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June 15, 2012

Chuck Hubert Environmental Assessment Officer Mackenzie Valley Environmental Impact Review Board P.O. Box 938 Yellowknife NT X1A 2N6

Sent via e-mail to: <a href="mailto:chubert@reviewboard.ca">chubert@reviewboard.ca</a>

#### RE: Fortune Minerals Ltd. NICO Project, Transport Canada's Technical Report

Please find attached Transport Canada's Technical Report for the Environmental Assessment of Fortune Minerals Ltd.'s proposed NICO Project.

Should you have any questions regarding this submission, please do not hesitate to contact Laura Jones by email at <a href="mailto:laura.jones@tc.gc.ca">laura.jones@tc.gc.ca</a> or by phone at (204) 984-4562.

Sincerely,

Harvey Nikkel

Regional Director, Programs Prairie and Northern Region

Hover reles.

cc. Dale Kirkland, Regional Manager, Programs Doug Soloway, Superintendent - EA North Program Greg Black, NWPP Margaret Zellis-Skiba, ACU - PNR



## **Technical Report**

# Fortune Minerals Ltd.'s NICO Cobalt-Gold-Copper-Bismuth Project (NICO Project) EA 0809-004

Submitted to:
Mackenzie Valley Environmental Impact Review Board

Submitted by: Transport Canada June 15<sup>th</sup>, 2012





#### Non-Technical, Plain Language Summary

Transport Canada helps to make sure that transportation by air, water, road and rail is safe, runs well and does as little harm to the environment as possible. Transport Canada is a responsible minister for the environmental assessment of Fortune Minerals Ltd.'s NICO Cobalt-Gold-Copper-Bismuth Project (NICO Project) because Transport Canada will give approvals for project works that will be built in navigable waterways. Works built in navigable waterways are subject to the *Navigable Waters Protection Act*. Transport Canada regulates these works to make sure that the public's right to navigate is protected. The NICO Project will involve a bridge crossing the Marian River, a water intake in Lou Lake and a water diffuser in Peanut Lake. When approving works like bridges, water intakes and water diffusers under the *Navigable Waters Protection Act*, Transport Canada make sure that the public's right to navigate is protected and that the works are designed and built in a way that prevents safety hazards to navigators.

Fortune Minerals Ltd. has not yet submitted final design plans for proposed works in navigable waterways and has not yet applied for approval of works under the *Navigable Waters Protection Act*. However, based on the information provided to date, Transport Canada does not foresee significant impacts to navigation or navigational safety as a result of the NICO Project. Fortune Minerals Ltd. has committed to providing Transport Canada with updated information as it becomes available and has shown a willingness to cooperate with Transport Canada's requirements to protect the public right to navigate.





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#### INTRODUCTION

#### 1.1 The NICO Project

The Fortune Minerals Ltd.'s NICO Cobalt-Gold-Copper-Bismuth Project (NICO Project) is a proposed underground and open pit cobalt, gold, copper, and bismuth mine and processing plant operation located 160 kilometers northwest of Yellowknife and 50 kilometres northeast of Whati in the Northwest Territories. Average annual production of cobalt and bismuth will be 4 million pounds and 4.2 million pounds, respectively. Notably, NICO will be the largest producer of bismuth in the world. Copper and nickel will also be produced as by-products.

#### 1.2 **Transport Canada's Role**

Transport Canada is responsible for transportation policies and programs that ensure air, marine, road and rail transportation are safe, secure, efficient and environmentally responsible. Transport Canada was granted party status in the environmental assessment of Fortune Minerals Ltd.'s NICO Cobalt-Gold-Copper-Bismuth Project (NICO Project) because Transport Canada is a responsible minister with jurisdiction related to the NICO Project under the *Navigable Waters Protection Act* (NWPA).

Transport Canada's involvement in the environmental assessment has focused on a review of the construction and operation of the proposed clear span bridge crossing the Marian River (Gòlotì Deè) along the proposed all-season NICO Project Access Road; the construction and operation of a water intake from Lou Lake; the construction and operation of a water diffuser into Peanut Lake; and to provide specialist advice to the Mackenzie Valley Environmental Impact Review Board on potential impacts of the development to the public right to navigate. Transport Canada reviews proposed developments in and around Canadian waterways to ensure a balance between the public right of navigation and the need to build works — that is any structure, device, or other thing that may interfere with navigation, such as bridges, dams or docks — in navigable waters.





