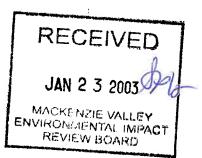
# NORTH AMERICAN TUNGSTEN CORPORATION LTD.

Via Email: aehrlich@mveirb.nt.ca

January 23, 2003

Mackenzie Valley Environmental Impact Review Board Box 938 5102 – 50<sup>th</sup> Avenue Yellowknife, NT X1A 2N7



Attn: Alan Ehrlich

A/ Manager of Environmental Impact Assessment

Re: Project Description for CanTung Mine, NWT

Dear Mr. Erhlich:

Following your request of January 17, 2003, enclosed find an electronic submission of our "Project Description of the CanTung mine" together with the "Abandonment and Restoration Plan" prepared by EBA Engineering Consultants Ltd. and Watermark Consulting Inc.

The Project Description is an updated executive summary of a previously submitted Operating Plant ot he Mackenzie V alley Land and Water Board (MVLWB), which formed part of the submission for a renewal of our water license.

We would like to reiterate that we are not proposing to do anything different at the mine compared to the previous operation. Furthermore, there are no new proposed facilities or construction projects. CanTung is not a new project; the mine has been in existence since 1962 and received renewed water licenses since 1975. Our application to the MVLWB clearly stated that the commencement of production did not constitute a new mine or undertaking and at no time did we propose a decommissioning, abandonment or restoration of the mine site.

We request that your proposed environmental assessment reflect the context of our application for a renewal of our water license.

Yours truly, North American Tungsten Corporation Ltd.

Udo E. von Doehren President & CEO

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Encl.

# NORTH AMERICAN TUNGSTEN CORPORATION LTD.

**Project Description** 

for

**CanTung Mine, NWT** 

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#### 1 INTRODUCTION

The CanTung tungsten mine is situated in the Mackenzie Mountains on the Yukon-NWT border about 200 airline kilometres (124 miles) northeast of Watson Lake, YT. "CanTung" is an abbreviation of "Canada Tungsten," the name of the company that opened the mine in the early 1960s. The site is accessed by a road from Watson Lake and has an airstrip suitable for small and medium-sized aircraft. A townsite, called Tungsten, was built at the mine and was unoccupied, except for a part-time caretaker until August, 2001. The mine site is situated geographically in the NWT, although road access is from the Yukon.

The area is mountainous. The bottom of the Flat River valley at the mine is at an elevation of about 1,130 metres (3,700 feet) above sea level (ASL). Mountain peaks rise nearby to elevations of 2,750 metres (9,000 feet). Severe winter conditions prevail from October to May with temperatures down to -40°C and substantial snowfall. Total annual precipitation is 65 centimetres (25 inches), half as rain and half as snow, with average snow accumulations in the valley of 127 centimetres (50 inches).

The tungsten deposit, in the form of scheelite (calcium tungstate) ore, was discovered by prospectors in 1954. Tungsten is the hardest of all known materials, second only to diamonds, with the highest melting point of any known metal. It has been used industrially since the early 1900s. Its main uses are cemented carbides, super alloys, abrasion-resistant applications and illumination. It has no known substitutes.

Mining began in 1962. The first mining was in an open pit on the hill above the townsite, which ceased operations in 1973. In 1971, diamond drilling discovered a deeply buried ore body, named the E Zone, which was mined underground through an adit driven from the v alley b ottom c lose t o t he t ownsite. In 1986, m ining c eased due to low t ungsten prices.

Tungsten prices were kept depressed from the mid-1980s until 2000 by exports from the USSR/FSU and China, derived both from mine production and from stockpiles. Prices remained too low for economic mining in North America. In 1997, North American Tungsten Corporation acquired the CanTung property from its then owners, Aur Resources. Meanwhile, world demand for tungsten has tracked the world economy and is likely to increase; at the same time, supplies from the FSU and China are declining. This brought prices up to levels at which it was economically feasible to restart the CanTung mine effective April 1, 2002; however, as at January 1, 2003, the quoted price of tungsten declined below the cost of production.

The facilities at the mine are in good condition.

The mine operates at a production rate of 1,000 tons per day, similar to the production rate before suspension, using the same methods and processing equipment. There is no fresh ground disturbance outside the existing site area.

