



# Aboriginal Affairs and Northern Development Canada (AANDC)

## Public Hearing Presentation

**Fortune Minerals Limited**  
**NICO Project**  
**MVEIRB EA0809-004**

Yellowknife, NWT  
August 29, 2012





# Presentation Outline

Three main areas of concern discussed in AANDC  
Technical Report:

1. Site Specific Water Quality Objectives (SSWQOs)
2. Aquatic Effects Monitoring
3. Closure and Reclamation



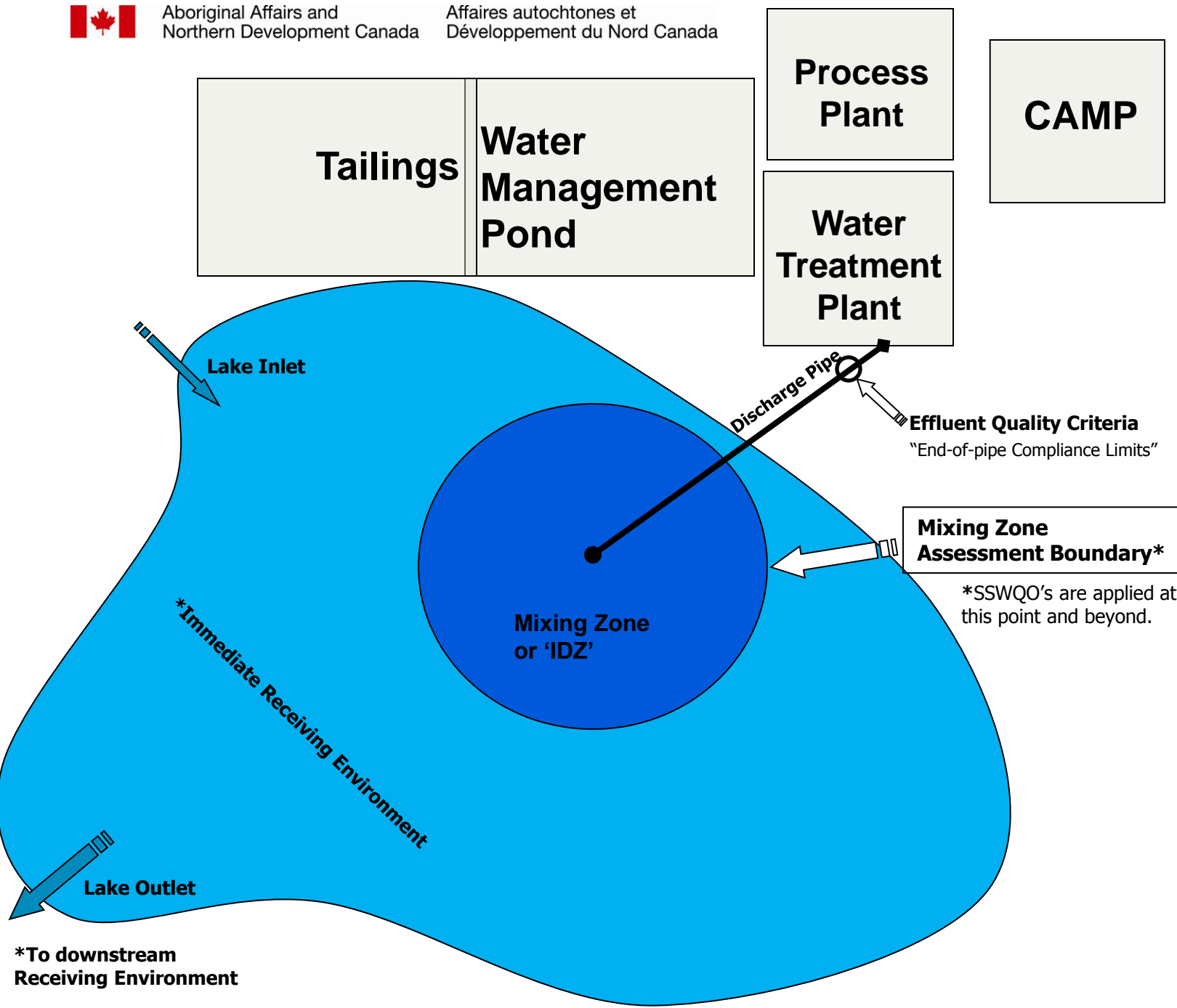
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# Site Specific Water Quality Objectives

