# **MEDIA BACKGROUNDER**

# Saskatchewan Metals Processing Plant

#### ABOUT FORTUNE MINERALS

Fortune Minerals Limited ("Fortune" or the "Company") is a diversified Canadian resource company focused on the development of the NICO gold-cobalt-bismuth-copper project in the Northwest Territories and the Arctos Anthracite Project in British Columbia. With all of its assets located in Canada, Fortune is positioned to become a reliable source of metallurgical coal, gold and specialty metals.

#### ABOUT THE PROJECT

The Saskatchewan Metals Processing Plant ("SMPP") is a hydrometallurgical refinery dedicated to processing metal concentrates from the NICO gold-cobalt-bismuth-copper mine and mill in the Northwest Territories.

The SMPP is expected to annually produce approximately:

- 40,500 ounces of gold (contained in doré);
- 1,600 tonnes of cobalt (contained in cobalt sulphate heptahydrate), which is used in high performance rechargeable batteries for portable electronics and electric vehicles;
- additional cobalt products, as dictated by market conditions;
- 1,700 tonnes of bismuth, a non-toxic, environmentally safe replacement for lead with a broad range of industrial and commercial uses, including pharmaceuticals, cosmetics, electronics and low-temperature alloys; and
- 250 tonnes of copper (contained in a metal precipitate).

The SMPP property straddles the CN main rail line in the Rural Municipality of Corman Park, 27km northwest of Saskatoon and near to the Yellowhead Highway. The plant facility will be approximately 150 metres wide, 300 metres long and 15 metres high at the highest point. It will be housed in a steelclad building with a number of small stacks, mostly releasing steam. The other major components will be a water storage pond, various cooling ponds, and a permanent Process Residue Storage Facility ("PRSF"). The PRSF will eventually be approximately 400 metres wide, 1200 metres long and 3-4 metres in height, developed gradually over the life of the facility, and lined with multiple membranes for permanent storage of the residue by-products produced from the process plant. The footprint of the entire project is approximately 32 hectares which allows for a buffer zone surrounding the site of approximately 200 metres, or 162 hectares.

The plant is expected to employ 100 personnel providing approximately \$9 million per year of employment income, and will require services from local suppliers, contractors and consultants. The anticipated direct capital cost of the project, including the purchase of equipment, materials, construction, and services installation is more than \$200 million. Total annual maintenance costs are estimated to be \$4.6 million. The opportunity to source materials from other projects for custom processing and the potential to participate in the metals recycling business could extend the useful life of the facility well beyond the 20 year anticipated mine lifespan of the NICO deposit.

## STATUS

The Saskatchewan Minister of Environment approved the SMPP in early 2014, concluding that any risks from the Project will be mitigated such that no significant adverse environmental effects are expected. Fortune will now begin the rezoning process for the land it owns for the proposed refinery and is moving ahead with the completion of management and monitoring plans, design details and preparation of appropriate reclamation security funding.

Fortune will continue to engage with the Rural Municipality of Corman Park, the towns of Langham and Dalmeny, and local residents to communicate the project's progress and address concerns. Fortune recognizes that metal refining is uncommon in the province and understands that engagement with local residents will need to be sustained throughout the life of the SMPP. As part of its commitments, Fortune will fund an independent community based monitoring group.

# FAQs

# What are metals that will be produced at the SMPP and what are they used for?

The NICO Project's mineral reserves have many important applications in everything from components in microchips, smartphones and electronics, to use in essential components of alternative and renewable energy systems.

- <u>Cobalt</u> is a high strength magnetic metal with a diverse range of important uses in products from rechargeable batteries to aircraft engines, and it is expected to be at the leading edge of the search for alternative and renewable energy systems.
- <u>Bismuth</u> is a soft metal with very high density and low melting temperature that is safe for human consumption except in immense doses. Widely known as the active ingredient in Pepto-Bismol<sup>®</sup>, it is seeing increased use as an environmentally friendly lead replacement in many new applications.
- <u>Gold</u> is best known as a store of wealth, but its unrivalled properties it combines high conductivity with corrosion resistance and can be physically manipulated, as it is both highly malleable and ductile – mean it is often the material of choice for many industrial applications.
- <u>Copper</u> is an excellent conductor of electricity and heat, is highly ductile, malleable, and resistant to corrosion. As such, it is required for society's most important functions, including electrical wiring, plumbing, and communication.