The mine generates approximately 170 direct jobs, with spin-off employment and other benefits to suppliers in the NWT and Yukon. Preference is given to local hiring and local businesses. As a mine of this size typically deals with a large number of suppliers, these spin-off effects are substantial. More than 40% of our employees are northern based and the same percentage of mine related expenditures are injected into the northern economy. The Company has made significant social investments in communities by providing, in addition to jobs and business opportunities, training and apprenticeship programs that are transferable to other sectors of the economy. Relationships with Government officials and First Nations remain cordial and open.

Sufficient ore reserves are known at the mine for 2-3 years of production. A closure plan has been filed with the regulatory authorities and a closure bond is being maintained.

#### 2 INFRASTRUCTURE

#### 2.1 Roads

The mine is 310 kilometres (192 miles) northeast of Watson Lake, via Highway 4 (Campbell Highway) and then Highway 10 (Nahanni Range Road) which is unpaved. These roads are maintained by the Yukon Territorial government up to kilometre 134. In addition, about 5-8 kilometres (3-5 miles) of gravel roads are used for access within the project area, some of them paved.

#### 2.2 Townsite

The original operators of the mine built and maintained a townsite at the mine, known as Tungsten, complete with all necessary facilities, in which the employees and their families were permanent inhabitants. These facilities included:

- 1. Apartment blocks;
- 2. Bunk houses:
- 3. Condominiums;
- 4. Family living quarters;
- 5. Schoolhouse;
- 6. Recreational complex;
- 7. Skating rink;
- 8. Fire hall:
- 9. Hot springs;
- 10. Ski hill; and
- 11. Shops, warehouses, offices and other service buildings

A number of these facilities were removed since the suspension of operations in 1986. The whole townsite has not been reopened. Employees are accommodated in an 80-man apartment complex and in rooms on the upper floor of the office.

# 2.3 Airstrip

The airstrip is maintained and serviced.

# 2.4 Materials Storage

The materials storage facilities used during the operation of the mine are in use.

### 2.5 Water Supply

Domestic and process water is pumped from the Flat River in accordance with the Water Licence.

# 2.6 Power Supply

The entire site is supplied with electric power from a single powerhouse containing diesel generators

# 2.7 Fuel Storage

The existing fuel storage facilities are partly utilized.

# 2.8 Sewage

All sewage is discharged to the Tailings Containment Area in accordance with the Water Licence.

# 2.9 Garbage Disposal

Garbage is burned and then buried at the existing garbage dump in a former borrow pit about 3 kilometres (2 miles) south of the townsite as before.

# 2.10 Hazardous Waste Disposal

Hazardous waste is handled, stored and disposed of in accordance with applicable regulations.

#### 3 MINERAL PROCESSING

The first tungsten mill at CanTung came on stream in 1962, treating open pit ore at 272 tonnes per day (300 short tons per day). The mill continued operation until 1973 with suspensions in 1963 due to low tungsten prices, and in 1966 due to the destruction of the mill by fire. The construction of a new 318 tonne-per-day (350 short-ton-per-day) mill was completed in 1967. Capacity was increased to 408 tonnes per day (450 short tons per day) in 1969. The "E Zone" underground orebody, of similar geology to the open pit, was discovered in 1971. The mill began to process this underground ore in 1974; in 1975 it was expanded to 454 tonnes per day (500 short tons per day). A major mill expansion in 1979 further increased mill capacity to 907 tonnes per day (1,000 short tons per day). The mill continued operations until 1986 when low tungsten prices forced the company to cease operations at Tungsten. The mill, along with the other facilities, was mothballed until production commenced in 2002.

The mill processing facilities at T ungsten consist of a primary crushing building and coarse ore storage, a secondary and tertiary crushing building, fine ore storage, a general mill building with offices and a maintenance shop, a backfill preparation building, a reagents and supplies storage building and an assay laboratory. Although the mill was designed to process 907 tonnes per day (1,000 short tons per day), it achieved continuous processing rates of 1,000 tonnes per day (1,100 short tons per day). All process equipment was preserved in a mothballed condition and no major pieces were removed from site.

