CUMULATIVE IMPACT ASSESSMENT FOR THE PHASE II MINERAL EXPLORATION DRILLING PROGRAM AT PRAIRIE CREEK MINE, NWT

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INTRODUCTION

On May 31, 2001 the Mackenzie Valley Environmental Impact Review Board (Review Board) issued the *Work Plan and Terms of Reference for the Environmental Assessment of the Canadian Zinc Corporation (*Canadian Zinc*) Phase II drilling development.* In their direction to Canadian Zinc (Section 7), the Review Board requested further information on cumulative impacts and an environmental management plan (MVEIRB 2001).

Accordingly, in response to this direction, Canadian Zinc is pleased to provide the following description of the cumulative impacts assessment (environmental and socioeconomic) conducted for the 60 hole Phase II exploration drilling program for the Prairie Creek Mine property.

METHODOLOGY

The assessment of potential cumulative impacts was conducted in general conformance with the Interim Guide for Addressing Cumulative Environmental Effects in Environmental Assessments Under the Mackenzie Valley Resource Management Act (September, 2000). The assessment includes:

- definition of cumulative impacts;
- scoping of the assessment;
- analysis of the impacts;
- identification and incorporation of mitigation;
- significance determination; and
- follow-up.

DEFINITION OF CUMULATIVE IMPACTS

Part 5, Section 117 (2) of the Mackenzie Valley Resource Management Act (MVRMA) specifies that:

> *Every environmental assessment and environmental impact review of a proposal for a development shall include a consideration of:*
>
> *a) the impact of the development on the environment, including the impact of malfunctions of accidents that may occur in connection with the development and any cumulative impact that is likely to result from the development in combination with other developments; and*
>
> *b) the significance of any such impacts.*

Canadian Zinc's approach to assessing possible cumulative impacts employed the following basic premises:

- There must be an environmental, biophysical, social or cultural impact related to the proposed Phase II drilling program.
- The impact must be demonstrated to operate cumulatively, additively or synergistically, either within the context of Canadian Zinc's development activity at the Prairie Creek mine, or with impacts from other projects or activities.
- The other projects or activities considered exist or are likely to be carried out and are not hypothetical.

SCOPING THE ASSESSMENT

Selection of Components for Assessment

The Project Description for the year 2001 Phase II exploration drilling program (Canadian Zinc 2001) provided information on the existing environment and assessed the anticipated impacts of the proposed drilling program on the environmental, socioeconomic and cultural resources of the development area. The components considered included:

- Air Quality, Noise and Climate;
- Terrain;
- Vegetation and Plant Communities;
- Water Quality and Quantity;
- Aquatic Habitat;
- Wildlife and Wildlife Habitat;
- Land and Resources Use;
- Visual and Aesthetic Resources;
- Cultural and Heritage Resources; and
- Economy.

As reported in Canadian Zinc (2001), the proposed 60 hole exploration drilling program is to be carried out from surface along strike in a southwesterly to northeasterly direction over a distance of about 1000 m and parallel to the existing underground workings from about the 875 to 1125 m elevation. The entire drill program is proposed to take place within 1000 m of the existing minesite facilities, within the area of traditional mining activity at Prairie Creek and within the boundaries of Mining Lease 2932 and Surface Lease 95F10/10-5-3. In all cases, potential drill hole locations are in close proximity to the 249 holes drilled on the property in earlier years and the existing network of exploration roads.

The impact assessment provided in Canadian Zinc (2001) predicted that the anticipated residual impacts of the Phase II drilling program on all of the biophysical resources, cultural and heritage resources, visual and aesthetic resources and land and resources use were expected to be negligible.

These results are consistent with the short-term, highly localized nature of the proposed drilling program and the fact that all of the activities would occur within the footprint of existing mining activity at the Prairie Creek Mine.

Based on these predictions alone, there is theoretically little basis for proceeding further with a conventional cumulative impact assessment. Nevertheless, recognizing the direction given by the Review Board, and concerns raised by certain stakeholders related to potential cumulative effects on regional water quality, vegetation/wildlife habitat loss and socioeconomic matters, these issues will be examined further in the following assessment.

