



FORTUNE
MINERALS LIMITED

NICO COBALT-GOLD-BISMUTH-COPPER PROJECT

Technical Scoping Session Environmental Overview



INTRODUCTION

- Screening level environmental impact assessment provided in application package
- Many of the potential impacts of the mine can be assessed and mitigated through existing methods
- NICO project has many unique features not seen in previous environmental assessments
- This presentation will focus on the key features of this project that should be considered during the environmental assessment process



1998-2009 ENVIRONMENTAL STUDIES



- Environmental baseline studies have been conducted in the region of the mine and along the proposed access road corridor including:
- Fish & fish habitat
- Wildlife biology
- Water quality
- Sediment quality & Benthic invertebrate survey
- Soils & vegetation mapping
- Groundwater & rock geochemistry
- Hydrology & wetlands assessments
- Meteorology & air quality
- Noise
- Archaeology
- Community consultation



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TERRAIN

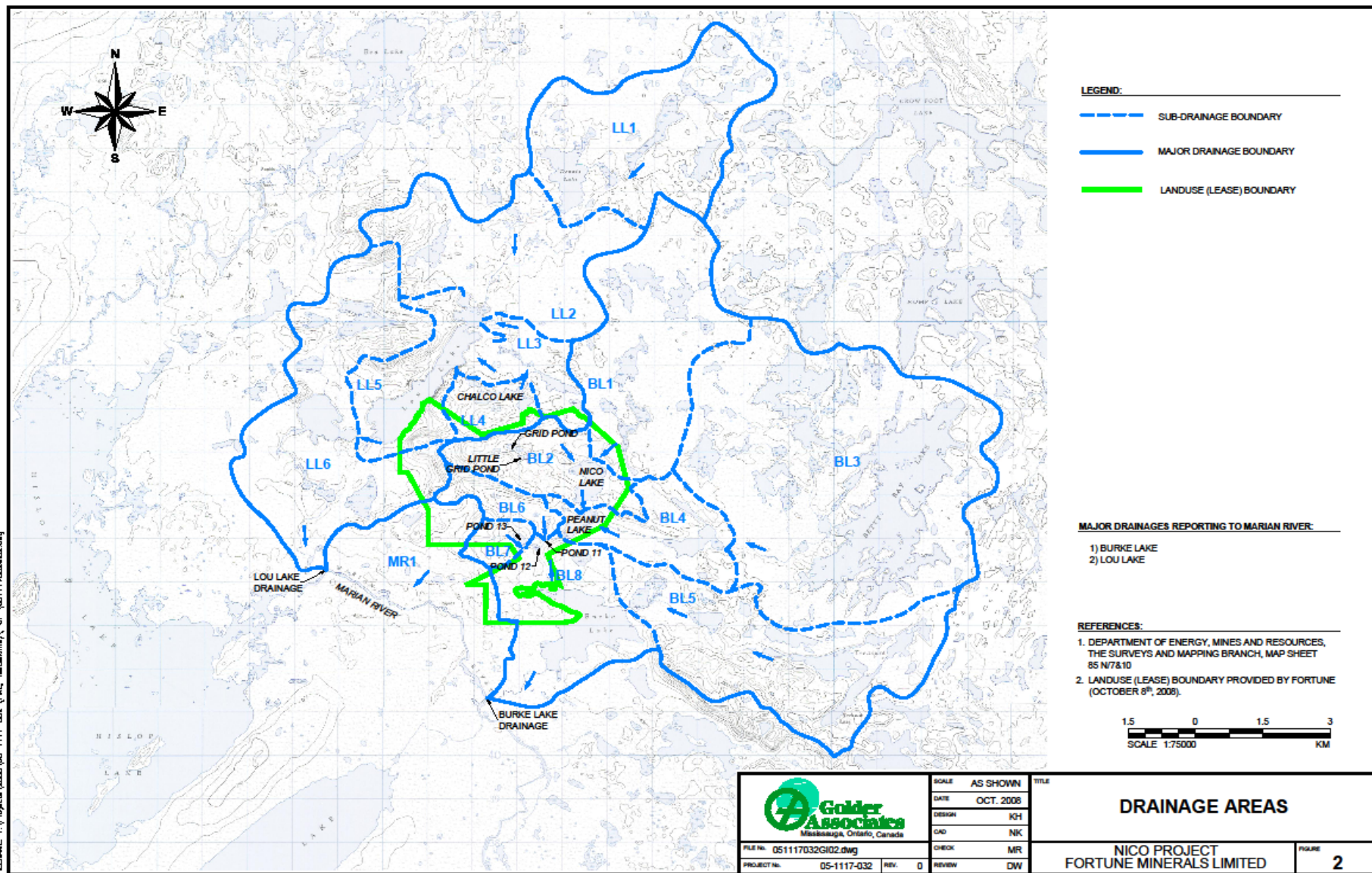


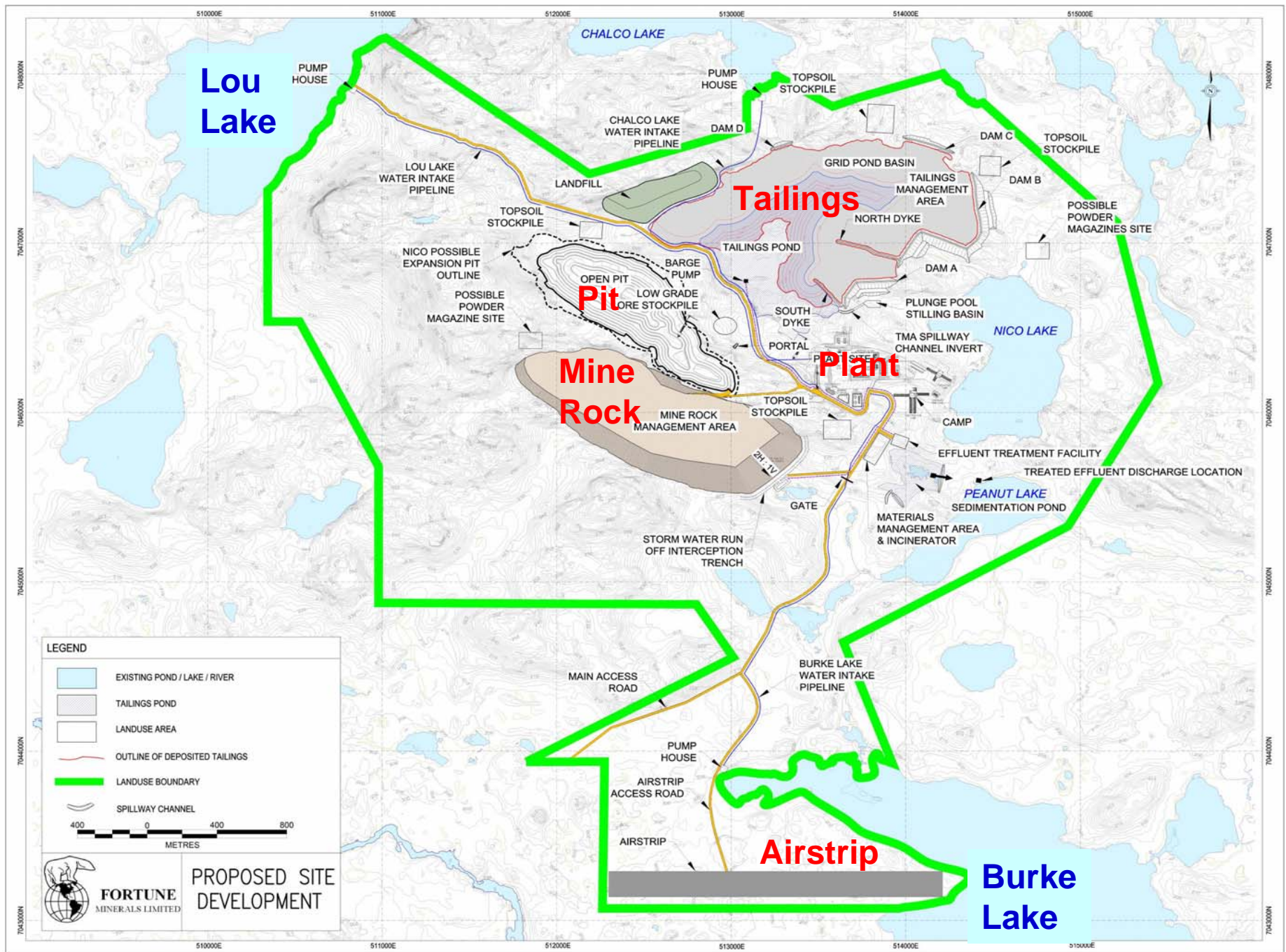
- NICO site is located in hilly terrain that has influenced mine design
- Both the tailings impoundment & mine rock management area are located within areas of natural containment
- Open pit is located on top of large hill which limits groundwater issues
- Terrain features will influence air quality modelling