The *Navigable Waters Protection Act* provides for the prohibition to build works in navigable waters, unless the work has been approved by the Minister of Transport. Approvals of works under the *Navigable Waters Protection Act* outline conditions required to maintain a safe environment for navigation.

Fortune Minerals Ltd. has not yet submitted applications for approval of works under the *Navigable Waters Protection Act* as final design plans are not yet complete. Fortune Minerals Ltd. has committed to providing Transport Canada with updated information as it becomes available and has demonstrated a willingness to cooperate with Transport Canada's requirements to protect the public right to navigate.

#### 1.3 Transport Canada's Review

Transport Canada's technical review for the purposes of the environmental assessment of the NICO Project proposal is divided into two sections: construction and operation of the proposed clear span bridge crossing the Marian River (Gòlotì Deè), and the construction and operation of a water intake from Lou Lake and diffuser into Peanut Lake. The effect evaluated in both sections is the potential impact to navigation and navigational safety. For the purposes of the environmental assessment, Transport Canada has reviewed information provided in: Fortune Minerals Developer's Assessment Report (May 2011) (DAR), Project Description Summary (April 2009), NICO Mine Access – Proposed Bridge, Marian River Crossing report (February 2007) and meeting between Transport Canada and Regulatory and Environmental Affairs, Fortune Minerals Ltd. (May, 2012).





#### **Transport Canada's Recommendations** 1.4

Based on the information provided to date, Transport Canada does not foresee significant impacts to navigation or navigational safety as a result of the NICO Project. Moving forward, Transport Canada recommends that Fortune Minerals Ltd. communicates updates to Transport Canada and does the following:

- Consult with members of the public and aboriginal people who may have concerns related to works requiring Navigable Waters Protection Act approval, if they have not already done so.
- Submit applications for approval under the *Navigable Waters Protection Act* when sufficient design detail for project components such as the proposed clear span bridge crossing the Marian River, the water intake from Lou Lake and water diffuser into Peanut Lake are available. Transport Canada will be able to assess potential impacts to navigation and potential navigational safety hazards after design plans have been finalized and applications have been submitted for approval under the Navigable Waters Protection Act. Conditions outlined in Navigable Waters Protection Act approvals will aim to mitigate potential effects specific to project works.
- Assess final design plans for the proposed water intake in Lou Lake and the proposed diffuser in Peanut Lake and any ancillary, temporary works required for construction of these components or the bridge crossing the Marian River against Transport Canada - Navigable Waters Protection Program's minor works criteria (see Appendices I & II). Risk to navigational safety is low for works meeting the minor works criteria.
- Navigable Waters Protection Program Transport Canada Canada Place 1100-9700 Jasper Avenue Edmonton, AB T5J 4E6

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http://www.Transport Canada.gc.ca/eng/marinesafety/oep-nwpp-menu-1978.htm





# 2 TECHNICAL COMMENTS – BRIDGE CROSSING THE MARIAN RIVER

#### 2.1 Background

Fortune Minerals proposes to construct a clear span bridge structure crossing the Marian River. To minimize disturbance of the Marian River through the generation of sediments, it is proposed that the installation of the 80 metric tonne capacity girder-type Marian River Bridge structure be completed during the winter season. The modular, prefabricated bridge will provide a minimum of 2 m clearance above the 100 year high water mark.

#### 2.2 Documents and Sources Referenced

- Fortune Minerals Ltd. Developers Assessment Report (May 2011) Section
   3.3.1.2 NICO Project Access Road.
- NICO Mine Access Proposed Bridge, Marian River Crossing report (February 2007)
- Meeting between Transport Canada and Regulatory and Environmental Affairs,
   Fortune Minerals Ltd. (May, 2012)

#### 2.3 Proponent's Conclusion

Since the NICO Project Access Road has been reduced in length, the proposed 80 foot Marian River Bridge has been identified as the only navigable water crossing associated with the Project. The conceptual design of the bridge including the abutments in relation to the 100-year high water level and the "survey water level" have been provided in Figure 3.3.1 of the Developer's Assessment Report and Figure 3 of the NICO Mine Access – Proposed Bridge, Marian River Crossing report. An existing portage is in place at the bridge location as this section of the Marian River has rapids depending on water levels. The proponent has provided aerial photos confirming the presence of rapids.





