



NICO PROJECT, NT

Fortune Minerals Limited

PROJECT DESCRIPTION SUMMARY

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TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
TABLE OF CONTENTS.....	i
1.0 INTRODUCTION	1
2.0 ADVANCED EXPLORATION PROGRAM	1
3.0 BASELINE ENVIRONMENTAL PROGRAMS.....	1
4.0 OVERVIEW OF PROPOSED MINING OPERATIONS	2
5.0 MILL AND ORE PROCESSING FACILITIES.....	4
6.0 MINE WASTE MANAGEMENT, INCLUDING WASTE ROCK, TAILINGS AND SOLID WASTES	4
7.0 PROJECT DESIGN ALTERNATIVES.....	5
8.0 WATER USAGE	6
9.0 WATER MANAGEMENT AND EFFLUENT TREATMENT.....	6
10.0 CAMP	7
11.0 WASTE MANAGEMENT.....	7
12.0 EMPLOYMENT	7
13.0 ECONOMIC DEVELOPMENT AND SUSTAINABILITY	8
14.0 SITE ACCESS	9
15.0 CLOSURE AND RECLAMATION OF THE SITE	10

LIST OF FIGURES

- Figure 1 Project Study Area..... in order following the text
- Figure 2 Drainage Areas
- Figure 3 Natural Topography and Exploration Program Facilities
- Figure 4 Proposed Site Development
- Figure 5 Proposed Government of the Northwest Territories All-land Winter Road
Re-alignment Route and Fortune All-weather Road Route

1.0 INTRODUCTION

This document is a summary of the project description (PD) for the Fortune Minerals Limited (Fortune) NICO Gold-Cobalt-Bismuth-Copper mine project currently in the initial stages of the Environmental Assessment (EA) process for permitting of the mine. The water license and land use permit applications and mine questionnaire, currently on file with the Mackenzie Valley Environmental Impact Review Board, provide more detailed accounts of the plans to develop this property. Fortune will continue to update its plans for mine development as the project proceeds through the EA and water licensing processes.

Fortune Minerals Limited is a Canadian mineral development company based in London, Ontario, with a satellite office in Behchokò, Northwest Territories (NT). Fortune owns a number of mineral deposits in Canada, including the NICO Gold-Cobalt-Bismuth-Copper deposit located in the NT, approximately 160 kilometres (km) northwest of Yellowknife and 80 km north of the Tłı̨chʼı̨ community of Behchokò (Figure 1). Water originating at the NICO property flows through Tłı̨chʼı̨ lands and ultimately drains into the Marian River which flows south into Marian Lake and Great Slave Lake (Figure 2).

2.0 ADVANCED EXPLORATION PROGRAM

Approximately \$70 million has been spent to date at the NICO site to assess the economic viability of the project. This included: an exploration program that drilled greater than 60,000 metres during a period of 11 years, preparation of a positive bankable feasibility study, an underground test mining program, environmental baseline data collection, a pilot plant proving the process methods and production of high quality metal products.

Underground test mining program was completed in 2007. In 2008, no exploration activities took place at the NICO site. The locations of the current exploration project elements are shown on Figure 3. These include: the portal; underground decline ramp; vent raise; waste rock pile and adjacent waste rock pad; three consolidated ore piles in two areas; four settling ponds; shops and administration trailers; two explosive magazines; an old and new camp; and, eight fuel tanks. A small geotechnical/condemnation drilling program is planned for the summer/fall of 2009.

3.0 BASELINE ENVIRONMENTAL PROGRAMS

Fortune has been collecting baseline environmental data for the NICO site and surrounding area since 1998. This baseline environmental data is being consolidated for use in the EA process. Studies have included:

- fish and fish habitat including benthic invertebrate surveys;
- wildlife (*e.g.* winter track count, winter aerial surveys, spring breeding bird, raptor and waterfowl surveys);
- water quality in the lakes and streams near the NICO site and in the Marian River;
- sediment chemistry;
- soils and vegetation mapping;
- groundwater;
- ore, waste rock and representative tailings geochemistry studies;
- hydrology;
- wetlands assessments;
- meteorology and air quality;
- noise;
- archaeology;
- Traditional Ecological Knowledge interviews;
- socio-economic baseline interviews; and,
- community information sessions

Baseline environmental programs such as water quality and sediment chemistry monitoring will continue in 2009 to assess the effects of the 2008 forest fire on the local environment.