# 3.1 Water Usage

Water for the process is provided from the Flat R iver pump house as per the Water Licence requirements. Mine seepage is used in the mill as process.

### 3.2 Reagents

Reagents and operating supplies for the mill, such as process chemicals and grinding steel, are stored in the reagent storage building attached to the concentrator at the south end of the building.

### 3.3 Assay Laboratory

The assay laboratory is operated as previously, providing sample preparation and assaying services for the mine, mill and environmental management activities.

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# 4 TAILINGS DISPOSAL AND WASTE ROCK MANAGEMENT

# 4.1 Tailings Disposal

The CanTung mill is equipped with a hydraulic backfill plant which consists of desliming cyclones and high-pressure Zimpro slurry pumps. This plant was used to prepare and pump mill tailings underground as backfill prior to the 1986 suspension of operations. Following technical and economic evaluations, if its operation is warranted, the backfill plant will receive mill tailings to prepare a fill product suitable for the drainage and consolidation characteristics required by the mine. The finer portion, constituting less than 50% of the total tailings, is sent to Tailings P ond #3 for impoundment. When backfill is not being produced, the backfill plant is by-passed and all of the mill tailings are sent to Tailings Pond #3 for disposal.

Ponds #3 and #4 are used for tailings management in the same manner as they were used at the time of operations suspension in 1986. Ponds #3 and #4 are located south of the concentrator and with Pond #4 used as an exfiltration pond to which water from Pond #3 is decanted. As in the past, mill tailings are pumped to Pond #3. There is no direct decant to the environment.

# 4.2 Waste Rock Management

Waste rock from underground mine is deposited in mined-out stopes.

# 5 HUMAN RESOURCES AND ORGANIZATION

CanTung mine is organized as a single status operation. North American Tungsten charters buses to move employees from Whitehorse and Watson Lake to the mine site and return.

Most employees currently work a rotation of 3 weeks on, 3 weeks off, 12 hours per day.

Where possible, each staff position has a stand-in from among its direct reports. Both positions overlap for a period as required, providing for effective hand-over and contributing to management strength. Positions requiring unique skills are covered continuously, in which case 2 employees are needed. Some positions are shared between departments.

Most employees are organized into crews, each with its own supervisor, rotating in and out as a crew.

The most senior site employee is the **Mine Manager**, reporting to the Vancouver-based President and CEO. The Mine Manager's direct reports are the Mine Superintendent, the Mill Superintendent, the Personnel Manager, the Purchasing Agent, the Geologist and the Site Safety Officer. Either the Mine or the Mill Superintendent stand in for the Mine Manager during his absence.

The **Mine Superintendent** is responsible for all mining operations. Staff reporting to the Mine Superintendent is the Mine Engineer, Geologist and the Surveyor.

The Mill Superintendent is responsible for the operation of the crusher, mill, assay laboratory, backfill plant and tailings dam with North American Tungsten employees. Reporting to the Mill Superintendent is the Mill Foreman, Assayer, Maintenance Foreman and Environmental Manager. The two mill shift crews on site report to the Mill Foreman. Each shift crew consists of a shift boss, a primary crusher operator, a secondary/tertiary crusher operator, a grinding plant operator, a gravity/roasting/magsep plant operator, a flotation plant operator, a reagents operator and a labourer/trainee.

The Plant Superintendent is responsible for maintaining the powerhouse, accommodation and roads, for operating the powerhouse, water drainage/sewerage, garbage disposal, snow removal and avalanche control and for minor construction work on site Reporting to the Plant Supervisor are the Lead Mechanic, Electrician and Maintenance Planner. The maintenance crew reports to the Lead Hands. The crew consists of at least one journeyman mechanic, journeyman electrician, journeyman plumber/gasfitter and heavy equipment operator, with helpers/apprentices/labourers.

The coordination of site services is grouped under the Personnel Manager. The Personnel Manager is responsible for camp catering, personnel management, flights and

personnel movement. Reporting to the Personnel Manager is the camp catering contractor. The Personnel Manager is assisted by a Site Clerk/Receptionist.