## What is Fortune's track record in the communities in which it operates?

Fortune has been operating in the Northwest Territories (NWT) since 1988 and has solid relationships with First Nations, regulators, government and local citizens. The NICO Project's mine and mill was approved by both the federal and Tł<sub>2</sub>cho (Aboriginal) governments after a vigorous environmental assessment process that is among the most stringent in Canada. This is the first project to be approved on a settled land claim in the NWT and its approval was subject to meeting not only federal and

territorial standards but those under the Tłįcho Agreement. The project is in the permitting phase and the Company is in the process of negotiating an Impact and Benefit Agreement with the Tłįcho Government. The Canadian Council for Aboriginal Business has recognized the Company's efforts by awarding a Bronze level status in the Progressive Aboriginal Relations ("PAR") program, the first and only corporate responsibility assurance program in the world with an emphasis on Aboriginal relations.

The Company took voluntary steps to assist the British Columbia and Tahltan governments in peacefully resolving a disturbance that had been occurring at the Company's Arctos Anthracite Project in northwestern BC. While all activities at the site were focused on gathering information necessary for the BC environmental assessment process, and were duly authorized by permits issued by the BC Government, the Company did face disruptive and damaging protests. The Company voluntarily ceased its summer field program activities and withdrew from the project site for several months to allow the Tahltan and BC Governments to continue their talks; Fortune remains 100% committed to developing the project. Work to date at the Arctos project site has involved drilling to gather geochemical and geotechnical information that will be used in the environmental assessment process. That process considers environmental, social, heritage and economic values, including Traditional Knowledge, so that the merits and impacts of a proposed project can be considered, with a goal of making an informed decision on whether a proposed project should proceed. Fortune is continuing its efforts to inform interested parties and provides extensive opportunities for feedback.

The SMPP has been designed to incorporate and address community concerns that were obtained early in the project life. The design of the Process Residue Storage Facility responds to these concerns as does the significant reduction in planned water usage rates from the Dalmeny aquifer. The Company will continue to incorporate community feedback into the project design whenever possible.

# Who is responsible to look after the permitting, monitoring, and regulation before, during, and after the SMPP closes?

Saskatchewan Environment will be responsible for the permitting at all stages of the operation: construction, operation and closure.

The Industrial Branch of Saskatchewan Ministry of Environment protects the public's interests in the management of air, land, water and natural resources and is responsible for compliance and enforcement.

Saskatchewan Environment enforces this responsibility through legislation such as The Environmental Management and Protection Act, 2002, and The Environmental Assessment Act, 1980. Various other federal agencies regulate other activities such as Transport Canada for Transportation of Dangerous Goods regulations, and Health Canada for the National Ambient Air Quality Objectives.

Fortune has also committed to fund a community based monitoring group that would independently review the facilities monitoring data and make recommendations to the Industrial Branch.

## What is the Community Monitoring Program?

As part of its commitments, Fortune will fund an independent community based monitoring group that will hire its own expert consultants to review the proposed monitoring plans prior to operation, and to

oversee the performance of the SMPP during operations. The proposed Community Monitoring Program ("CMP") will be funded by Fortune, but will be fully controlled by the independent committee. The selected consultants will report to the CMP and make recommendations to the Saskatchewan Environmental Protection Branch and Fortune.

# Does Fortune's responsibility for environmental impact end when they close the facility? What happens if Fortune does not have the financial resources to meet its commitments?

The responsibility for environmental impact remains with the Company as long as it owns the property.

Fortune Minerals has clearly defined environmental management programs to guide all of its operations from construction to final reclamation and closure.

Reclamation will occur at the SMPP site on an ongoing basis as the portions of the PRSF will be progressively capped and vegetated while the facility is in operation. All activities associated with the SMPP closure, decommissioning, and reclamation will be documented and shall be made available to new owners, if the site is sold, and to appropriate regulatory agencies upon request.

