SASKATCHEWAN METALS PROCESSING PLANT
OPERATIONS

The Saskatchewan Metals Processing Plant (SMPP) is proposed to be located in the Rural Municipality of Corman Park (RM 344), 2.5 km east of Langham, Saskatchewan. The proposed SMPP is a hydrometallurgical processing facility designed to process mine concentrates into high-value metal products. The proposed facility will purify metal concentrates produced from Fortune's NICO Gold-Cobalt-Bismuth-Copper (NICO) project in the Northwest Territories (NWT).

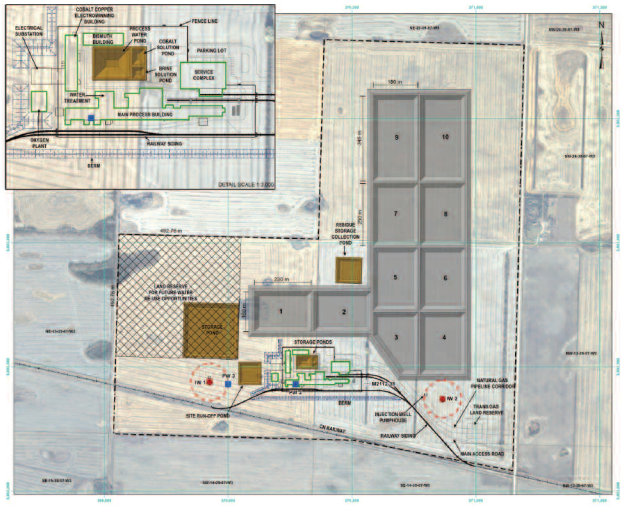
The proposed SMPP will be constructed on three quarter sections of land (approximately 480 acres) which Fortune Minerals has optioned to purchase. The infrastructure, including the site buildings, storage ponds, rail spur, and residue storage area, will occupy an area of approximately 80 acres, allowing for a buffer zone of approximately 400 acres. The site is bordered by a gravel road on the east and a summer road on the west (Range Roads 3071 and 3072). The site is approximately 800m north of Highway 305. Canadian National Railway tracks cut through the southern end of the property in the southeast- northwest direction. The rail line will be used to receive concentrate and reagents for processing and also for shipment of finished metal products.

The construction schedule for the SMPP will be based on the commissioning of the NICO mine as it will provide the bulk concentrate for processing at the SMPP. Once commissioned, the SMPP will receive 180 tonnes of high-value metal concentrate from the NICO mine each day. The concentrate will be shipped by truck to the railway terminus at Hay River, NWT, 450km south of the proposed NICO mine site. From Hay River, approximately 14 to 17 railcars of metal concentrate will be delivered to the SMPP each week.

The proposed SMPP site will include the following buildings and infrastructure:

- A processing plant building, including integrated reagent storage such as silos and tanks;
- A service complex, including warehousing, laboratories, change rooms, lunchroom, offices, and workshops;
- A concentrate storage, receiving, and warming shed;
- A modular process residue storage facility (PRSF) designed for containment levels similar to an industrial landfill;
- Storage ponds for process water, surface water collection, cobalt and brine solutions and cooling;
- Water well(s) and related distribution infrastructure;
- A waste water injection well(s) and related infrastructure;
- Railway siding, access, and switching; and
- On-site access roads, ditches, and other related infrastructure.

Numerous options and alternatives for the proposed SMPP project have been considered by Fortune. These include alternatives for the selection of the site, processing facility and site layout, water supply, water and residue storage, process solution disposal, and the metallurgical processes. Fortune is confident that the proposed plans to construct the SMPP have considered all viable options to ensure that potential environmental impacts are avoided and/or minimized. Fortune is committed to preventing or reducing adverse environmental effects associated with the project, wherever possible. General mitigation measures (to lessen any potential impacts) planned for this project includes the following:



- Obtaining all required permits and approvals prior to construction
- Using best practice, environmentally sound construction methods (i.e. minimal clearing, salvaging topsoil, etc.)
- Construction of appropriate containment systems (i.e. berms, perimeter ditches, ditches and ponds with engineered liners, etc.)
- Use of best available technologies to reduce water, power, and energy use
- Use of best available technologies to reduce air emissions
- Development and implementation of a site Environmental Monitoring Program

These measures are intended to provide effective long-term containment and mitigation of environmental impact. Residual effects, following the mitigation measures, are expected; however, these effects have an environmental consequence rating of low to minor. A summary of the predicted environmental effects and planned mitigation is provided in this EIS, Addendum, and response to public comments.