Time and Spatial Boundaries

Time

Exploration activities in the Prairie Creek area date back to 1928 when mineralization was first discovered. Exploration continued at various times throughout the years to present, and in 1981 a complete mine was constructed and permitted. However, the mine did not achieve commercial production, was closed, and has remained in a "moth-balled" state. At this time, the previously approved Phase I exploration drilling program, and the Phase II exploration drilling program proposed for the Prairie Creek property, will be completed over two summer seasons. Residual impacts extending beyond this timeframe will be limited to those associated with physical alterations of terrain as a result of the development of temporary drill pads and tote roads within the disturbance footprint of previous mining activity.

In the longer term, assuming that the mine is restarted, the projected mine life will be at least 18 years, based on the current mineral resources. Progressive reclamation will be practiced throughout this timeframe, and it is assumed that the exploration drill sites will have been reclaimed within this timeframe. Thus, the cumulative effects assessment covers all activities that have taken place at Prairie Creek from the late 1920s to the year 2020.

Space

The spatial boundaries for the assessment will differ for each of the two biophysical components being examined. The spatial boundaries for the water quality assessment will begin with consideration of Harrison Creek, with a catchment area of about 7.5 km^2. The assessment will subsequently examine possible water quality implications for downstream Prairie Creek, with a catchment area above the minesite of 495 km^2 and the much larger South Nahanni River Watershed which encompasses 37,000 km^2 (Figure 1).

The spatial boundaries for the vegetation/wildlife habitat component of the assessment includes the local mine and exploration footprint area illustrated in Figure 2 and, for more regional purposes, the Beak (1981) vegetation and wildlife study area (Figure 3). The regional area encompasses approximately 1,000 km^2 of the southern Mackenzie Mountains and includes 30,819 ha (308 km^2) of the Spruce/Lichen vegetation zone found within the footprint of mining activities at Prairie Creek.

For socioeconomic assessment purposes the local region is represented by the boundaries of the Deh Cho First Nation Territory (Figure 1). Economic impacts will be projected as appropriate to include the Northwest Territories and Canada.

Other Projects Considered

For the purposes of this cumulative affects assessment, other projects considered in the analysis include recognized mining activities that have or may take place within the southern Nahanni Watershed, and the Nahanni National Park Reserve (Figure 1). The mining activities considered are the CanTung tungsten mine and Copper Ridge Explorations' Howards Pass zinc project (Figure 1). Brief Descriptions of these activities follow.

CanTung Tungsten Mine

The CanTung mine, operated by North American Tungsten Corporation, is situated in the Mackenzie Mountains about 190 km in a straight line west-northwest of the Prairie Creek Mine (Figure 1). The CanTung property drains into the Flat River, a major tributary of the South Nahanni River. It flows into the South Nahanni within the limits of Nahanni National Park Reserve, approximately 100 km upstream of where Prairie Creek enters the river.

Exploration activities and mining at CanTung have taken place since the early 1960's. Mining began in 1962 but the mine was closed down in 1986 due to poor economic conditions, and the property has been on care and maintenance since then. Currently, as a result of dramatically improved economics, North American Tungsten is planning to restart the mine and initiate production by the end of 2001. The mine has a projected mine-life of 3 years and will operate under an existing water licence regulated by the Mackenzie Valley Land and Water Board.

Howards Pass Project

The Howards Pass zinc prospect is located in the Yukon portion of the Mackenzie Mountains near the upper end of the South Nahanni River Watershed, about 250 kilometres northeast of the Prairie Creek property (Figure 1).

Howards Pass is currently owned by Copper Ridge Explorations Inc., was first discovered in 1972 and was actively explored through to 1981. More recently in 2000, an eight hole core drilling program was completed by Copper Ridge. The Howards Pass project is estimated to have a calculated resource of 110 million tonnes grading 7.7% combined zinc plus lead, much of which is believed to be amenable to open pit mining (Copper Ridge 2000). However, considerably more drilling will be required outside of the high grade core of the main deposit to upgrade the resource to a mineable reserve and to permit development plans to proceed.