#### 2.4 Transport Canada's Conclusions and Recommendations

Transport Canada has conducted a cursory review of the proposed clear span bridge crossing; our Navigable Water Protection Program is currently conducting a Navigability Impact Assessment for the Marian River. Based on the information provided, Transport Canada does not anticipate the bridge crossing will significantly affect navigational use of the Marian River or pose safety hazards to navigational users of the Marian River.

Vessels currently known by Transport Canada to navigate the river include skiffs and canoes propelled by small motors and paddle crafts. The proposed clearance of over 2m above the 100 year high water level will provide a safe navigational envelope for passage of such vessels.

Winter construction scheduling is ideal as the timing should prevent interference to navigation and safety risks to navigators of the Marian River during bridge construction.

Transport Canada is confident that any significant concerns related to navigation and navigational safety as a result of the bridge construction can be mitigated through conditions identified within a *Navigable Waters Protection Act* approval. Fortune Mineral's Regulatory and Environmental Affairs have been receptive to issues raised by Transport Canada and have committed to gathering the required information for application for approval of works under the *Navigable Waters Protection Act*. Transport Canada has requested that Fortune Minerals Ltd.'s Regulatory and Environmental Affairs group determine whether users of the Marian River have concerns related to the proposed bridge, giving special consideration to aboriginal users of the river. Transport Canada has requested that details of aboriginal consultation be included with applications for approval under the *Navigable Waters Protection Act*, specifically:





- Whether Fortune Minerals Ltd. has provided aboriginal groups with information about any works that will require *Navigable Waters Protection Act* applications.
- Any concerns that aboriginal groups may have related to the works and impacts to navigation and, if applicable, steps taken to address these concerns.
- A list of aboriginal groups Fortune Minerals Ltd. has consulted, including any First Nation, Métis or Inuit groups.
- Consultation logs or records of the consultations with each aboriginal group.





#### 3 TECHNICAL COMMENTS – WATER INTAKE & DIFFUSER

#### 3.1 Background

Section 12 of the Developers Assessment Report summarizes Fortune Minerals Ltd's proposed construction of a water intake structure in Lou Lake and a diffuser at Peanut Lake.

- Treated water from the Effluent Treatment Facility and Sewage Treatment Plant will be pumped through a diffuser directly into Peanut Lake. The diffuser will be positioned west of the entrance of the Lou Lake outlet, entering Peanut Lake from a north-northwesterly direction. The diffuser will have a single port located at a depth of 8.5 m in Peanut Lake.
- The water intake will be set in Lou Lake to provide water for the Plant and the proposed Camp location southeast of the mine. The intake is anticipated to require a working, or nominal, capacity of approximately 12.8 cubic metres per hour (m³/h) to accommodate both plant and domestic uses during operations with a fully-staffed camp. The intake pipe will be installed at a shoreline location on the east side of Lou Lake. The pipe will be installed over the lake bottom and covered with aggregate fill. The aggregate fill and intake pipe will cover an area extending 60.8 m perpendicular from the shoreline by 3 m wide (182.4 m²).
- Installation of the water intake and diffuser will require the use of cofferdams.
   The exact locations, designs, materials and construction methods of cofferdams are unknown at this time.





#### 3.2 Documents and Sources Referenced

- Fortune Minerals Developers Assessment Report. (May 2011). Section 3, Project Description.
- Fortune Minerals Developers Assessment Report. (May 2011). Section 12
   Subject of Note: Fish and Aquatic Habitat.
- Meeting between Transport Canada and Regulatory and Environmental Affairs,
   Fortune Minerals Ltd. (May, 2012)

#### 3.3 Proponent's Conclusion

When exact locations of the water intake, diffuser and coffer dams are determined and final design plans are drafted, Fortune Minerals Ltd. will forward the information to Transport Canada in the form of applications for approval under the *Navigable Waters Protection Act* where applicable.