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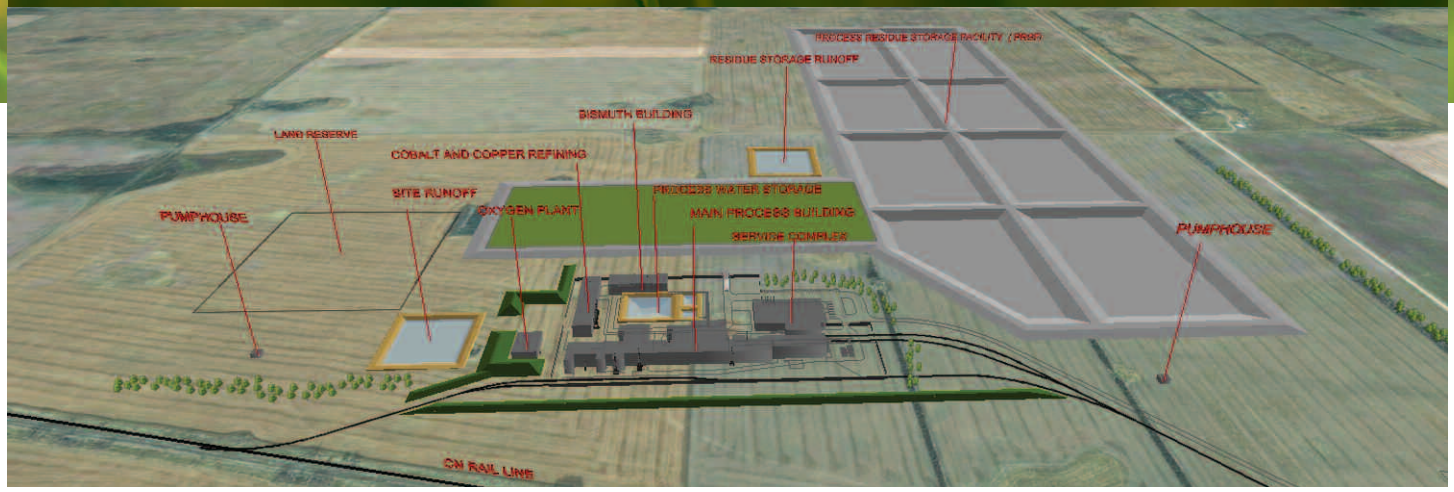
OPERATIONS



SMPP SITE DESIGN (STORAGE CELL 1 AND 2 CAPPED)

PROCESSING PLANT

The plant building will be of structural steel with metal roof and insulated wall panels. The facility will be erected with footings and a concrete floor. The current footprint depicts a linear building in which the mechanical equipment is placed by the order of appearance on the flowsheet, contribution to functionality, material handling characteristics and assurance of product quantity.

SERVICE COMPLEX

The Service Complex including the laboratory and warehouse building will be of structural steel with a prefinished metal roof and insulated wall panels. There will be entrance doors for product pallets carried by propane-powered forklifts and mandoors for personnel. The design will be finished with windows for top floor offices. The Service complex will be the first structure on the approach by road, with the main parking lot being adjacent to it.

Additional outdoor space will provide warehousing needs in a fenced area, with fabric matting for short-term storage and gravel surface for longer periods.

ACCESS ROAD

The plant site is accessed by road from the southeast corner of the property from Schultz Road. The entrance is located 100-m north of the CN rail level crossing and is about 4km off of the Yellowhead Highway (Highway 16).

The access road including a truck pullout will be compacted gravel throughout with asphalt surfaces for forklift and pedestrian traffic.

RAILWAY ACCESS

The CNR mainline traverses the southwestern portion of the property. A siding will be constructed to receive railcars carrying concentrate or reagents.

A trackmobile will move the railcars to the process area, according to production scheduling and process needs. The siding will be suitable for weekly receiving and storage of bulk concentrate in gondola cars. There will be room for another spur to be added later for outbound product shipments if needed.