Tłıchǫ citizens and members of the North Slave Métis Alliance have participated in several of these surveys. Fortune will continue in its efforts to include local residents in baseline environmental studies.

4.0 OVERVIEW OF PROPOSED MINING OPERATIONS

The facility designs, construction methods, and operating practices described in this document are based on the current level of engineering studies. Final designs, construction methods, and operating practices will be developed from detailed engineering undertaken during the final feasibility stage, and will benefit from feedback obtained through the EA process. However, the designs, construction methods, and operating practices described herein are considered sufficient to assess potential environmental effects and classify impacts of the NICO project on the environment. Changes to the PD resulting from ongoing consultation and engineering optimization are expected to maintain or enhance environmental performance.

Mining will be primarily by open pit with a combination of underground and open pit during the first two years of operations. Ore reserves totaling 21.8 million tonnes (Mt) have been identified and are sufficient for a planned 15 year mine life at an annual processing rate of approximately 1.7 Mt per year. The ore body at NICO generally occurs in three subparallel zones of ironstone (composed of iron rich biotite and amphibole), magnetite, and hematite and feldspar (with or without chlorite and carbonate). The deposit is hosted within a 200 metre (m) thick package of northwest-striking and northeast-dipping metasedimentary rocks (schist and greywacke) at moderate angles. The zones range from 20 to 60 m thick and occur below a surface area measuring 1400 by 300 m.

The underground mining operation will use the existing decline ramp and crosscut/drift development. Dimensions of the open pit will be approximately 1,340 m long by 460 m wide and 230 m deep. Mine rock from the open pit will be stored in the Mine Rock Management Area (MRMA) south of the open pit. During the construction phase, a 10 Mt pre-strip program will be conducted over the open pit to remove overburden rock from above the ore body. A portion of the rock excavated during this phase, shown to be suitable, will be used to construct site roads and the dam structures of the tailings management area (TMA). A geochemistry program is currently assessing the suitability of mine rock for various construction purposes.

The NICO mine will include a number of project elements (site infrastructure) to be constructed (Figure 4). All project elements are within Fortune's claim lease boundaries. Site infrastructure will include:

- mine (open pit and underground access portal);
- processing facilities;
- TMA;
- MRMA;
- service complex and mine equipment management building;
- a camp for workers;
- power generation and heat recovery facilities;
- effluent treatment facility (ETF);
- transportation routes around site;
- waste management facilities;
- roads within the mine site;
- an airstrip;
- water run-off collection (interception) trenches and sediment collection ponds;

- pump house and water intake; and,
- fuel, chemical, and explosives storage facilities.

Facilities and service systems related to underground and open pit dewatering, fuel storage, ammonium nitrate storage, ammonium nitrate/ fuel oil production and mobile plant maintenance (truck shop) will be constructed in association with the mining activities.

Power will be supplied by diesel generators. Hydroelectric power will be used to supplement diesel power generation when, and if, it becomes available. No electrical transmission line to the NICO site is being proposed at this time.

5.0 MILL AND ORE PROCESSING FACILITIES

The mill will perform standard crushing followed by ball mill grinding. There will be two flotation circuits producing bismuth and cobalt concentrates, which are processed in two separate hydrometallurgical circuits. These circuits consist of pressure acid leaching/precipitation/ion exchange/electrowinning (for cobalt) and chloride leaching/electrowinning/cementation (for bismuth). Copper cement or metal is produced as a by-product. Processed residues are treated for gold recovery using cyanidation. Cyanide used in the recovery of gold, will be neutralized prior to release from the process plant to the tailings, using the well-known SO₂-Air process. Most of the arsenic in the tailings from metals recovery will be converted to scorodite, a stable form of hydrated iron arsenate that does not leach arsenic. Products from the mill will be gold doré, cobalt carbonate or metal (preferred), bismuth metal and cement (byproduct), plus copper produced as a byproduct of the cobalt production. Laboratory facilities will be established to handle routine analyses for the site.