The **Purchasing Manager** is responsible for purchasing, warehousing and logistics (specifically freight and concentrate haulage and the transportation, storage and security of hazardous goods). Warehouse personnel assist the Purchasing Manager.

The **Site Safety Officer** reports to the Mine Manager. This position is responsible for training (including WHMIS), training records, emergency response, especially site rescue, fire-fighting and spill containment and site safety inspections. On spill containment, he co-ordinates with the Environmental Manager. The Site Safety Officer is responsible for equipping and training the site emergency response team which is manned by volunteers from among the workforce.

The **Environmental Manager** reports to the Mill Superintendent. This position is responsible for the effective management of all environmental issues pertaining to the operation. Specifically, providing environmental advice and support services, implementing proactive strategies for environmental protection and regulatory compliance. He is also responsible for planning and implementing environmental monitoring programs and other studies and coordinating the preparation of required technical and regulatory reports. Furthermore his duties include coordinating the implementation of progressive reclamation programs and abandonment and reclamation planning as well as participating in liaison activities with regulatory and public stakeholders.

### 6 TRANSPORTATION PLAN

The transportation needs of the CanTung mine are threefold: people in and out, freight in, concentrate out. Freight is moved to the mine site by contracted trucking services.

The Yukon Territorial government maintains highways 4 and part of Highway 10. The journey by road between the mine site and Watson Lake is 4-5 hours. Travel time, by plane, between Whitehorse and the mine, depending on the type of aircraft, is around 45 minutes to 1½ hour.

Certain site employees are flown between their points of hire to Whitehorse and then transported by bus to the mine. The bus is chartered from a local company. Rotation of employees by bus from Whitehorse and Watson Lake is preferred only because it is the cheapest method at this time of severe financial constraints. Emergency transportation, particularly medevac, is by whatever means are possible in the prevailing weather and road conditions, whether fixed-wing aircraft, helicopter, bus, ambulance or company vehicle.

#### 7 OCCUPATIONAL HEALTH AND SAFETY & ENVIRONMENT

Reference is made to the CanTung mine Emergency Response Plan.

North American Tungsten shares with its employees a responsibility for their health and safety from the time they leave their points of hire inbound to the mine until they reach their points of hire outbound. The following measures are taken to ensure the highest possible standards of employee health, safety and wellbeing.

#### 7.1 New employee induction

Each new employee passes through an induction and training process appropriate to his/her experience level and department of employment.

# 7.2 Site Safety Officer

The primary responsibility for safe working lies with supervision and management. The Site Safety Officer is the individual with certain specialist skills to support supervision and management in their task, exercised as follows:

- 1. To train employees in the safety aspects of their work and to impart safe work habits;
- 2. To keep records of employee experience and training;
- 3. To develop and maintain appropriate manuals of safety rules and procedures;
- 4. To select appropriate safety and emergency equipment;
- 5. To equip and train the emergency response team;
- 6. To carry out and record site safety inspections to check for compliance with regulations and regulatory standards.

#### 7.3 Occupational Health & Safety Committee

The OHSC and its activities are conducted in accordance with applicable NWT regulations.

#### 7.4 Site safety rules and procedures

The Site Safety Officer develops and maintains manuals of site safety rules and safe operating procedures for issue to employees as and where applicable.

### 7.5 Safety clothing

North American Tungsten issues safety clothing as required in addition to normal mine safety equipment.

#### 7.6 Winter conditions

An outdoor industry in northern Canada is subject to specific hazards due to winter weather conditions. These are: low temperatures, wind chill, extended periods of darkness and white-out. Although many employees are familiar with these conditions from work at other similar sites, confirmatory training is provided. As a mountainous site with, at times, substantial snowfall, CanTung is located in an avalanche hazard area. An avalanche awareness and control programme is in place.

# 7.7 Emergency Response and Rescue Organization

The Site Safety Officer developed the Emergency Response Plan with suitable equipment, facilities, personnel and training.

#### 7.8 Site medical facilities

North American Tungsten maintains first aid facilities at the site.

### **7.9** Camp

The cleanliness, comfort and nutritional standards in the camp make an important contribution to employee health, well-being and efficiency and, hence, safety. North American Tungsten maintains these to high standards. Disturbance to fellow workers or willful damage is grounds for dismissal. The Company insists on a drug and alcohol free camp.