OXYGEN PLANT

A separate plant will produce the oxygen required for the process. This unit is situated within a bermed area at the west end of the main plant. The oxygen plant is a large power consumer, and will be located close to the incoming electrical feed.

The oxygen plant has a capacity of 120 t/d of oxygen. The system requires a source of very clean air and water; instrumentation air and fresh water will be provided.

ELECTRICAL

Grid power will be available to the plant via a new transmission line.

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FIRE PROTECTION AND DETECTION

Approximately 40 Type ABC portable fire extinguishers will be installed throughout the plant, generally at building exits and entrances to all electrical control rooms.

Approximately 300 addressable smoke detectors located throughout the plant and inside the control and electrical room will activate area alarm horns and flashing lights. The activated sensor location will also be indicated at the fire alarm panel near the control room.

Fire mains located throughout the plant will serve both the 1-1/2 inch fire hose reels provided to cover all areas within the plant, and the wall boxes that will allow for 2-1/2 inch hose to fight fires from outside the plant. Any piping between buildings will be either heat traced and insulated or buried with sufficient depth and insulated cover to avoid freezing.

NATURAL GAS

Service will be installed to within 30 m of the plant structure approaching from the south. A convenient location for the letdown station will be next to the in-plant road, approximately 72 m from the east end of the building. The gas lines feed the two boiler stations. The process plant buildings and service complex will produce makeup heat from direct fired gas heaters.

Heat recovery will be utilised to minimise fuel consumption in the plant, the thaw shed and cross-flow ventilation for the cellhouse during winter months.

(a) **Heating and Ventilation**

- Air handling (AH) units are indoor vertical air handlers for general warm air recirculation.
- Direct gas (DG) units are mostly outdoor DG fired air heaters complete with fan, filters and damper to auto close when not in operation.
- Supply / fan air diffusing units will introduce unheated outside air / room air mixture both to minimise warm air stratification and to recirculate the warm air provided by the AH and DG units.
- Wall exhaust fans (EF) will be provided to match the winter air supply of 2.68 air changes per hour and increase in number to provide the summer air changes of around 8.2/h.
- Heat recovery (HR) – Full heat recovery is sized at 17,500,000 Btu/h sufficient to heat 700 gpm from 135ºF to 185ºF (159 m3/h from 57ºC to 85ºC
- Temperature settings of the gas-fired heaters could also be lowered in milder weather to keep the heating at the AH units active.

Electrical rooms require refrigerant cooling and humidity control in summer and outside air (economiser) cooling in winter. A chemical filter and room pressurization unit will protect electrical equipment from corrosion.

WATER

Fresh water will be sourced from two of three wells distributed across the grounds, with sufficient open space to permit drill rigs to mobilize for rehabilitation, if dictated by the results of annual inspection testing. The water requirements of the SMPP will be 36 m3/h for long-term pumping. Groundwater from the Dalmeny fresh water aquifer will be the prime water source. The water pumping stations' design will comply with the water resource usage and for environmental requirements for the province.

Bottled drinking water will be brought in for consumption by the operator crews. Eyewash stations will be gravity fed from bottles containing preserved buffered saline solution. Sinks and toilets will be fed from filtered well water.

A fire hydrant branch system will be installed from a header installed in the plant building. The main fire protection system will pull water from the process water pond.

Raw and process water tanks will provide surge and storage capacities of all the necessary water supply.

SEWAGE AND EFFLUENT

(a) **Sewage Storage / Treatment Facility**
The sewage storage unit will be purchased from a Vendor as a turnkey package. The tank is below ground with the high-level mark situated below the frost line. Waste will be hauled to the local sewage treatment facility.

(b) **Injection Saline Aquifer**
Brine effluent will be deep-well injected into a saline aquifer at a depth of 800 m below surface.