Nahanni National Park Reserve

Nahanni National Park Reserve comprises 4,766 km^2 and encompasses 300 km of the South Nahanni River Valley (Figure 1). The Prairie Creek mine is located outside the Park Reserve boundary adjacent to Prairie Creek, a tributary of the South Nahanni River, around which the Nahanni National Park Reserve was created. The mine is located 32 km upstream of the

point where Prairie Creek crosses into the Park Reserve and 48 km from the confluence of Prairie Creek and the South Nahanni River. At its closest point, the mine is 14 km from the nearest Park Reserve boundary, but separated from the Park Reserve by a range of mountains rising up to peaks of 1,750 m in height. The lowest pass through these mountains is about 1,340 m, about 365 m above the South Nahanni River at "the Gate".

Nahanni National Park Reserve was set aside as a Park Reserve by Order in Council in 1972 and gazetted as a Park Reserve in 1978. Parks Canada subsequently nominated Nahanni National Park Reserve for inclusion on the World Heritage List under the UNESCO World Heritage Convention and that portion of the South Nahanni within the Park Reserve for designation as a Canadian Heritage River under the Canadian Heritage Rivers System. The former was achieved in 1978 and the latter in 1987. Parks Canada is proposing expansion of the Park Reserve into 3 new areas totaling an additional 4,175 km^2, which would bring the total area of the Park Reserve to 8,925 km^2 (Figure 1).

The Park Reserve has proven itself to be a popular destination as a wilderness river canoeing and kayaking experience. In 1999-2000, 7,281 person-visits were recorded in the Park Reserve. Wilderness adventure trips generally range from 7 – 21 days and cost in the order of $3,000-5,000. Several wilderness tour companies based in Ontario, Yellowknife and Whitehorse operate in the area.

ANALYSIS OF POTENTIAL CUMULATIVE IMPACTS

The scoping portion of the cumulative impact assessment identified two biophysical components (water quality, vegetation/wildlife habitat) and one socioeconomic component (economy) that warranted more thorough analysis. The following presents the cumulative impact assessment for each of these three issues.

Water Quality

In its recent review of Prairie Creek's proposed Phase I (7 hole) exploration program, the Review Board noted that the Canadian Parks and Wilderness Society had claimed that there was a high potential for significant adverse and cumulative environmental impact on the South Nahanni Watershed (MVEIRB 2001a).

The Review Board concluded that, based on the evidence provided, the cumulative effects of the proposed Phase 1 program would not cause a significant adverse cumulative environmental effect (MVEIRB 2001a). However, the Review Board indicated that the proponent's cumulative effects assessment could have been bolstered and hence the following analysis is provided.

The proposed Phase II exploration drilling program will be carried out on the northwest side of the Harrison Creek valley approximately 250 – 1,000 m upstream of its confluence with Prairie Creek (Figure 2). Harrison Creek is a small tributary of Prairie Creek with a

catchment area of about 7.5 km^2 as compared to the catchment area of Prairie Creek above the minesite at 495 km^2. The average annual flow of Harrison Creek has been estimated at 3.6 cfs as compared to Prairie Creek at 204 cfs, or about 1:50. Harrison Creek commonly dries during the low flow late summer season and flows subterranean.

The exploration drilling process involves driving a fast rotating annular bit through the ground to collect a solid core sample. The drill bits used are generally diamond impregnated (as the name implies), or other cutting materials may be used such as tungsten. Water is generally used as a circulating fluid. The cuttings are washed up the hole between the rods and hole wall and the core sample is collected at the bottom of the hole in a core barrel.

A water supply pump is set up at a local source, in this case likely Harrison Creek, and 1.5 inch flexible hose line is laid to the rig to a high capacity Bean pump which delivers water to the drill bit for cooling and lubrication. Additives to the cutting fluid are kept at a minimum and used only if required. Standard additives such as drilling mud (550X Polymer, Linseed soap) may be mixed with water in a contained tank at the drill rig before pumping down hole, standard rod grease (Big Bear anti-friction) is used and if poor down hole conditions exist G-Stop and/or a quick set cement may be used to restore circulation.

A sump is always established to retain any return waters in order to settle out any drill cuttings. This results in a small amount of "drill cuttings" or finely ground up rock, being deposited in the basin of rockfill sump. Water contained in the sump generally disappears through a combination of exfiltration and evaporation. The sump is of sufficient capacity that cuttings have ample time to settle and any discharge is just clear water. The sump is subsequently backfilled upon completion of all drilling at that location.