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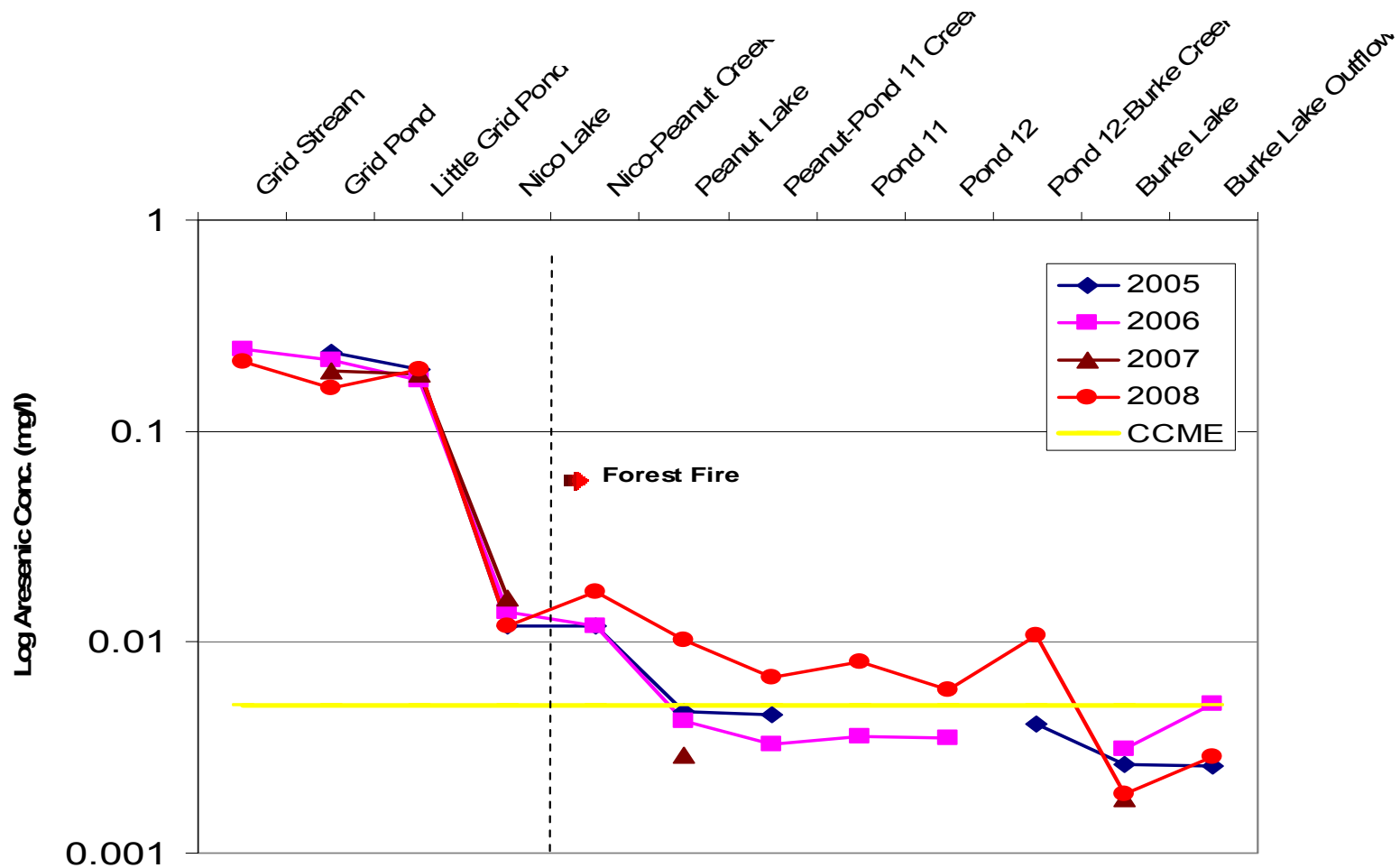
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WATER ARSENIC LEVELS IN BURKE LAKE WATERSHED

