NIRB File No.: 06MN082

August 30, 2007

To: Zinifex High Lake Mine Project Proposal Distribution List

Via email: Zinifex Distribution List

Re: Clarification on the Zinifex High Lake Project Proposal Final Scoping List

Dear Parties,

On July 20, 2007 the Nunavut Impact Review Board (NIRB or Board) sent out correspondence to Parties that outlined the finalized Scoping List for the Zinifex High Lake Project Proposal.

The final Scope of Assessment is intended to address the potential environmental impacts of the project proposal components on a spatial (geographic extent) and temporal (time frame) scale. As such, the scoping list should address the effects of the construction, operation, modification, decommissioning, abandonment and reclamation of each of the project proposal components. Comments received from parties on January 12, February 9, March 19, and July 13, 2007 were incorporated into the Scoping List and are to be considered and addressed during the technical review of the proposed project.

The NIRB would like to clarify that the environmental assessment of the proposed project activities related to **Section A(c) Mobilization and Shipping** will be limited to the following potential significant impacts taken from the Scoping List (Section B), and only within the spatial boundaries of the Nunavut Settlement Area and Outer Land Fast Ice Zone:

Marine Water and Sediment Quality

- Effect on marine water quality and sediment quality from activities in the marine environment at the Grays Bay dock and through activities associated with shipping

Marine Fish and Fish Habitat

- Effects on marine fish and marine fish habitat from all project activities, including blasting, construction, operation and proposed shipping routes

Marine Mammals and Marine Habitat

- Direct or indirect changes to the marine environment and marine habitat as a result of the proposed shipping activities

Wildlife and Wildlife Habitat

(including but not limited to: species at risk and migratory birds, polar bear and caribou habitat, Critical Wildlife Areas, Migratory Bird Sanctuaries, key marine habitat sites for migratory birds, important bird area sites, International Biological Programme sites, Wildlife Areas of Special Interest, and Protected Areas

- Effect of shipping activities on sensitive wildlife and wildlife habitat

- Changes to the migration of the Dolphin and Union caribou due to potential interaction of the project, including timing of shipping and changes to ice regimes
- Changes to the movement of the Peary caribou across the Peel Sound, Franklin Strait and Bellot Strait coinciding with the timing of shipping and changes to ice regimes as a result of ice breaker supported shipping
- Effects on migratory birds as a result of habitat loss and disturbance at the proposed site facilities, roads, airstrip, dock and shipping routes
- Potential disturbance to waterfowl and seabirds nesting in coastal areas along the proposed routes as a result of wake effects

Landforms and Soils

- Potential shoreline erosion as a result of wake effects and related water quality and habitat disturbance impacts

Cumulative Effects

- Effect on distribution and abundance of marine mammals from shipping activities
- Effects of all proposed shipping routes and frequencies in relation to any existing shipping routes and marine traffic

Transboundary Effects

- Potential transboundary effects due to the proposed shipping route

If you have any questions or concerns, feel free to contact NIRB's Assistant Technical Advisor, Ryan Barry at (867) 983-4615 or rbarry@nirb.nunavut.ca

Sincerely,

(original signed by:)

Kevin Buck
Director of Technical Services

Cc Andrew Mitchell Zinifex (andrewmitchell@zinifex.com)
Colette Spagnuolo · INAC (spagnuoloc@inac-ainc.gc.ca)

Attachments: 070720-06MN082-NIRB Ltr Re Final Scoping List-OT2E

NIRB File No.: 06MN082

July 20, 2007

To: Wolfden High Lake Mine Project Proposal Distribution List

Via email: Wolfden Distribution List

Re: Wolfden High Lake Project Proposal ("Zinifex") Final Scoping List

Dear Parties,

Thank you for the submission of your final scoping comments in regard to the Wolfden High Lake project proposal ("Zinifex") to the Nunavut Impact Review Board (NIRB or Board). Please find attached the final scope for the Wolfden project proposal. The final scope is also available on NIRB's ftp site at:

http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/CURRENT_REVIEWS/06MN082-WOLFDEN_HIGH_LAKE/2-REVIEW/03-SCOPING/

NIRB looks forward to comments from all Parties on the acceptance of the project proposal, including the supplemental information, as a Draft Environmental Impact Statement (DEIS) by July 27, 2007.

For your information, NIRB anticipates that a decision on the acceptance of the proposal as a DEIS will be forthcoming from the Board by July 30, 2007.

Should you have any questions please feel free to contact me at 867-983-4603 or sbriscoe@nirb.nunavut.ca.