As the diamond drilling program utilizes and discharges very little water, minimal impact on the water quality or quality of either surface water or groundwater is expected to result from carrying out the exploration drilling program. In the future, when the mine is reactivated, all water discharges to Prairie Creek will be regulated through a Class A Water Licence administered by the Mackenzie Valley Land and Water Board. The Licence is expected to include discharge and monitoring conditions intended to ensure that downstream water quality remains unimpaired to protect the aquatic resources of Prairie Creek and the South Nahanni River. On this basis, negligible impacts on the water quality of Prairie Creek, the South Nahanni River or the Nahanni National Park Reserve are predicted to occur.

Within the South Nahanni watershed, the most significant current development other than the Prairie Creek mine is the CanTung tungsten mine at Tungsten, N.W.T. The CanTung property is located about 190 km in a straight line east-northeast of the Prairie Creek mine. The minesite facilities are located adjacent to and on the floodplain of the Flat River, a major tributary of the South Nahanni River. CanTung operated over 24 years from 1962 to 1986, prior to being put on care and maintenance due to a fall in world tungsten prices. As a result of improved economic conditions, the CanTung Mine is currently preparing to resume production at the site around December 2001.

During the extended care and maintenance period, the Class A Water Licence has been kept current and the associated Surveillance Network Program has been carried out. The data collected since 1986 have continued to demonstrate that high standards of water quality have been maintained in the Flat River (North American Tungsten 2001).

No specific water quality data were reviewed for streams in the vicinity of the Howards Pass zinc prospect. However, an intensive Environmental Water Quality Monitoring and Assessment Program of the South Nahanni River Basin has been undertaken by Environment Canada in association with Parks Canada since 1988. The results of this program have been reported by Environment Canada in *Protecting the Waters of Nahanni National Park Reserve, NWT* (December 1991) and *Protecting the Aquatic Quality of Nahanni National Park Reserve, NWT* (December 1998). Both of these reports identified no impacts on water quality within the Park Reserve or the South Nahanni River associated with the presence and oeration of the CanTung mine and the Howards Pass prospect over those 24 years, and concluded that the waters of the South Nahanni River remain pristine.

Based on the foregoing analysis the potential for cumulative impacts on water quality associated with past and proposed activities at the Prairie Creek mine, combined with those at CanTung Mine and the Howards Pass prospect, are expected to remain very low.

Vegetation and Wildlife Habitat

The Review Board, GNWT Department of Resources, Wildlife and Economic Development (RWED) and the Nahanni National Park Reserve have each expressed some concern over the incremental or cumulative loss of vegetation and wildlife habitat from past and proposed exploration and development activities in the vicinity of the Prairie Creek Mine. As a result, the following analysis is provided for this important biophysical component.

The proposed drilling program will entail minimal disturbance or use of terrain or surficial materials. All proposed drill locations are in close proximity to existing exploration tote roads which will minimize disturbance relating to the establishment of roads and drill sites. Existing tote roads may require extensions, if any, of typically from a few metres up to 10 or 20 metres at a maximum. The drill pads will be prepared only large enough to accommodate and position the approximate 7 m x 4 m drill rig. In many cases drilling will take place from roads or existing drill pads using a different hole orientation. This will minimize drill pad development and surface disturbance to terrain and associated vegetation and wildlife habitat.

When clearing is required to create short extensions of tote roads or the drill pads themselves, surface vegetation will be cleared and surficial materials will be stripped and stockpiled adjacent to the area. When drilling is complete, cut banks will be re-contoured and stabilized, and stockpile surficial materials will be back bladed over the disturbed area. As drill pads are commonly re-used in future drilling programs, pads will not be fully reclaimed until it is determined that they are no longer required.

Detailed vegetation analysis and wildlife habitat assessments were conducted by Beak Consultants in 1981 in conjunction with a comprehensive program of baseline studies in

support of operational permitting activity at that time. The mine development and construction of the minesite facilities were approved, and the mine fully permitted for operations in 1982, following a comprehensive environmental assessment and public review before the Northwest Territories Water Board.