#### 7.10 Accident/Incident Analysis

All accidents and incidents (including spills) are reported and analyzed with the intention of preventing recurrence.

### 7.11 Environmental Compliance

North American Tungsten Corporation Ltd. is committed to maintaining high standards of environmental protection and care in the conduct of all aspects of its business. The company's approach to environmental management includes maintaining compliance with all applicable legislation, regulations and authorizations, implementing proactive strategies for environmental protection, achieving continuous improvement in performance and encouraging open communications with governments, the general public and other interested stakeholders.

#### 8 MINING PLAN

The first mining at the site occurred in an open pit on the hill above the townsite at an elevation of about 1,500 metres (5,000 feet) ASL. The pit operated from 1962 to 1973; it produced 1.35 million tons of ore which went to the mill and about 1.7 million tons of waste rock which was dumped beside the pit. The pit drains by seepage into the ground. Because of winter weather conditions, the pit was worked only in summer. Ore was trucked to the mill over a 3-mile haulage road. A small amount of ore remains in the pit walls. Some of this is accessible by further mining of the pit; some is accessible by means of short-range underground workings from the pit. This ore does not form part of the current mine plan.

In 1971 the underground E Zone was discovered by diamond drilling from the vicinity of the pit and was accessed by a 5.2-metre x 6.1-metre (17-foot x 20-foot) adit driven for about 1,220 metres (4,000 feet) from a portal in the valley at an elevation of 1,190 metres (3,900 feet) ASL. Workshops, transformer bays and explosives magazines were excavated underground. The mill began to treat ore from underground in 1974. During the period 1962-1986 mill production was progressively increased from 270 tonnes per day (300 short tons per day) to 1,000 tonnes per day (1,100 short tons per day).

The so-called 1102 ramp was driven on a 2.4-metre x 3.0-metre (8-foot x 10-foot) cross-section between the E Zone workings and surface for ventilation purposes. It is also available for use as a secondary escapeway in fresh air and for access by mine rescue teams. The portal of this ramp is at an elevation of about 1,370 metres (4,500 feet) ASL and is accessed by road from the valley bottom. Fans and a propane-fired mine air heater were installed at this portal, forcing ventilating air into the mine, with the exhaust air exiting to surface through the main haulage adit.

In addition to these workings, an adit was driven from the top elevation of the mill at an elevation of 1,143 metres (3,750 feet) ASL for the installation of a conveyor belt. At the time of suspension this was not in use and ore was trucked to the mill from the 3900 adit.

The mine workings are self-draining to surface and report to the mill process water. Future workings developed below the adit level is drained by local pumping systems discharging into the adit. The quality of mine drainage water is monitored in accordance with the regulatory requirements.

For the current operation ore is trucked through the main adit portal to the primary crusher located on surface.

Waste rock is used as backfill for the working areas.

A rest area, including sanitation and a heated and lighted lunchroom with washing facilities, is located underground.

#### 9 GEOLOGY

The CanTung mine is situated in a mountainous area composed of folded and faulted sedimentary rocks with igneous intrusions. 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 time table) 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 ore mined in the former open pit had formed in two limestone series, known as the Ore Limestone and the Swiss Cheese Limestone. The E Zone ore (i.e. underground mine) had formed in the Ore Limestone. The configuration of these two limestone series, 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. A large, granodiorite intrusion underlies the lower limb.

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 up to 0.5% and have been extracted in the past. Zinc and bismuth values are commercially insignificant. Other minerals are calcite, epidote and apatite.

The most recent estimate of ore reserves dates from 2003. Using a cut-off grade of 1.0% WO<sub>3</sub>, the mineable reserve was estimated at 771,000 tons, indicating a remaining mine life of 2-3 years at a planned production rate of 1000 tons per day.

### 10 CL OSURE PLAN

On final closure the site is decommissioned in accordance with the November 2001 Abandonment and Restoration Plan prepared by EBA Engineering Consultants Ltd., Vancouver, BC and the Plan for Restoration and Abandonment developed by Watermark Consulting Inc., Vancouver, BC, in May 1997, plus such other requirements as may be mandated in the meantime.