Fortune is also required to have reclamation security funding in place to cover decommissioning costs as part of the closure plan. The financial assurances required of the Company will be determined in consultation with Environmental Protection and must be in place prior to operation of the facility.

# What is the SMPP's impact on the Dalmeny Aquifer?

Fortune is confident the SMPP water requirements can be met without affecting the availability of water for other users. The Company anticipates taking about 36 cubic metres of water per hour from the Dalmeny Aquifer once the plant is at a steady state. As feasible, the water used in the metallurgical process will be recycled.

The main impact of the SMPP water usage is expected be a small reduction in the water pressure within the aquifer. The Company will monitor aquifer drawdowns so any potential impact to third party users can be corrected before it occurs.

# What is being injected to the deep saline aquifer? Will this injection impact the Dalmeny Aquifer?

The only liquid discharge from the SMPP will be a salt water solution that will be injected into a deep salt water aquifer at a rate of 11 cubic metres per hour applying the same established technology used in the potash industry. This brine solution does not contain any arsenic or cyanide.

The injection well will go through the Dalmeny Aquifer on its way to the Souris River Formation, located at a depth of approximately 860 metres. The injection pump will have concentric internal tubing that will carry the injection fluid through a cemented outer casing in order to prevent leakage into the shallow aquifer. Water quality of the Dalmeny Aquifer will also be monitored to ensure its continued safe use for the community and as the source of potable water for the employees at the plant.

## How will Fortune manage the risks related to the use of cyanide at the refinery?

Cyanide is the reagent used in virtually all gold processing facilities worldwide. The SMPP will use cyanide in the gold extraction process, which is completely contained inside the facility. Fortune will use

the International Cyanide Management Code, an accepted industrial standard for the use and handling of cyanide. The Company's team of experienced professionals will incorporate all applicable safety systems to prevent the accidental release of any hazardous chemicals.

Only four truckloads of cyanide per year are required at the SMPP. Parceled in the form of small bricks and packaged to prevent any exposure in the case of a spill, the cyanide will be transported in trucks along highway 305 to avoid passing through communities.

Cyanide is removed from waste water using commercially available technology, and all cyanide used at the SMPP will be either recycled or broken down to carbon dioxide and nitrogen as the end products.

## What is the risk related to the arsenic material processed at the refinery?

Arsenic in the SMPP's process residue will be in the form of scorodite, a stable compound that is formed under the high temperature and pressure of the autoclave during the refining process. Ingestion of the process residue is the only pathway that could lead to harm and is extremely unlikely given the location and nature of the material. Further, most of the arsenic ingested as scorodite would be excreted due to its low bioaccessibility. SMPP employees are the primarily group at risk to incidental ingestion and this risk is addressed through the occupational health and safety plan.

# How does the design of Process Residue Storage Facility protect the environment and what is the risk to ground water if something fails?

The Process Residue Storage Facility ("PRSF") is designed to provide secure long term storage for the SMPP's solid waste, in a specially designed facility that will minimize exposure of the residue to water and air so the property can be reclaimed for agricultural or recreational uses. This double lined system incorporates leak detection and comprehensive groundwater monitoring to prevent water contamination and is progressively capped to prevent airborne pollutants.

The PRSF design and natural buffering capacity of the soil are the main factors controlling the potential risk to ground water. In addition to the primary liner, the leak detection systems and the secondary liner, the PRSF will be constructed over approximately 11 meters of existing till which would significantly slow the downward movement of any potential contaminants. Assuming a "worst case scenario" where the liner leaks, leachate is not removed and no repairs are conducted, thereby allowing contaminants to continue to migrate, it is expected the movements of contaminants would be limited to less than five meters below the base of the liner after 500 years. This is a considerable distance above the Dalmeny Aquifer, located 15-20 metres below ground. This "worst case scenario" is highly improbable given the mandatory monitoring and maintenance requirements that will be imposed on the facility.

The PRSF will be progressively capped with soil throughout operations so that performance of closure techniques can be monitored and, if necessary, adjusted before closure of the property. The PRSF will be capped with a membrane that will consist of a liner, and/or gravel to divert water, and covered by topsoil with planted vegetation. The process residues will be 3-4 metres high and look like a small hill.