The study area for the vegetation and wildlife studies covered 209,000 ha including the minesite and surrounding area, and the majority of the Prairie Creek watershed, as well as a 160 km long by 10 km wide corridor covering the access road alignment from the minesite to the Liard River. The results of this work were reported by Beak (1981) in their report – *Prairie Creek Project: Vegetation and Wildlife Studies January to July, 1981.*

The Prairie Creek minesite, including the area of the proposed 60 hole Phase II drill program was determined to be located within the Spruce/Lichen vegetation map unit of the Mackenzie Mountains (Figure 3). The Spruce/Lichen zone was estimated by Beak Consultants (1981) to cover approximately 30, 819 ha (308 km^2) of the study area, largely within the boundaries of the Prairie Creek watershed.

A breakdown of historical disturbance around the Prairie Creek property, within the Prairie Creek watershed and largely within the Spruce/Lichen zone, as a result of exploration and development over the last 40 years is estimated as follows:

• Plantsite	10 ha
• Tailings impoundment	10 ha
• Airstrip	7 ha
• Exploration roads and drill pads	6 ha
• Access road (0 – 17 km)	8.5 ha
• Miscellaneous	2.5 ha
• Total	44 ha

Total disturbance to date therefore represents a physical disturbance of approximately 0.14% of the area of the Spruce/Lichen zone within the Prairie Creek watershed, resulting in available habitat reduction from 30,819 ha to 30,775 ha.

An individual drill pad, as proposed for each of the Phase 1 (7 hole) and Phase II (60 hole) drill program, would result in the disturbance of approximately 200 m^2, representing approximately 0.00006% of the area of the Spruce/Lichen vegetation zone. The entire Phase II program of 60 holes, combined with the 7 holes from the Phase I program, assuming none of the holes to be drilled from existing pads or existing roads, would disturb an area of 13,400 m^2 (1.34 ha). This represents a disturbance of 0.0044% of the area of the Spruce/Lichen zone. Add to this provision for 60 plus 7 access road spurs of 20 m length by 5m in width, would result in an increase in the disturbed area by 6,700 m^2 to 20,100 m^2 (2.1 ha). This would result in a total additional disturbance of 0.0065% of the Spruce/Lichen zone, reducing remaining available habitat from 30,775 ha to 30,771 ha. Compared with the original 30,819 ha that existed before mining activity took place in the Prairie Creek area, this would represent a total cumulative disturbance from all historical and currently proposed

exploration drilling of 47.4 ha. This represents 0.1538% of the original predisturbance area of the Spruce/Lichen zone within the Prairie Creek watershed.

As an underground mine with site infrastructure is currently in place, further disturbance of the Spruce/Lichen zone in the Prairie Creek watershed associated with mine re-development and operations would be expected to be slight relative to disturbance to date. Furthermore, progressive reclamation to be implemented in the future would be expected to reduce the size of the limited disturbance zone which is currently predicted.

The Spruce/Lichen zone in the area of the Prairie Creek mine is classified as fair Dall's sheep range, good caribou winter range and along the bottom of the Prairie Creek valley, fair moose range. Above the valley bottom, the habitat is classified as insignificant moose habitat.

Wildlife observations in the immediate area of the mine site, including the area of the proposed drill program, have identified Dall's sheep as the predominant species utilizing the area. During summer months they typically frequent the mine site area, using the adjacent talus slopes as escape terrain. Caribou and moose have only rarely been observed anywhere in the vicinity of the mine or, for that matter, in the Prairie Creek valley generally.

Given the very small area of disturbance relative to the available habitat and the observed limited use of the mine site and surrounding area by wildlife species, impacts, including cumulative impacts, associated with the proposed development are predicted to be negligible.

Socioeconomic Considerations

In its directions to Canadian Zinc related to the proposed Phase I drilling program, the Review Board specifically emphasized that socio-economic impacts, as well as environmental impacts, should be included in the cumulative impact assessment. As a result, the following discussion and analysis is provided.

The proposed Phase II exploration drilling program is an integral part of the process of establishing, confirming and enhancing the known mineral resource at the Prairie Creek property, which has been ongoing since mineralization was first discovered in 1928.

The main objective of this program is to further delineate the area of known mineralization in order to upgrade these mineral resources to mineral reserve status. This information, in combination with additional work planned for 2001, such as an underground decline and exploration program, and operation of an on-site pilot plant, will form the basis for a bankable feasibility study scheduled for completion in the last quarter of 2001. With a bankable feasibility study demonstrating a positive return on investment, Canadian Zinc believes it will be able to attract the necessary financing to support re-development of mine operations leading to production by 2003, subject to receipt of the necessary operating permits and licences.