6.0 MINE WASTE MANAGEMENT, INCLUDING WASTE ROCK, TAILINGS AND SOLID WASTES

Over the life of the mine, the operation is expected to generate approximately 81 Mt of mine rock and 22 Mt of tailings. Approximately 10 Mt of the mine rock is potential low grade ore that may be processed during periods of higher commodity prices. The MRMA will be constructed adjacent to and south of the open pit (Figure 4). The TMA will be constructed to accommodate processed rock (tailings), north of the open pit and process plant.

Non-reactive mine rock will be used selectively to the extent practical for construction of the tailings dams and access roads on site. 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.

The underground mine will use cemented rock fill as backfill, utilizing rock generated from both underground and open pit activities.

Results of leach extraction tests and seep samples collected from mine rock indicate that arsenic concentrations in discharges from the mine rock may exceed known discharge criteria. As a result, rock containing elevated arsenic mineral contents will be segregated and not utilized for construction materials.

The proposed location for the TMA is currently occupied by two small, non-fish-bearing ponds, known as the Grid Ponds, which have naturally high levels of arsenic. The TMA will include four water retaining dam structures, emergency spillways, effluent discharge pump barge and pipeline to an ETF, a potential reclaim water pipeline and seepage collection systems. The tailings will be deposited such that some of it will be below water (as the water in the tailings separates and comes to surface).

Processing of NICO ore at the pilot plant has given Fortune the advantage of being able to study the chemistry of representative tailings before the project begins. The composite tailings from the pilot plant were shown to contain elevated concentrations of arsenic and bismuth, and to lesser degrees antimony, cobalt, copper, iron, lead, molybdenum, silver, tin, and zinc, which are typical for mineralized areas and tailings. Several test cells have been constructed on site using these tailings to assess potential leaching characteristics when exposed to ambient climate and air conditions. These tests were initiated in March 2009 and are on-going. The leaching potential of waste rock and ore are also being tested in on-site field geochemistry cells.

If, as the mine is currently contemplated, the ore will be completely processed on site to produce a metal final product (as opposed to a concentrate or intermediate product), testing has established the possibility of arsenic leaching into solution from residual iron arsenic hydroxides that make up a very small component of the overall tailings. Geochemical testing, both at the NICO site and in the laboratory on mine rock and test tailings, is ongoing to establish the degree of arsenic and metal mobility for the purpose of developing mitigation techniques. The current application contemplates treating all effluent water from the process, tailings and mine rock run-off to remove arsenic and other metals, and to control pH, prior to discharge to the natural environment.

7.0 PROJECT DESIGN ALTERNATIVES

Fortune is examining the feasibility of completing the primary processing on site then shipping a concentrate to an off-site processing facility (likely south of the NT). This option

will reduce electric power requirements and the chemical processing required on site. It will also have the added benefit of effectively removing the arsenic and metal content from the tailings to an off-site location for processing. While this will result in increased volumes requiring shipment from the site to the off-site plant, it will also greatly reduce the volumes of reagents (chemicals) requiring shipment into, and use at, the site. Water usage would also likely be reduced under this scenario.

Off-site processing will significantly reduce the metal content of the tailings. Fortune is examining the possibility of co-mingled deposition of tailings and mine rock in only one of the two basins (*i.e.* MRMA and TMA locations). Co-mingled deposition involves both mine rock and tailings being deposited together such that the tailings effectively fill the spaces between the coarse mine rock fragments. Under the one basin scenario, co-mingled mine rock and tailings deposition would limit water infiltration into the mine rock and also help mitigate arsenic and metal mobility from the mine rock itself.