#### 3.4 Transport Canada's Conclusions and Recommendations

Transport Canada has conducted a cursory review of the proposed intake and diffuser; our Navigable Water Protection Program (NWPP) is currently conducting Navigability Impact Assessments of Lou and Peanut Lakes. Based on the information provided, Transport Canada does not anticipate that the placement of the water intake in Lou Lake or the diffuser in Peanut Lake will significantly affect navigational use or pose safety hazards to navigational users of the lakes. Transport Canada advises Fortune Minerals Ltd. to consult the attached Transport Canada, Navigable Waters Protection pamphlet Minor Works, Water Intakes (see Appendix I of this document). If the conditions outlined in this pamphlet are met, the risk to navigational safety will be low and, accordingly, application(s) for approval under the Navigable Waters Protection Act will not be required. A condition of the minor works designation for water intakes is that no floating pipes shall be left unattended or unsupervised during the construction or placement of the works.





Proposed cofferdams required for the installation of the water intake and diffuser will require application for approval under the *Navigable Waters Protection Act*. Transport Canada is confident that any significant concerns related to navigation and navigational safety resulting from cofferdam construction for the installation of the proposed intake and diffuser can be mitigated through conditions of a *Navigable Waters Protection Act* approval.

Transport Canada also recommends that Fortune Minerals Ltd. consult the attached Transport Canada, Navigable Waters Protection pamphlet Minor Works, Temporary Works (see Appendix II of this document) and evaluate any ancillary temporary works required for the construction of the water intake on Lou Lake and the diffuser at Peanut Lake against the minor works criteria set out in the pamphlet. If the conditions outlined in the pamphlet are met, risk to navigational safety will be low and, accordingly, application(s) for approval under the Navigable Waters Protection Act for the temporary works will not be required. The terms and conditions outlined for temporary works to be considered minor works include specifications to reduce navigational hazards such as placement of works, required high visibility markings and requirements that temporary work structures be removed once work is completed.





#### 4 SUMMARY OF RECOMMEDATIONS

#### 4.1 Consultation:

Transport Canada recommends that Fortune Minerals Inc. consult with members of the public and aboriginal people who may have concerns related to works requiring *Navigable Waters Protection Act* approval. Transport Canada has requested that details of such consultation be forwarded to our Navigable Waters Protection Program for consideration along with applications for approval under the *Navigable Waters Protection Act*.

#### 4.2 All Works In and Around Navigable Waters:

In order to fully assess impacts to navigation and navigational safety posed by the NICO Project, and to prescribe appropriate mitigation measures, Transport Canada recommends that Fortune Minerals Inc. submit applications for approval of works in, on, over, under, through or across any navigable waterway under the *Navigable Waters Protection Act* once design plans have been finalized. Fortune is aware of this requirement and has committed to providing Transport Canada's Navigable Waters Protection Program with information as it becomes available.

#### 4.3 Water Intake and Diffuser:

Transport Canada recommends that Fortune Minerals Inc. assess final design plans for the proposed water intake in Lou Lake and the proposed diffuser in Peanut Lake against Transport Canada Navigable Waters Protection Program's *minor works* criteria for water intakes (Appendix I). Risk to navigational safety is low for works meeting these criteria. If the intake and/or diffuser meet the *minor works* criteria, Fortune Minerals Inc. should forward this information to Transport Canada. If the *minor works* criteria are not met, applications for approval under the *Navigable Waters Protection Act* should be submitted to Transport Canada's Navigable Waters Protection Program and appropriate safety mitigation measures will be determined.





#### 4.4 Temporary Works:

Transport Canada recommends that Fortune Minerals Inc. assess final design plans for any ancillary temporary works required for construction of the proposed bridge, water intake and diffuser against Transport Canada Navigable Waters Protection Program's *minor works* criteria for temporary works (Appendix II). Risk to navigational safety is low for works meeting these criteria. If temporary works meet the *minor works* criteria, Fortune Minerals Inc. should forward this information to Transport Canada. If the *minor works* criteria are not met, applications for approval under the *Navigable Waters Protection Act* should be submitted to Transport Canada's Navigable Waters Protection Program and appropriate safety mitigation measures will be determined.