Sincerely,

Stephanie Briscoe
Executive Director
Nunavut Impact Review Board

cc: Honourable Jim Prentice, Minister of INAC

1. The Nunavut Impact Review Board's (NIRB's) Guidelines for an Environmental Impact Statement (EIS)

Based on Nunavut Land Claims Agreement (NLCA) and the Nunavut Impact Review Board's ten (10) Minimum Environmental Impact Statement (EIS), the following lists present the Nunavut Impact Review Board's (NIRB's) guidelines for an EIS.

A) Nunavut Land Claims Agreement – Article 12 (Section 12.5.2 a through j)

a) project description, including the purpose and need for the project;

b) anticipated ecosystemic and socio-economic impacts of the project;

c) anticipated effects of the environment on the project;

d) steps which the proponent proposes to take including any contingency plans, to avoid and mitigate adverse impacts;

e) steps which the proponent proposes to take to optimize benefits of the project, with specific consideration being given to expressed community and regional preferences as to benefits;

f) steps which the proponent proposes to compensate interests adversely affected by the project;

g) the monitoring program that the proponent proposes to establish with respect to ecosystemic and socio-economic impacts;

h) the interests in lands and waters which the proponent has secured, or seeks to secure;

i) options for implementing the proposal; and

j) any other matters that NIRB considers relevant.

B) NIRB's 10 Minimum EIS Requirements:

1. Statement of Consultation Principles and Practices

Pre-project consultations with locally affected persons must meet or exceed usual consultation practices in Canada. When at all possible, information about the project must be distributed and comments collected with a view to resolving any differences. Discussions should include, but not be limited to, land uses, policies, resource uses, archaeological areas, infrastructure, and terrain sensitivities. Inuit cultural concerns must be highlighted throughout. All comments from the public must be summarized, documented, and presented in the EIS.

2. Definition of Project

A definition of the project must include a discussion of any connected or down the- road related projects in order to reveal the primary purpose and better understand complex or multi-staged related proposals.

3. Statement of Project's Purpose

Based on the concepts of the precautionary principle and sustainable development, an EIS must contain a statement explaining the need for, and the purpose of the project. Where further economic

development is needed for a given area, the Board expects the deficiencies in the economic status quo to be stated.

4. Anticipated Impacts Analysis
A comprehensive impact assessment must be carried out which includes, but is not limited to, environmental effects that are likely to result from the project in combination with other projects or activities that have been, or will be, carried out. Anticipated impacts include short and long-term, direct and indirect, positive and negative, cumulative, socio-economic, archaeological and cultural impacts. This element of the EIS must include a mitigation analysis that explains how the impacts could be avoided, minimized, cured, eliminated, or compensated.

5. Cumulative Effects Analysis (CEA)
Cumulative effects must be analyzed for all Part 5 Reviews. A project proposal causes a cumulative effect if, when added to other projects in the region, or projects reasonably foreseeable in the region, will cause an additive effect. A comprehensive examination of all cumulative effects must be included in an EIS.

6. Significant Effects Analysis
The Board must be advised of the significant impacts of the project. This should be based upon:

a. the project setting, taking into account the location's unique ecosystemic characteristics; and,

b. the severity of the impacts, taking into account public health, land use plans, protected areas, habitat, or species, public concern, etc.

Ultimately, the Board will decide which effects are significant and report to the Minister accordingly.

7. Project Alternatives
This requirement includes, but goes well beyond, alternative means of carrying out the project that might be economically and technically feasible and the environmental effects of those alternative means. This assessment must include the "no-go" or "no-build" alternative, as well as the "preferred" alternative. The "no-go" alternative is not only a potentially stand-alone option; it also serves as a baseline for comparison with other development alternatives that might reasonably be proposed in the circumstances.

8. Sustainability Analysis
The EIS must contain an analysis of the ability of renewable resources affected by the project to sustain current and future generations in Nunavut and Canada.

9. Monitoring or Post-Project Analysis (PPA)
The purposes of a PPA are to:

a. measure the relevant effects of projects on the ecosystemic and socioeconomic environments of the Nunavut Settlement Area;

b. determine whether and to what extent the land or resource use in question is carried out within the predetermined terms and conditions;

c. provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and,

d. assess the accuracy of the predictions contained in the project impact statements.

10. Transboundary Effect Analysis
Where relevant, an EIS must include an assessment of all significant adverse ecosystemic or socio-economic trans-boundary effects.