8.0 WATER USAGE

The water requirement for the mill plant operation at full capacity will average 13,900 cubic metres per day (m^3/day) of which 7,800 m^3/day will be recycled to the process from the tailings thickener overflow and the hydrometallurgical circuit. This represents a recycle rate of approximately 56%. As a result, the net draw and discharge would be approximately 6,100 m^3/d . Options for other water recycling to further minimize water requirements and discharges are currently being assessed in front end engineering including recycling run-off and excess decanted water from the TMA. The off-site processing and mine rock/tailings co-mingling alternatives would improve water quality entering the ETF for treatment.

The camp water requirement will be approximately 1,100 m^3/d under normal operation. During construction, water requirements will increase proportionately. The camp sewage will be treated in a sewage treatment plant (STP) located adjacent to the processing plant. Treated sewage effluent will be discharge to the TMA. Sludge will either be disposed in the sanitary landfill (discussed below) or incinerated. Overall, the total water quantity requirement for the camp and plant operations will be approximately 7,200 m^3/d .

9.0 WATER MANAGEMENT AND EFFLUENT TREATMENT

All runoff water generated in the plant area and open pit, and ground water collected in the mine will be intercepted and directed to the tailings basin. The STP effluent will also be discharged to the tailings basin. In effect, the tailings basin will become the ultimate collection area for process, treatment and run-off waters generated on site.

A floating pump barge will pump excess water from the tailings basin through pipelines to the mill for recycling or to the ETF. Water not recycled in the plant will be treated on a seasonal basis in the ETF (by the addition of ferric sulphate then lime) to remove arsenic and other metals by co-precipitation. Treated water will be combined with a flocculant solution and discharged to a sedimentation pond, and released to the environment once discharge criteria are met. The treated effluent will be discharged into Peanut Lake, from which water flows through several kilometres of creeks and Burke Lake, ultimately into the Marian River. The effluent discharge will be seasonal (*i.e.* no discharge during winter months).

10.0 CAMP

Permanent camp facilities are currently planned to be constructed southeast of the mine operations west of Nico Lake. The camp will have capacity for approximately 150 people during normal operations and approximately 600 people during construction. The facilities will be divided into dormitories and one general complex which will contain a kitchen, dining room for approximately 120 people, storage areas, preparation areas, washrooms, offices and recreation area. A pioneer camp at the present exploration camp at Lou Lake will facilitate early construction, including construction of the permanent camp and temporary construction camp wing. Potable water will be produced on site and sewage treatment facilities will be constructed.

11.0 WASTE MANAGEMENT

In addition to mine waste management (*i.e.* tailings, rock, effluent), other wastes generated from processing, such as containers, construction materials, automotive fluids and scrap metals, as well as domestic wastes generated from the camp will be handled on site. Fortune will operate a waste management triage facility in which these wastes will be received and sorted (*e.g.* reusables, recyclables, food and combustibles). An incinerator, installed with a scrubber system, will handle combustible and food wastes. Potentially hazardous wastes (*e.g.* reagent containers) will be segregated for transportation off site to appropriate receivers. Residual non-hazardous wastes that cannot be reused, recycled or incinerated will be placed in a waste disposal facility proposed within the footprint of the TMA. A landfarm for treating soils affected by spilled biodegradable substances, such as petroleum, will also be established in the area of the waste triage facility.

12.0 EMPLOYMENT

A workforce of 225 people is expected to be hired for the overall mining operation at NICO. This can be divided into approximately 140 workers for the mine and 85 for the process

plant. Should the off-site processing plant become a reality, most of the processing plant jobs would be located elsewhere. The jobs not required for the process plant would be mitigated by additional jobs required for shipping the concentrate to the off-site plant.

Buses are proposed to transport employees to and from the site from local communities. The work rotations are currently planned to be seven, five or four day periods.

An airstrip will be constructed and maintained at Burke Lake (Figure 4) for construction, emergencies and possibly charter transport. A float plane and boat dock will be maintained on Lou Lake.

The Fortune drug and alcohol policy states that zero tolerance will be strictly enforced. Drugs and alcohol training and information sessions will be mandatory for all employees. Employees will be supported in speaking their first language. Fortune's policies and directives will be translated into the aboriginal languages. An Employee and Family Assistance Program will provide counseling for employees and their immediate families. A trained and qualified medical professional will be on site and available at all times.