- SSWQOs are the “standard” for water at an assessment boundary. They define the level of protection afforded a waterbody downstream of a development.





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# SSWQOs

## Recommendation:

***AANDC recommends that SSWQOs be achieved at the edge of a defined mixing zone within Peanut Lake.***

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# SSWQOs

- Fortune has used overly conservative assumptions for dusting when predicting the quality of water in the downstream environment.
- Setting SSWQOs to levels that are readily achievable using Best Management Practices will minimize the potential effects to water quality, and will provide a higher level of confidence that the downstream aquatic ecosystem, including the Marian River, will be protected.



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# SSWQOs

## Recommendations:

***AANDC recommends that final SSWQOs are based upon the use of the downstream aquatic environment, now and into the future. This could be achieved through consideration of:***

- ***Natural background concentrations.***
- ***Existing human use of the water (such as for drinking or fishing).***
- ***Assimilation/mixing capacity.***
- ***Long-term Chronic Toxicity exposure in the receiving environment,***
- ***Single and joint-action toxicity of analytes being released,***
- ***Degradation, transport and sequestration mechanisms.***
- ***Chemical characteristics that modify toxicity (such as hardness, pH, organic matter, etc.).***
- ***Protecting ecosystem diversity which will provide protection for critical species such as ecological "keystone" species.***



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# SSWQOs

- In accordance with concepts and policies, the derivation of SSWQOs should follow these steps:
  1. Practically achievable concentrations by source control or treatment (i.e. Best Management Practices)
  2. CCME WQG-PAL or existing background concentrations
  3. CCME derivation processes
  4. Review of available toxicity literature or developing new toxicological information
  5. Conducting ecological risk assessments







# SSWQOs

## Recommendations:

***AANDC recommends that Site Specific Water Quality Objectives derived for the Fortune NICO Project should, as a first step, consider the practically achievable concentrations demonstrated for the RO effluent treatment system, existing background concentrations as well as available CCME Guidelines for the Protection of Freshwater Aquatic Life. Following this, derivation of SSWQOs from a review of available toxicity literature and/or developing new toxicological information, conducting of ecological risk assessments, etc. could be considered.***



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# SSWQOs

- If numerical SSWQOs cannot be agreed to then narrative statements (i.e. qualitative objectives) regarding the level of protection for the downstream environment should be included as Measures in the Report of EA.



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# SSWQOs

## Recommendation:

***AANDC recommends that the Report of EA should include narrative statements that describe the level of protection to be afforded to the aquatic receiving environment downstream of the Initial Dilution Zone. These statements could include:***

- ***Water quality changes due to mining activities will not significantly affect benthic macro-invertebrate and plankton abundance, taxonomic richness or diversity.***
- ***Water quality changes due to mining activities will not significantly alter fish abundance or diversity or fish consumption at current levels.***
- ***Water quality changes due to mining activities will not negatively affect areas utilized as traditional drinking water sources.***
- ***Water quality changes due to mining activities will not significantly affect mammals or wildfowl using the area as a drinking water, food source or habitat, or the current ability for people to harvest these animals.***
- ***Water quality in the Marian River remains unchanged.***



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# Aquatic Effects Monitoring

- The Developer is responsible for monitoring and assessing the impacts of their project on the aquatic environment, and adapting their project to minimize impacts. AANDC has developed the Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories (2009).
- Fortune's proposed monitoring program will follow the requirements of the Metal Mining Effluent Regulations and will refer to AANDC's AEMP Guidelines "as appropriate".