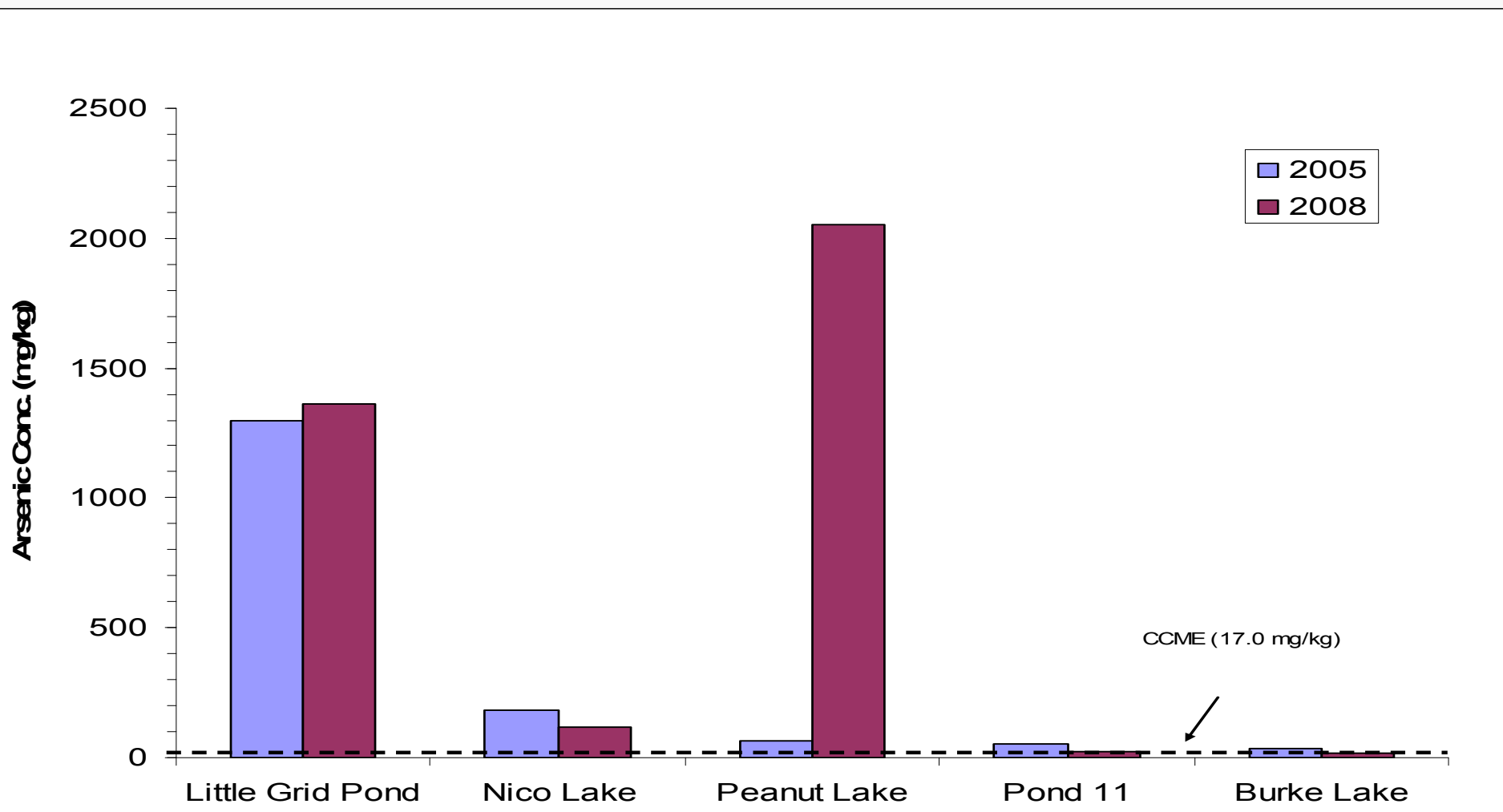




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PRE AND POST-FOREST FIRE SEDIMENT ARSENIC LEVELS





FISH AND FISH HABITAT

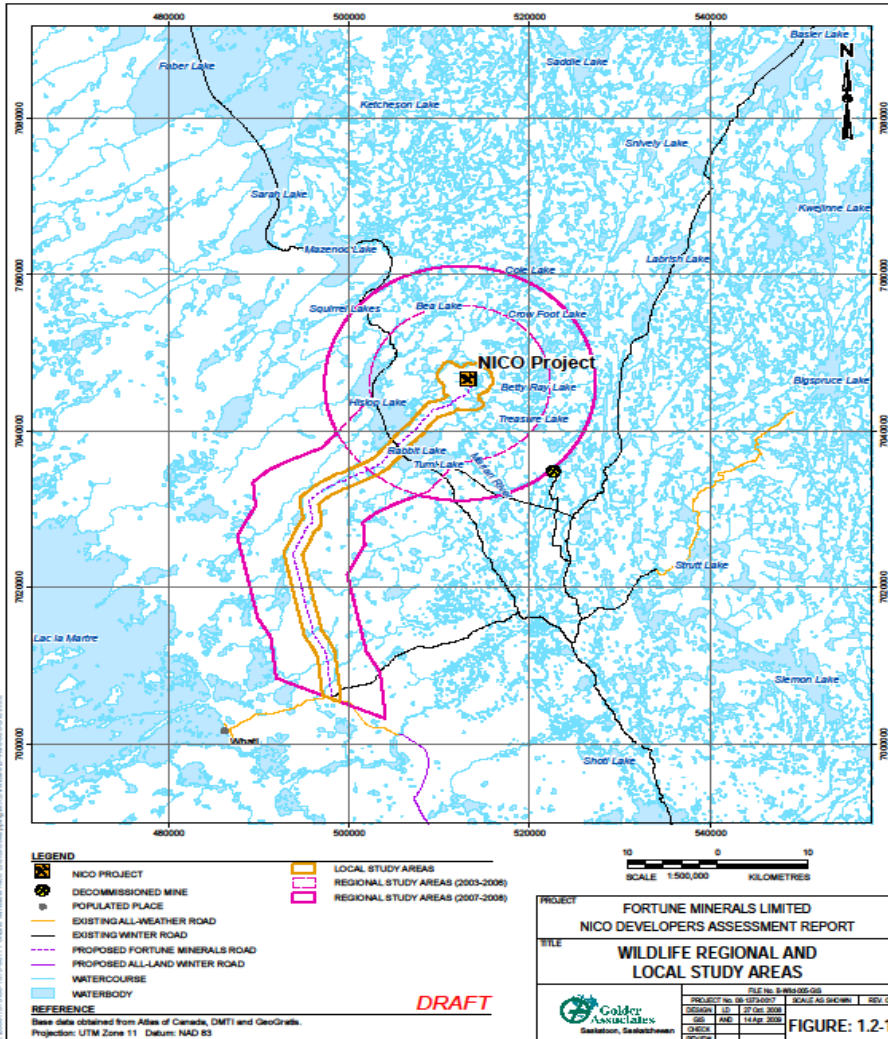
- Grid Pond and Little Grid Pond are the only water bodies that will be permanently lost
- Both are non-fish bearing and have high levels of arsenic (~200 µg/L)
- Effluent treatment facility will use a polishing pond constructed from a non-fish bearing wetland
- NICO Lake has a marginal fish community
- Late winter dissolved oxygen levels in Nico, Peanut and Burke Lakes are low
- Peanut Lake (proposed effluent discharge point) traditionally has had a good pike/lake whitefish community
- Catch-per-unit-effort dropped after 2008 forest fire
- Fortune will re-examine this fish community in 2009



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WILDLIFE



- Collared caribou data was used in conjunction with other techniques to monitor caribou movements
- The RSA was used by wintering collared caribou cows from the Bathurst herd in two years (1998 & 2004) & was close (within 50 km) in seven other years (1996, 1999, 2000, 2005, 2006, 2007 & 2008)
- Winter track count survey results were similar
- Other species within RSA were typical of the northern boreal forest



CARIBOU

- Currently, caribou resource selection functions (RSF or habitat modelling) have been developed in the NWT for each primary seasonal range, except winter.
- Because the NICO Project is within the winter range of the Bathurst herd, developing RSFs for the winter range will be the basis for determining the cumulative and incremental effects from the NICO Project on caribou.
- Project specific & cumulative effects analysis will be completed on both direct and indirect habitat changes



WILDLIFE-ASSESSMENT CONSIDERATIONS

- Potential impacts include habitat loss, direct mortality & exposure to contaminants
- Approximately 400 hectares (conservative estimate) of wildlife habitat of varying quality will be lost during operations
- No unique or rare habitats will be lost
- 2008 forest fire will have an influence on habitat quality surrounding the mine for a considerable period
- Effects of road traffic through the movement of staff & materials will be assessed
- Risk assessment on potential for effects to wildlife is being completed