PLANT MOBILE EQUIPMENT

Mobile Equipment for the Saskatchewan Metallurgical Processing Plant

Item	Number
Forklift, 5t	1
Small Forklift, 3 t	2
Boom Truck (freightliner M2-106)	1
Grader (Cat. 120)	1
Dump Truck (Volvo VHD 20 t)	1
Ford Truck (Ford F-250)	4
Portable Welding Machine (Lincoln Vantage 500)	1
Protable Generators (Honda EB6500XA)	1
Portable Pump (Honda WT 40XK2A)	2
Manlift – Scissor Lift (Genie GS-3268)	1
Skid Steer Loader (Bobcat, Cat. 262	1
Trackmobile Railcar Mover (Viking)	1
Small Dozer	1

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- Forklifts are to be used for moving packages of bulk concentrate and product at receiving and shipping, respectively.
- A boom truck will be required for maintenance work around boilers, cell houses and air compressor/blower areas.
- Site work involving haulage of residue and land spreading in the PRSF will employ a dump truck and small dozer. The dump truck will load at the plant and empty at the PRSF around the clock.
- A rubber-tired loader will be utilized for site work and snow removal.
- A mobile railcar mover will move groups of railcars from the siding to unloading points, unlatch and return to the siding for other cars. When a railcar has been emptied, the mover will be dispatched to re-locate it to a layover siding.

PROCESS RESIDUAL STORAGE FACILITY (PRSF)

Approximately 158,000 tonnes (83,200 m3) of process residue will be generated annually at the SMPP. PRSF Cells 1 through 8 will provide 18 years of residue storage capacity. Each cell will accommodate between 2 and 2.5 years of process residue. Cells 9 and 10 will provide an additional 7 years of storage capacity (3.5 years and 287,800 m3 per cell)

All solid waste residue streams will be filtered to maximize water recycling and minimize reagent consumption. The primary mineral constituents of the residue are projected to be Gypsum, Scorodite and small quantities of Actinolite.

The PRSF cover system will reduce the infiltration of water into the process residue, mitigating leaching of the process residue, while the liner system will inhibit leachate migration to the surrounding environment.

The design philosophy for the PRSF was to provide secure long-term storage for the process residue, in a 'drytomb' concept, so that the property can be reclaimed for agricultural or other recreational uses. The objectives of the design were to:

- Provide effective (short and long-term) containment of the process residue generated by the SMPP;
- Utilize available space efficiently;
- Maintain low visual impact; and limit environmental impact during construction, operation and after closure.

The level of containment proposed for the PRSF meets or exceeds that in place for any other containment facility in Saskatchewan and will virtually eliminate the potential for leachate migration.

Due to the low dyke height (2m), the majority of the process residue will be stored below ground, minimizing the visual impact and allowing the land to be reclaimed after closure.

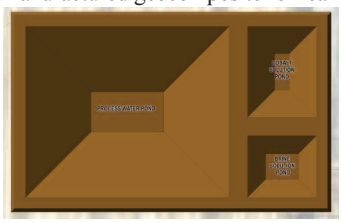
Reclamation of the PRSF will be staged, allowing for ongoing monitoring of the containment system during SMPP operations. Residue will be placed in two cells simultaneously, and once filled; each containment cell will be capped with an engineered cover system.

STORAGE PONDS

The operation of the SMPP requires the construction of five storage ponds, with potential for a sixth pond for water re-use opportunities in the future. Each of the ponds was sized using a design dyke height of 1.0 m for the perimeter containment dykes. The exterior dyke slopes were set at 3H:1V for construction and 1H:1V post-construction. The interior dyke slopes and excavation slopes vary depending on the storage pond. The storage volumes for the ponds are shown below:

• Process water pond	5,000 m3
• Cobalt solution pond	300 m3
• Brine solution pond	125 m3
• Site run-off pond	5,200 m3
• Residue storage collection pond	9,100 m3

The process water, cobalt solution, and brine solution ponds were combined into one pond facility within the plant site. They will be constructed with a composite liner consisting of geomembrane and compacted soil liners similar to the PRSF containment cells. A manufactured geocomposite for leak detection is also included in the design of these ponds. Leak detection monitoring will be on-going through the operation of the facility and maintenance/repair of the liner system will be performed as needed.



The site run-off pond, on the west side of the plant site, was sized to accommodate the runoff resulting from a 1:50 year precipitation event over the plant site area including the buildings, parking lot, and rail areas. The site run-off pond will also be constructed with a 0.45 m thick compacted soil liner.

An additional runoff-pond will be required to collect any water which comes from the PRSF. This residue storage collection pond will collect all water from the area during construction, residue placement, and once the cells have been covered. A series of ditches will collect the water from the area and divert the water to the pond which will be located to the south of the PRSF. The pond was also sized to accommodate a 1:50 year precipitation event. The residue storage collection pond will also be constructed with a 0.45 m thick compacted soil liner.