11. Any other matters deemed necessary such as (based on Parties' comments):

i. the environmental effects of malfunctions of accidents that may occur in connection with the project, at any stage; and mitigation measures to help lessen any potential impacts;

ii. an evaluation of specific measures that are technically and economically feasible and that would mitigate any significant adverse environmental effect of the project;

iii. an evaluation, including proposed mitigation, potential design strategies, and determination of significance, of the environmental effects of any changes to the project that may be caused by a change in the environment; and,

iv. the need for and requirements of any follow-up program with respect to the project, in order to verify the accuracy of the environmental assessment of the project and determine the effectiveness of mitigation measures taken to mitigate adverse environmental effects.

2. Scope of the Wolfden High Lake Project Proposal

The Wolfden High Lake project proposal (High Lake) was submitted to the NIRB in November 2006. Wolfden requested that the project proposal be considered as an environmental impact statement (EIS) pursuant to section 12.5.2 of the NLCA. The documents were provided to interested Parties and it was requested from Parties to provide comments on the scope of the project proposal, from the perspective of each Party's jurisdiction, whatever that may be, without prejudging a Minister's decision on the project. The NIRB requested that Parties use the Wolfden's Terms of Reference as the basis of their scoping comments.

The following sections provide the final scope of the project proposal based on an internal review of the project and all comments from Parties received to date.

A) High Lake Project Proposal Components

The following is a description of the physical works and undertakings in relation to those works and physical activities that constitute the High Lake project proposal. The environmental assessment should address the construction, operation, modification, decommissioning, abandonment and reclamation of each of the project proposal components listed below. These components of the project proposal have the potential to cause significant adverse effects on the ecosystem, wildlife, or Inuit harvesting activities, and are therefore included in the scope of project.

a. **Grays Bay Dock**, temporary components including:
Two barge landing sites; mooring points; construction camp; fuel/oil storage; fuel dispensing and uploading facilities; maintenance garage; power generation facilities; lay down area; and explosives and detonator storage.

b. **Grays Bay Dock**, operational components including:
Quarry and borrow sources; dock (concrete superstructure) and associated dredging activities; lay down areas (dock and container); equipment, concentrate storage facilities; fuel/oil tank farms; fuel dispensing and uploading facilities; maintenance garage; office complex; power generation facilities; waste water holding tank; potable water storage tank; roads and utility lines; explosives and detonator storage; permanent accommodations; water and waste treatment facilities; water, waste and sediment management structures; communication lines; helicopter pad(s); infrastructure and equipment used to load and unload ships.

c. **Mobilization and Shipping** including:
Vessel and routing options; mobilization of equipment and supplies; and ice breaking activities.

d. **Winter Road from Grays Bay to High Lake Mine Site** including:
Earthmoving, excavation, and grading activities; water withdrawal(s) and associated activities; navigable water crossings; and temporary camp(s) used to construct the road.

e. **All Weather Road from Grays Bay to High Lake Mine Site** including:
Waterway and/or diversion structures; infilling activities; navigable water crossings; quarry and borrow sources; temporary explosives magazine(s); laydown and granular stockpile areas; temporary camp(s) used to construct the road.

f. **Sand Lake Airstrip** including:
1450 m airstrip with future expansion to 2000 m; construction camp, tank farm; generators; wastewater treatment; freshwater intake; all associated navigational aids and infrastructure.

g. **High Lake Mine Site** including:
A/B Zone (pit and underground); D Zone (pit and underground); West Zone (underground); permafrost management; mineral processing; power generation facilities; mine site roads and utilities; ore storage facilities; backfill stockpile; waste rock storage; tailings impoundment facilities; tailings line and emergency catch basins; water, waste and sediment management structures; lime dosing station; water supply structures; camp(s); buildings; lay-down area(s); sewage collection and treatment facilities; solid waste management facilities; landfill; landfarm; incinerator; fuel storage; explosives mixing and/or packaging facilities and magazines and support facilities to be included in a "licensed factory" to be located at the mine site as defined by the *Explosives Act*; quarrying and borrow sources; workforce; stream flow diversions and alternative watercourses; and alterations to watercourses.

h. **Borrow Sources** including:
Quarries, gravel pits and waste rock piles; equipment and activities related to stripping, excavation and crushing of aggregate; stockpiles; access roads; and waste rock and debris.