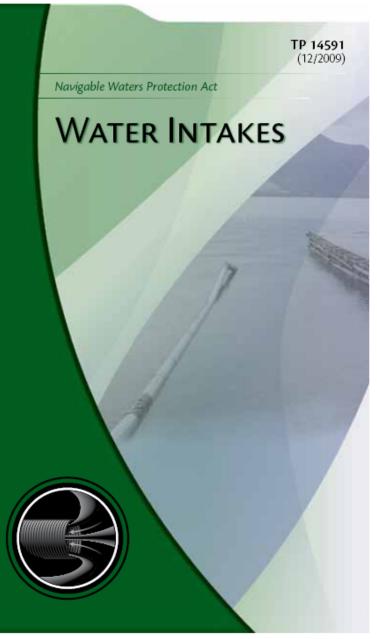
#### **APPENDIX I:**

# MINOR WORKS AND WATERS ORDER FOR WATER INTAKES



ort Transpo a Canada





This brochure outlines the specific standards and criteria under which Transport
Canada considers water intakes as "minor works" and does not require an application
under the Navigable Waters Protection Act (NWPA).

These criteria are based on the terms and conditions outlined in section 8 of the Minor Works and Waters (Navigable Waters Protection Act) Order.

Failure to construct the work in accordance with the standards and criteria identified in this document and outlined in the Order as referenced in section 13 of the NWPA may result in enforcement action.

#### Definitions

Crib: Pieces of timber affixed together to form bays or cells that are filled with stones or concrete.

Berm: A temporary earth-filled structure serving as a work platform or vehicle access to permit the construction of works in navigable waters.

Weir: A low dam or barrier that raises the level or diverts the flow of navigable waters.

Headpond: A reservoir of water created by the construction of a dam or weir.

Navigation channel: Includes a charted channel, buoyed channel or a channel that, based on local knowledge, exists for navigation purposes.

#### When is a water intake considered a minor work?

A water intake project meeting all of the following criteria and standards is considered a minor work and does not require the submission of an application for review and approval under the NWPA if:

- the intake pipe is less than 10 centimetres (cm) in diameter and lies on the bed of the navigable waters;
- 2. the intake end of the work is
  - a. in waters more than 2.5 metres (m) in depth, in the case of uncharted navigable waters, or
  - b. in waters less than 0.5 m, according to chart datum, in the case of charted navigable waters;
- the work is more than 50 m from a navigation channel;
- the work does not include a crib or other intake structure, such as an anchor, a collar or a weight, that extends more than 50 cm above the bed of the navigable waters; and
- the work is not associated with a dam, a weir or a headpond, including a proposed dam, weir or headpond.

## What terms and conditions are imposed on minor water intakes?

For water intakes determined under these criteria to be minor works, the following terms and conditions must be strictly adhered to during construction:

 no floating pipes shall be left unattended or unsupervised during the construction or placement of the works.

#### NOTE

If your project involves temporary works, these works may be subject to the criteria listed in section 10 of the Minor Works and Waters Order and referenced in the Transport Canada publication Temporary Works (TP 14893).

You should note that other laws and regulations may be applicable to your project.

For more information, visit Transport Canada's website at http://www.tc.gc.ca/marinesafety/oep/nwpp/menu.htm or call 1-877-842-5606.

#### A Minor Work

istorically, many projects pose no threat to the ongoing safety of navigation if positioned and constructed in accordance with specific standards and criteria. Such projects are considered by Transport Canada as minor works and, as such, no application under the NWPA will be required.

The NWPA is a federal law designed to protect the public right of navigation. It ensures that works constructed in navigable waters are reviewed and regulated to minimize the overall impact on navigation.