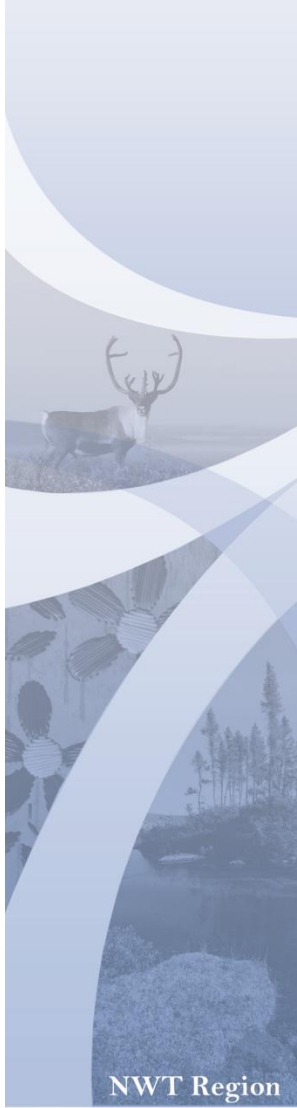
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# Aquatic Effects Monitoring

## Recommendation:

***AANDC recommends that Fortune Minerals Limited be required to follow the "Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories, June 2009" in the development of its Aquatic Effects Monitoring Program, action levels, and related management response framework for the NICO Project.***



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# Closure and Reclamation

- AANDC developed the Mine Site Reclamation Policy for the Northwest Territories in response to a number of instances where the Crown assumed environmental liability of a site due to insolvency and subsequent abandonment of a mining property.
- The Policy contains a number of principles, including:
  - Mining companies or their future owners should continue to be responsible for remediation of a site;
  - Reclamation security will be equal to the total outstanding reclamation liability; and
  - Mine sites should be returned to viable and self sustaining ecosystems compatible with a healthy environment and with human activities.





# Closure and Reclamation

- AANDC has also developed the Mine Site Reclamation Guidelines as a companion document to the Reclamation Policy.
- A key concept of the Reclamation Guidelines is to:
  - “Design for Closure and Reclamation”
- The main intent of the Policy and Guidelines is:
  - “Ensuring that the site is left in a condition which will minimize or eliminate long-term care and maintenance requirements.”



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# Closure and Reclamation

- AANDC 's position is to eliminate the requirements for closure maintenance and monitoring as soon as possible once mining ceases. To do so for the NICO Project:
  - Active filling should occur following closure to address any potential issues with water quality in a reasonable time period following completion of mining.
  - Contingencies options should be developed to deal with pit water, if water quality has the potential to cause adverse effects during the post-closure period.
  - Work should be undertaking during regulatory phase and in the early years of mine operation to confirm parameters around active filling, including additional assessment and prediction of the potential pit water quality at closure.



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# Closure and Reclamation

## Recommendations:

***AANDC recommends that active flooding of the open pit be the preferred closure scenario for the Fortune NICO Project, unless additional information collected during the operations phase of the project determines that the passive filling scenario provides significant advantages, beyond financial benefit, from a closure perspective.***

***AANDC recommends that a key element of the closure planning process, during operations, should be to identify and develop methods to eliminate the need for passive or active long-term treatment of water leaving the site post-closure.***





## Concluding Remarks

- The location of the proposed Fortune NICO Project is within an area currently used by the Tlicho people for traditional activities.
- Any effects of the proposed project during operation and post-closure should be limited such that they do not significantly impact the usage of this area by the Tlicho people.
- AANDC's recommendations relate to minimizing potential impacts of this proposed development both in magnitude (size) and temporal extent (time), with the goal of minimizing or eliminating impacts to traditional use of this area.





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# Thank you.



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