B) Scoping List for the Wolfden High Lake Project Proposal

The final Scope of Assessment is intended to address the potential environmental impacts of the project proposal components listed above (Section 2, items a-h), on a spatial (geographic extent) and temporal (time frame) scale. As such, the scoping list should address the effects of the construction, operation, modification, decommissioning, abandonment and reclamation of each of the project proposal components on the factors listed below. Comments received from parties on January 12, February 9, March 19, and July 13, 2007 were incorporated into the list below and are to be considered and addressed during the technical review of the proposed project.

Atmosphere, including climate change, air quality and noise factors
- Effect of climate change on the project, including any uncertainty related to climate change predictions
- Effect on air quality due to changes in concentrations of air contaminants from project activities including potential increased levels of dust, acid and nitrogen that may be deposited to the landscape from release of particulate matter and gaseous emissions from project activities
- Increased atmospheric noise levels from project activities at the High Lake mine site, Grays Bay dock, Sand Lake camp, and along the all season weather road and temporary winter road
- Increased marine noise levels from project activities at Grays Bay dock

Hydrology and Hydrogeology
- Changes in surface water quantity (lake levels, stream levels, stream flows) from project activities such as dam construction, water withdrawal, water deposition in High Lake, impoundments around High Lake, and water diversions of various lakes
- Changes in flows and levels of streams and lakes from diversion of streams
- Changes in quantity and direction of runoff and a change in channel regimes from construction and operation of mine facilities
- Changes in groundwater quantity and flow from underground mining
- Changes to groundwater quantity due to deep groundwater connection between proposed tailings impoundment area and the Kennarctic River

- Changes to navigability of watercourses

Groundwater Quality

- Potential for changes in groundwater quality related to acid rock drainage (ARD) from underground mining
- Changes in groundwater quality from underground mining
- Changes to groundwater quality due to deep groundwater connection between proposed tailings impoundment area and Kennarctic River
- Changes in groundwater quality from deposition of tailings and mine inflows into High Lake
- Changes in groundwater quality from closure and post closure of the open pits and underground mines

Surface Water and Sediment Quality

- Changes in surface water quality and sediment quality in surrounding lakes and watercourses from runoff from the project
- Changes in water quality in Kennarctic River from permanent diversions of water from one basin to another
- Effects to surface freshwater quality as a result of the deposition of tailings and mine inflows into High Lake, ARD from waste rock and ore stockpiles, nutrient input from blasting and sewage treatment, suspended sediment as a result of construction activities, and accidents and malfunctions
- Effects of seepage from High Lake, during operations and after closure, as a result of shallow seepage (through or under the proposed dams) and deep groundwater movement (taliks) to the Kennarctic River, Granite Lake (L4) and Lake L15
- Changes to sediment characterization and water quality in the Kennarctic River from the discharge of High Lake water to the Kennarctic River during dam construction and by various subsequent releases during mine operations and closure activities

Freshwater Aquatic Organisms (including fish as defined in the *Fisheries Act* and aquatic species at risk) and Habitat

- Effect on freshwater fish and aquatic life from any changes to surface and ground water quality, quantity or physical habitat
- Direct or indirect changes to fish, fish habitat, aquatic life and aquatic species at risk due to project activities

Marine Water and Sediment Quality

- Effect on marine water quality and sediment quality from activities in the marine environment at the Grays Bay dock and through activities associated with shipping
- Effect on marine water and sediment quality from onshore activities

Marine Fish and Fish Habitat

- Direct or indirect changes to marine fish and marine fish habitat from project activities at Grays Bay, including those causing sedimentation, turbidity, or accidental spills
- Effects on marine fish and marine fish habitat from all project activities, including blasting, construction, operation and proposed shipping routes

Marine Mammals and Marine Habitat

- Effect on marine mammals in Grays Bay from project activities at Grays Bay dock
- Effect on marine mammals in Grays Bay from project activities in Grays Bay area
- Effect on marine mammals due to proposed shipping routes

- Direct or indirect changes to the marine environment and marine habitat as a result of the proposed shipping activities

Wildlife and Wildlife Habitat
(including but not limited to: species at risk and migratory birds, polar bear and caribou habitat, Critical Wildlife Areas, Migratory Bird Sanctuaries, key marine habitat sites for migratory birds, important bird area sites, International Biological Programme sites, Wildlife Areas of Special Interest, and Protected Areas)