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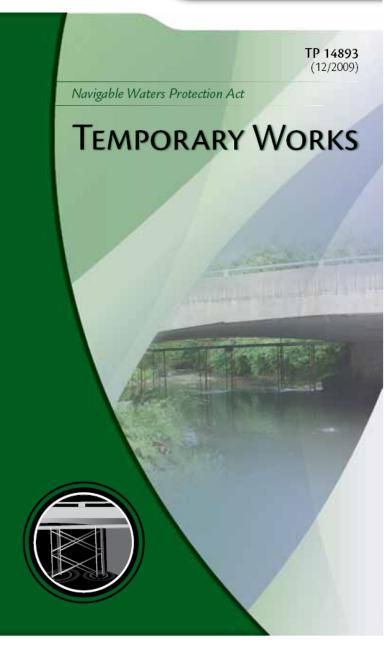
#### **APPENDIX II:**

# MINOR WORKS AND WATERS ORDER FOR TEMPORARY WORKS



rt Transpo Canada





This brochure outlines the specific standards and criteria under which Transport Canada considers temporary work projects to be "minor works" and does not require an application under the Navigable Waters Protection Act (NWPA).

These criteria are based on the terms and conditions outlined in section 10 of the Minor Works and Waters (Navigable Waters Protection Act) Order.

Failure to construct the work in accordance with the standards and criteria identified in this document and outlined in the Order as referenced in section 13 of the NWPA may result in enforcement action.

#### **Definitions**

Navigation channel: A charted channel, a buoyed channel or a channel that, based on local knowledge, exists for navigation purposes.

## When is a temporary work project considered a minor work?

Temporary works that are required for the construction or placement of any other work determined to be a minor work *are also considered* minor works and *do not require* the submission of an application for review and approval under the NWPA, unless the temporary works:

- are roads, bridges, dams, cofferdams, berms or booms;
- 2. change the course of the navigation channel in the navigable waters;
- 3. cross more than halfway from one side of the navigable waters to the other side; or
- are in, on, over, under, through or across a navigation channel.

# What terms and conditions are imposed on a minor temporary work?

For a temporary work determined under these criteria to be a minor work, the following terms and conditions must be strictly adhered to during construction:

- A) vessels shall be allowed safe access through the work site at all times and shall be assisted as necessary;
- in the case of temporary works that are on, over or across navigable waters, the temporary works shall, from dusk to dawn and during periods of restricted visibility, be marked with yellow flashing lights that are:
  - (i) located on the end of the works furthest from the nearest bank or shore of the waters, if the works are not more than 3 metres (m) in length,
  - (ii) located on each end of the works, if the works are more than 3 m in length but not more than 30 m in length, or
  - (iii) located on each end of the works and on any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length, and

C) in the case of temporary works that are in or through navigable waters, the temporary works shall be marked with cautionary buoys that meet the requirements of the *Private Buoy Regulations*, are lighted from dusk to dawn and during periods of restricted visibility, and are:

- (i) located on the end of the works furthest from the nearest bank or shore of the waters, if the works are not more than 3 m in length,
- (ii) located on each end of the works, if the works are more than 3 m in length but not more than 30 m in length, or
- (iii) located on each end of the works and on any other location on the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

Terms and conditions on completion of construction or placement of the temporary work are as follows:

- A) the temporary work shall be completely removed;
   and
- B) if the temporary work disturbed the bed of the navigable waters, it shall be restored to its natural contours.

#### NOTE

You should note that other laws and regulations may be applicable to your project.

Your temporary work project *may* be subject to the criteria listed in sections 2-9 of the *Minor Works and Waters Order*.

If your temporary work project is associated with the following minor works listing, please refer to the pertinent minor works publications below:

- · Winter Crossings (TP 14590)
- · Water Intakes (TP 14591)
- · Submarine Cables (TP 14592)
- · Pipeline Crossings (TP 14593)
- · Erosion Protection Works (TP 14594)
- Docks and Boathouses (TP 14595)Aerial Cables (TP 14596)
- · Dredging (TP 14597)

For more information, visit Transport Canada's website at http://www.tc.gc.ca/marinesafety/oep/nwpp/menu.htm or call 1-877-842-5606.

#### A Minor Work

istorically, many projects pose no threat to the ongoing safety of navigation if positioned and constructed in accordance with specific standards and criteria. Such projects are considered by Transport Canada as minor works and, as such, no application under the NWPA will be required.

The NWPA is a federal law designed to protect the public right of navigation. It ensures that works constructed in navigable waters are reviewed and regulated to minimize the overall impact on navigation.

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