A commitment to safety and attaining zero injuries will be accomplished through the development of comprehensive site specific safety and training plans, continuous training, extensive medical surveillance, consistent enforcement of Company policy by all levels of management and a proactive accident prevention program. Safety policies and procedures will be strictly enforced in order to prevent injuries. Suitable safety measures and equipment will be available (*e.g.* eye-wash stations, personal protective equipment, proper ventilation and breathing apparatus). Compliance with applicable health and safety regulations, environmental protection standards and the requirements outlined in the Mine Health and Safety Act regulations will be enforced. Communication with all team members will take place through pre-shift meetings, tailgate discussions or scheduled safety meetings. Team Members will have the opportunity to voice safety concerns through a Joint Health and Safety Committee.

13.0 ECONOMIC DEVELOPMENT AND SUSTAINABILITY

Development of NICO is an opportunity for the Tłıchǵ and other northerners for:

- employment;
- contracting relationships;
- support of training and cultural programs;

- revenue;
- development of infrastructure for other business opportunities; and,
- improved access, services, and quality of life.

Commercial service contract opportunities will fall under three main categories: equipment, construction and operations. They will include, but are not necessarily limited to, the following: supply of capital goods such as heavy equipment; security services; modular buildings; and, telecommunications. Employment opportunities include: camp and buildings construction; mine site infrastructure development; catering; bus and air charter; fuel supply; cement supply; blasting; and, contract mining. Job opportunities will fall under the following departments: construction; camp; open pit; pit maintenance; technical and skilled trades; and, administration. Fortune will look at new training programs, transportation initiatives to help recruit from NT communities, and collaborative strategies to attract workers north and encourage them to live in the territory. Contracting workshops will be conducted with aboriginal groups to develop the capacity for securing commercial service contracts.

Although not currently proposed in the existing applications, the potential for future development of the Sue-Dianne deposit and other mineral resources in the area could extend the life of the mine beyond the currently proposed 15 years and provide long-term employment and income for the region.

Hydro-electrical power development to supply, in part, the electrical requirements of the NICO mine, is an excellent business opportunity for the Tłıchǵ. It is a long-term, environmentally sustainable business that can provide revenues to the Tłıchǵ people and can be developed with operational and capital cost synergies with the all-weather road.

14.0 SITE ACCESS

An all-land winter road re-alignment has been proposed by the Government of the Northwest Territories (GNWT) to connect Whatı and Gamètı with the community of Behchokǵ. The exact routes to these communities have not been selected by the Tłıchǵ Government or the GNWT. Negotiations on the details of how the road would be built are on-going between the two parties. Once approved, the GNWT would re-align the current winter road to an all land winter route and build the bridges/crossings required. Fortune would use the all-land winter road re-alignment during construction and help upgrade it to an all-weather access road in stages.

The development of an all-weather access road, constructed and operated by either the Department of Transportation of the GNWT and/or the Tłıchǫ Government with assistance from Fortune, within the timeframe contemplated by NICO's project schedule is critical to the development of the mine at NICO. Fortune is a third party in these matters, but the NICO project cannot exist on a mutually exclusive basis from the development of an all-weather road from Behchokǫ to the NICO site.

Fortune had proposed a 51 km long all-weather access road between Whati (junction east of Whati) and the NICO site. With the winter road re-alignment currently proposed to go to Gamètì, the length of road that Fortune will need to construct will be shorter and would start approximately 19 km north of the turn-off to Gamètì from the Whati road (Figure 5). The exact route into the mine will depend on the location of the GNWT all-land winter road re-alignment.

The portion of the road to be built by Fortune will be a 6 m wide all-weather access road beginning at the all-land winter road re-alignment route north of Whati, turning northeast and finishing via a spur east of Hislop Lake to the NICO site (Figure 5). Figure 5 shows the potential borrow areas for road construction aggregate. The road will be composed of common borrow material of varying thickness and a pavement structure. The pavement structure will be composed of 200 mm of 50 mm minus crushed material and a 100 mm top layer of 20 mm minus crushed material. The road use area extends 30 m on either side of the centre line. Fortune has collected comprehensive baseline environmental data on the area of the all-weather access road.