DEVELOPMENT OF MANAGEMENT PLANS

- Final designs, construction methods, and operating practices (management plans) are being developed and will benefit from feedback obtained through the EA process
- Fortune is reviewing management plans from current and past NWT mining operations to determine accepted/anticipated standards
- Fortune will continue to update its plans for mine development as the project proceeds through the EA and water licensing processes



MANAGEMENT PLANS IN PROGRESS

Fortune is currently developing the following plans including:

- Mine rock management (includes ARD)
- Tailings management
- Site water and effluent management (includes ammonia)
- Waste management (includes hazardous waste)
- Air quality management
- Conceptual closure and reclamation
- Aquatic Effects Monitoring Plan (AEMP)
- Wildlife monitoring plan
- Human resources and consultation plan



WATER USAGE

- The water requirement for the mill plant operation at full capacity will average 13,900 m³/day of which 7,800 m³/day will be recycled to the process
- This represents an internal recycle rate of approximately 56%
- Use of decant water in TSF will reduce water requirement
- As a result, the net draw and discharge would be approximately 6,100 m³/day
- Discharge will only occur during open water season (~ 6 months)
- The camp water requirement will be approximately 1,100 m³/day in normal operations
- Potable water will be drawn from Lou Lake & process water will come from both Lou & Burke Lakes
- The intakes will meet DFO specifications



EFFLUENT TREATMENT FACILITY

- Cyanide destruction will occur in slurry, in the process plant, by the SO₂-Air process or **Combinox™** prior to discharge to the TMA.
- The ETF will add ferric sulphate & lime to the effluent to remove arsenic & other metals, & control pH.
- Effluent from the ETF will pass through a polishing pond from which it will discharge into Peanut Lake.
- NICO will also operate a sewage treatment plant to process domestic sewage produced from the camp & mine site, discharging the effluent to the TMA
- Effluent discharge criteria from recent water licenses issued in the NWT & Nunavut are being used for the preliminary design of the ETF



MINE ROCK MANAGEMENT

- During the construction phase, a 10 Mt pre-strip program will be conducted in the open pit to remove overburden rock from above the ore body
- A portion of the rock excavated during this phase will be used to construct site roads & the dam structures of the tailings management area
- Use of a quarry is an option is rock unsuitable
- The operation is expected to generate approximately 81 Mt of mine rock
- Runoff from the MRMA will be captured with a diversion ditch & directed into a collection sump where it will be pumped or flow by gravity to the ETF (if required)



MINE ROCK MANAGEMENT (CONTINUED)

- The results of geochemical testing indicate that the majority of the mine rock will be non-acid generating, with a low potential for release of dissolved metals
- Results of leach extraction tests, seep samples & field cells indicate that arsenic concentration in seepage from the some mine rock may exceed receiving water standards
- Rock containing elevated metal levels will be segregated & not utilized for construction materials.





TAILINGS MANAGEMENT AREA

- The TMA will have the capacity to store the anticipated total tailings production of 13.8 Mm³ (22 million tonnes) at a rate of 1.7 Mt/year
- Tailings deposition will primarily be sub-aqueous
- The mini-pilot plant and pilot plant allowed for the creation of representative tailings
- Stability of tailings generated by the pilot plant, waste rock & ore when exposed to ambient conditions is being studied
- The experimental set-up will simulate an un-flooded tailings deposition
- The test work will assess leaching characteristics of the tailings when exposed to ambient oxygen & rainfall
- These results will be correlated to previous work completed in controlled environments & utilized for predictive modeling of the TMA



Traditional Ecological Knowledge

TEK is an important part of the information needed to understand the potential effects of a project on the environment

The TEK study involves:

- Interviews and mapping sessions with elders & other community members about their knowledge of the land, wildlife, vegetation & culturally important sites in the Project area
- Site visits have been conducted to collect site specific information
- Community will review of information collected during the study for validation
- TEK studies are on-going & this information will be considered during the assessment process





SOCIO-ECONOMIC

- A portion of the socio-economic impact assessment will be completed through an interview process that includes Tłıchǫ, North Slave Métis Alliance & Yellowknife Dene representatives
- Road access to the mine will allow for shorter work rotations
- This will decrease potential changes to family life & traditional land use practices

Benefits of the project will include:

- Direct and indirect employment & income for local residents
- Opportunities for local businesses
- Opportunities for increased education & training
- Improved infrastructure & residency in nearby communities (e.g. Whatì)



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Masi Cho – **THANK YOU**