## What is the impact on the air?

No impacts to the air shed are expected from the SMPP beyond the property boundary.

Air emissions from the refinery will be primarily water, oxygen, and a limited amount of carbon dioxide generated by the processing and production of oxygen. The process residue is not expected to generate appreciable particulate emissions due to its high moisture content. Wind baffles and other dust mitigation techniques will be used if issues are identified by the Company or the community based monitoring group. Dust emissions from the PRSF will be further controlled by operational activities such as wetting the process residue piles, utilizing covers and dust suppressants. PRSF storage cells will be constructed two-at-a-time, and once a cell is filled it will be permanently capped with an engineered cover that will control dust, limit the entry of water and oxygen and support vegetation.

#### What impact would the SMPP have on traffic in the area?

Initial processing would be done at the NICO mine site where ores will be crushed, ground and subjected to flotation to produce a metal concentrate containing all the valuable metal. This concentrate will be delivered to the metallurgical facility by train at a rate of approximately 20-25 rail car loads per week (65,000 tonnes per year).

Based upon a plan to create about approximately 100 permanent jobs at the facility, there would be about 25-30 cars traveling to and from the plant at shift change. Fortune has committed to paving the portion of Schultz Road between highway 305 and the main entrance on the southern edge of the property to eliminate dust generation from traffic.

Tractor, trailers or trains will deliver reagents for the metallurgical process every day.

The facility will operate 365 days a year, 24 hours a day.

### What are the expectations for noise and light pollution?

Fortune does not expect significant noise or light pollution from the SMPP and has designed the facility to minimize these potential impacts. The trucks will not be using the public roads, and the residue hauling from the plant to the storage cells takes place at the back of the facility. The SMPP will have sound berms and a tree line to reduce visibility and audible sounds from all directions around the site. The lights on the buildings will be directed downwards to limit the visual impact of nighttime lighting.

This press release contains forward-looking information. This forward-looking information includes statements with respect to, among other things, the proposed development of the NICO project and the SMPP, the permitting process for the NICO project and the SMPP, the anticipated capital and maintenance costs of the SMPP, the anticipated production from the SMPP, the number of employees expected to be employed at the SMPP and the wages expected to be paid to such employees, the possibility that the SMPP may be able to source materials from other projects, the anticipated impact of the SMPP on the environment and the measures expected to be taken by the Company to mitigate such impact. Forward-looking information is based on the opinions and estimates of management as well as certain assumptions at the date the information is given (including, in respect of the forward-looking information contained in this press release, assumptions regarding the Company's ability to arrange necessary financing for the NICO project and the SMPP, obtain all necessary permits for the NICO project and the SMPP and negotiate an Impact and Benefit Agreement with the Tłįcho Government and assumptions regarding the capital and maintenance costs of the SMPP, the production from the SMPP, the number of employees to be employed at the SMPP and the wages expected to be paid to such employees and the impact of the SMPP on the environment. However, such forwardlooking information is subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward-looking information. These factors include the inherent risks involved in the exploration and development of mineral properties, the risk that the Company may not be able to arrange the necessary financing to construct and operate the NICO mine or the SMPP, uncertainties with respect to the receipt or timing of required permits for the development of the NICO project or the SMPP, the risk that the Company may not be able to negotiate an Impact and Benefit Agreement with the Tł<sub>i</sub>cho Government, the possibility of delays in the commencement of production from the NICO project or construction of the SMPP, the risk of capital or maintenance cost overruns, the risk that the Company may not be able to source materials for the SMPP from other projects, the risk that the environmental impact of the SMPP may be greater than anticipated and other factors. Readers are cautioned to not place undue reliance on forward-looking information because it is possible that predictions, forecasts, projections and other forms of forward-looking information will not be achieved by the Company. The forward-looking information contained herein is made as of the date hereof and the Company assumes no responsibility to update or revise it to reflect new events or circumstances, except as required by law. The disclosure of scientific and technical information contained in this document has been approved by Robin Goad, M.Sc., P.Geo., President and CEO of the Company, who is a "qualified person" under National Instrument 43-101.