The NICO all-weather access road will require a bridge crossing of the Marian River. The proposed crossing site (Figure 5) is at a narrowing of the Marian River (15 m wide) as it passes between bedrock outcrops. The proposed bridge is to be built of prefabricated steel girder assembled on site.

15.0 CLOSURE AND RECLAMATION OF THE SITE

Closure of the tailings management area will focus on reducing the risk of wind and waterborne erosion of the tailings. The exposed tailings are proposed to be covered with a 0.5 m thick layer of granular soil to be sourced from local borrow areas. Modeling of long-term effluent parameters and an updated study will be completed to evaluate closure strategies, as well as passive or active long-term effluent treatment options. The emergency spillway serving the tailings basin will remain in service. The stability of the dams will be confirmed with respect to long return period seismic events.

After closure, useable equipment from the plant will be salvaged and sold for re-use whenever it is economical to do so. The autoclave and the crushing and grinding equipment are examples of equipment expected to be salvageable. Structural steel will be disassembled and removed for sale as scrap. Plant buildings will be demolished. Inert materials (*e.g.* concrete) will be broken up and disposed with the tailings or mine rock. The plant site area will then be scarified and graded to allow natural re-vegetation to occur.

Soil stockpiled during construction will be used to cover ground that has been re-contoured after closure activities are complete to promote natural re-vegetation. Potentially contaminated soils will be tested to assess the potential for, and the nature and extent of, soil impacts. If biodegradable impacts are identified such as petroleum hydrocarbons, a bioremediation facility (landfarm) will be used to treat soils on site. Soils that may contain elevated metals concentrations will be placed with the tailings. Hazardous materials unsuitable for disposal or treatment on site will be shipped to a licensed hazardous waste facility.

The sanitary landfill will be closed using final cover of mine rock and tailings since it will be located in the footprint of the tailings basin.

The open pit is anticipated to slowly flood due to ground water seepage in response to the surrounding water table and accumulation of rain water and snowmelt forming a pond that may eventually breach the lowest point of the pit perimeter at the north end of the pit. This would result in pit water discharge flowing into the tailings basin. If the quality of water in the flooded open pit meets discharge criteria, an alternate spillway to divert this water away from the tailings may be considered in order to reduce the quantity of water requiring treatment during the post closure period.

The open pit will require a safety barrier and warning signs around its perimeter at closure. A fence or other barrier will be erected to prevent wildlife from accessing the pit edge.

If run-off from the mine rock does not meet discharge criteria, it will be intercepted, as during the mine operation, and pumped to the ETF. To promote drainage and to minimize infiltration of the mine rock, the top surface of the mine rock will be graded to a minimum cross-slope of 1%. Drainage chutes may be constructed to conduct direct runoff. For safety reasons, perimeter barriers of rock boulders will be constructed on the top surface.

Underground mine openings will be closed using reinforced concrete caps, as per recommended best practices in the NT. Vent raises will be capped and the ramp portal will be plugged by partially backfilling the ramp with mine rock fill.

On-going monitoring, water treatment and site maintenance activities may be required during post closure. Geochemical testing is ongoing to predict the need for post-closure water treatment. Operational monitoring will identify the need for ongoing water management strategies. Current geochemical characterization of the tailings will determine the potential for metals to leach from the tailings over the long term. Water quality from the site will be reviewed during operations. Alternatives for managing this issue will be considered prior to closure.

Post-closure water quality monitoring is expected to be carried out monthly during the open water season for discharge originating from the open pit, tailings and mine rock. The frequency of testing will be reassessed periodically depending on the quality of the water reporting to the receiving environment.

Dams will undergo an annual visual geotechnical inspection by a geotechnical engineer to assess dam stability issues. A report will be issued summarizing the inspection results. For planning purposes it is assumed that an engineer will be mobilized from Yellowknife.