In the short term, the proposed drilling program will create positive economic impacts for local communities in terms of employment opportunities and contracted support and supply services. Canadian Zinc employed two local residents of Nahanni Butte for the majority of the 2000 summer season. Similar opportunities are anticipated in 2001 in support of this and other planned programs. The proposed activity is expected to employ about 14 persons, including a cook, caretaker, mechanics, drillers, geologist, First Aid attendant, and labourers. Fixed wing aircraft and helicopter support will provide opportunities for charter companies in Fort Simpson and Fort Liard. Consumables will also be sourced from local suppliers and flown into site. Project management will necessitate travel for head office and other personnel, resulting in positive economic impacts for commercial airlines servicing Yellowknife and Fort Simpson, as well as hotels and restaurants in Yellowknife, Fort Simpson and other local communities.

In the long term, the proposed program is necessary to support plans for mine re-development. Positive economic impacts of future mining operations to local communities, the Northwest Territories and Canada are substantial and have been estimated as follows.

Once operational, the mine will employ up to 170 persons directly at the mine site plus an additional 60 under various contracts for at least 18 years based on the current mineral resource. Using a standard multiplier of 2:1 this would be predicted to create another 460 jobs elsewhere in the NWT and Canada.

Annual payroll, including benefits, will be in the order of $14.3 million. Payments to government, including corporate income tax, employee income tax and royalty payments are estimated at $15.4 million. Third party contracts for catering, air transport, incoming freight and outgoing concentrate total an estimated $10.5 million. Mill supplies and general consumable, including fuel, total $8 million annually. Road construction and annual operating costs, including the Liard ferry crossing, total $17 million and $1 million respectively. The capital cost of the ferry and approaches is an additional $1 million.

The existing mineral resource has been established over only about 2.1 km of mineralized strike length of 16 km, suggesting the potential to define additional mineral resources and extend the mine life, and economic benefits associated therewith, well beyond current projections is excellent. As well, much thicker stratabound mineralization discovered in 1992 to be underlying the known vein mineralization is currently underexplored and holds the potential to significantly increase the mineral resource of the property, thereby extending the projected mine life.

The Prairie Creek Mine is located on land claimed by the Nahanni Butte Dene Band of the Deh Cho First Nations (DCFN) as their traditional territory. The DCFN are engaged in ongoing negotiations with the Government of Canada and the Government of the Northwest Territories in what is referred to as the Deh Cho Process. The negotiations are currently at the Interim Measures and Agreement In Principle stage. The outcome of the negotiations is expected to be a Final Agreement that will provide, amongst other things, for the implementation of a Deh Cho form of government to oversee the delivery of programs and

services to residents within the DCFN territory. It is expected that the negotiations will take some five to seven years to complete.

In 1996, the Company and the Nahanni Butte Dene Band successfully negotiated and executed the Prairie Creek Development Cooperation Agreement. The overall intent of the Agreement was to establish and maintain a positive and cooperative working relationship between the Company and Nahanni in respect of the further development and operation of the mine, while at the same time supporting an economically viable and environmentally sound operation and maximizing economic opportunity and benefits to Nahanni and other Deh Cho First Nations.

This Agreement foresaw the many benefits which could accrue to the Nahanni Butte Dene Band and the DCFN in conjunction with development of the road and mine, and made provision for maximizing opportunities to realize these benefits. To this end, the Agreement provides employment and contracting opportunities as well as equity participation for the Nahanni Butte and the DCFN. The negotiation of this Agreement by Nahanni Butte was supported by the DCFN by Tribal Council Resolution and the final Agreement itself was endorsed by Nahanni Butte Band Council Resolution.

