
No change in
water storage

EBA Engineering Consultants Ltd. 	PROJECT: CANTUNG TAILING DISPOSAL IMPROVEMENTS
	CLIENT: NORTH AMERICAN TUNGSTEN
DATE: 15/01/2002	FILE NO.: 0701-01-14862
DWN.:	FIGURE 8
HH	JB
CHKD:	TITLE: WATER BALANCE FOR PHASE 2 AND 3