- Effect on wildlife behaviour, distribution, and abundance from direct and indirect loss of habitat from presence of infrastructure, project activities, and sensory disturbance
- Effect on wildlife population size from direct mortality to wildlife from project activities including all season road construction and operation
- Effect on health of individual animals and wildlife abundance from project activities that release contaminants
- Effect of shipping activities on sensitive wildlife and wildlife habitat
- Effects on musk-oxen, moose, and wolves due to project activities
- Effects on marine mammals as a result of shipping and associated project activities in the Grays Bay area
- Effects on the Bathurst caribou, Dolphin and Union caribou, and Peary caribou due to project activities and potential cumulative effects with other past, present and reasonably foreseeable projects in the area
- Changes to the migration of the Dolphin and Union caribou due to potential interaction of the project, including timing of shipping and changes to ice regimes
- Changes to the movement of the Peary caribou across the Peel Sound, Franklin Strait and Bellot Strait coinciding with the timing of shipping and changes to ice regimes as a result of ice breaker supported shipping
- Effects on migratory birds as a result of habitat loss and disturbance at the proposed site facilities, roads, airstrip, dock and shipping routes
- Potential disturbance to waterfowl and seabirds nesting in coastal areas along the proposed routes as a result of wake effects

Landforms and Soils

- Effect on abundance and distribution of uncommon or valuable landforms associated with soils from surface disturbances
- Effect on stability, abundance and distribution of permafrost sensitive landforms from surface disturbance activities
- Potential shoreline erosion as a result of wake effects and related water quality and habitat disturbance impacts

Vegetation

- Effect on abundance and diversity of vegetation from project activities causing surface disturbance
- Effect on vegetation diversity from introduction of exotic invasive plants to the region
- Effect on vegetation health from dust and air emissions

Human and Ecological Health

- Effects on human health, through air quality, drinking water quality, atmospheric noise levels and traditional foods

- Potential impacts on worker health and safety, particularly with respect to working in explosives magazines and factories

Socio-Economics
- Socio-economic impact and benefit analysis
- Effect on socio-economic environment from employment, education and training, business opportunities, community economic development, infrastructure, royalties and taxes, social issues, community services, institutional capacity, renewable resources, and cultural sustainability
- Effect on health and community wellness
- Effect on Inuit harvesting activities

Archaeological Resources
- Effect on archaeological resources from ground disturbing project activities at Grays Bay, along the winter and all season roads, at the airstrip and at the High Lake Mine site
- Direct and indirect effect on archaeological resources from increased number of people using the area

Other Factors
The environmental assessment shall also consider the following factors:

- Geology of the entire Project footprint
- Closure and reclamation planning and estimates for security
- Effect of climate change on the project design, including mine waste management
- Effect of thermal status of High Lake on general containment strategy
- Effects of the environment on the Project
- The spatial scope (i.e. geographic extent) of the effects of each project component on the environment
- The temporal scope of the effects of each project component on the environment corresponding to their anticipated lifespan
- All navigable water crossings along the winter and all-season roads, facilities and infrastructure at or in Grays Bay, and various structures associated with the development of the mine site and processing facilities
- Purpose of the project
- Alternatives to, and alternative means of carrying out the Project, and the environmental effects of any such alternative means.
- The capacity of the renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

Cumulative Effects
- Effect on direct or indirect wildlife habitat loss
- Effect on population levels of wildlife Valued Ecosystem Components (VECs) resulting from changes to distribution, abundance, and behaviour through direct habitat loss and indirect changes to habitat, and increased mortality
- Effects on the Bathurst caribou, Dolphin and Union caribou, and Peary caribou due to potential cumulative effects with other past, present and reasonably foreseeable projects in the area
- Effect on distribution and abundance of marine mammals from shipping activities
- Effect on labour force and employment, business and contracting, training and education, drug and alcohol abuse, harvesting activities, and archaeology
- Comprehensive examination of the cumulative effects over a larger area on all VECs

- Effects of all proposed shipping routes and frequencies in relation to any existing shipping routes and marine traffic

Accidents and Malfunctions
- Risk from accidents, such as spills, and malfunctions of project components
- Hazardous materials handling and storage
- Dangerous Goods, Fuel and Explosives
- Emergency Response and Preparedness
- Occupational Health and Safety
- Natural hazards including: extreme weather events; natural seismic events; fire and slope instability

Transboundary Effects
- Potential transboundary effects due to the proposed shipping route

Traditional Knowledge (TK)
- Definition of TK
- Methodology used to collect TK
- Format used to communicate with communities
- Composition of participants
- Location and type of information provided
- Summary of the TK collected
- How TK used in different stages of project preparation
- How past TK used in the preparation of the project

Monitoring/Post Project Analysis
- Effectiveness of measures taken to mitigate adverse environmental impacts
- Verification of predictions made in impact statements
- Closure and reclamation planning and estimates for security