Some specific considerations as set out in the Agreement pertaining to economic opportunities relating thereto are as follows:

- Nahanni shall enjoy preferential access to economic opportunities including open book negotiated contracts.
- CZN shall have a minimum target of 20% employees from DCFN communities.
- CZN shall require non-First Nation contractors to have a target of not less than 20% employees from DCFN communities.
- Nahanni will receive a 5% equity interest of profits before taxation, but after recovery of prior capital and development costs.
- Nahanni will be granted an option to purchase either a 10% or 15% working interest in the Project for $6 or $9 million, inflation adjusted on completion of a Feasibility Study, but before construction.
- Following the commencement of commercial production, Nahanni and the Project will fund equally between them:
- The establishment of The Prairie Creek Education Centre in Nahanni Butte at a cost of up to a maximum of $150,000 and the annual operating costs up to a maximum of $50,000. This centre will focus on adult literacy programs and special needs education for children; and
- A Scholarship Trust Fund of $20,000 per annum initially, increasing to $30,000 per annum following the payback of all capital costs.
- Upon commencement of construction of the Access, the Project will contribute $25,000 per annum to a Trust Fund to provide compensation to traditional harvesters who are negatively affected by the Project and the Access.

Canadian Zinc is committed to continuing to work closely with the Nahanni Butte Dene Band and the DCFN to fulfill the provisions of the Development Cooperation Agreement and

ensure that First Nations communities in the area have ongoing input into the re-development plans for the mine.

The socioeconomic benefits projected to accrue from the progressive re-development of the Prairie Creek mine are expected to act in an additive and/or cumulative manner in relation to other existing or new developments or activities that may occur within DCFN lands.

Most directly related to the Prairie Creek mine, these would include the socioeconomic benefits that are expected to be generated as a result of resumed mining at the CanTung tungsten mine and increasing tourism activities in Nahanni National Park Reserve.

North American Tungsten has initiated and is continuing its dialogue with the communities of Nahanni Butte and Ft. Liard, DCFN, GNWT and the Federal government. An important element of these consultations has related to the use of northern-based service companies and people for employment and other opportunities that the CanTung mine may be able to offer beginning as early as the last quarter of 2001.

Similarly, tourism visits to Nahanni National Park Reserve, and the socioeconomic benefits derived from such activities are expected to increase over time. In the year 1999-2000, more that 7,281 people visited the Park Reserve, compared with 4,551 visitors in 1995-96 (Parks Canada Records).

Although no quantitative information is available on the precise nature of the socioeconomic benefits and opportunities that will be generated by these other developments, it is reasonable to assume that the local communities and the Deh Cho Territory are equally well positioned to gain substantial benefits from the combination of other mining developments and Park Reserve-related activities that are expected to take place in the Deh Cho, as they have shown themselves to be with the Prairie Creek Mine, as well as with oil and gas activity in the Fort Liard area. Assuming that participation in these other opportunities is equally effectively managed by the stakeholders, the anticipated cumulative socioeconomic benefits are expected to grow with time.

Uncertainties in the Assessment

The main uncertainty associated with this assessment pertains to the likelihood that any or all of the developments discussed will proceed within the temporal scope of the assessment, and hence the cumulative impact issues that have been evaluated will in fact occur. The re-development of the Prairie Creek mine is contingent on a number of factors including:

- The results of the proposed exploration drilling program.
- A subsequent bankable feasibility study demonstrating a positive return on investment.
- Availability of future financing to support re-development.
- Continued support from the communities and leadership of the DCFN.
- Acquisition of the necessary regulatory authorization to proceed and operate.

Similar uncertainties need to be addressed and resolved for other prospective developments in the vicinity, such as the CanTung mine and the Howards Pass mineral prospect, each of which are situated further upstream in the South Nahanni River Watershed. The operation and potential expansion of the Nahanni National Park Reserve is of course always subject to federal budget constraints and the availability of tax dollars to support such initiatives.

Mitigation Measures

The mitigation measures to be employed to prevent or minimize impacts to water quality and vegetation/wildlife habitat were reviewed in earlier sections of this cumulative impact assessment and the Project Description Report for the proposed 2001 Phase II exploration drilling program (Canadian Zinc 2001).

In the context of socioeconomic issues management, the Development Cooperation Agreement executed by the Nahanni Butte Dene Band and Canadian Zinc, sets out the various measures and commitments made by both parties to optimize benefits and minimize possible negative effects. Canadian Zinc remains committed to continuing to work closely with the Nahanni Butte Dene Band and the DCFN to fulfill the provisions of this Agreement.

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