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Chuck Hubert
Environmental Assessment Officer
Mackenzie Valley Review Board
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Dear Mr. Hubert

Re: NICO Project (EA0809-004) Update for the Developer's Assessment Report

Fortune Minerals Limited ("Fortune") is pleased to provide an update for the NICO Cobalt-Gold-Bismuth-Copper Project. Fortune submitted its Developer's Assessment Report (DAR) to the Mackenzie Valley Review Board (MVRB) on May 20th, 2011. Since that time, Fortune has continued to refine it project development plans. This letter provides an update on three activities that were discussed in the DAR:

1) Cancellation of plans to build an airstrip at the Project site;
2) Option to use a RO/chemical treatment/biological treatment (RO) system for effluent treatment; and,
3) Construction of co-disposal field cells at the NICO site

Airstrip

In section 2.3.2 of the DAR, Fortune discussed the possibility of not constructing the airstrip at the NICO Project site. Fortune can now confirm that it will not be constructing this airstrip. Given the limited amount of air traffic the airstrip would support, Fortune concluded that the cost and environmental impacts associated with construction and maintenance of an airstrip were not warranted. As an alternative, Fortune would invest funds into the development of added infrastructure at the airport in Whati to accommodate the movement of staff and equipment for the NICO Project. Fortune is currently in discussions with the GNWT Department of Transport over these infrastructure needs and the use of the existing airstrip. Fortune will also initiate discussions with the community of Whati

in relation to this initiative. Removal of the airstrip results in a considerable reduction in the project footprint reduces the potential for dust generation and eliminates one of the largest sources of noise associated with the development.

In addition, the community of Whati would benefit from the increased infrastructure and employment opportunities at the airport during the Project life. The legacy of this infrastructure would extend beyond the life of the mine and provide future economic benefits for the community of Whati.

Effluent Treatment using RO/Chemical Treatment/Biological Treatment System

In section 2.3.6 of the DAR, Fortune stated that it was considering the use of a reverse osmosis system for effluent water treatment instead of the currently proposed Ion Exchange (IX) system. Fortune can now confirm it will be using a RO/chemical treatment/biological treatment system combined with chemical treatment and biological treatment for effluent water treatment at the NICO Project. The RO system provides the best available technology for removing contaminants from water and concentrates the contaminants into a brine stream. The proposed system depends chemical precipitation to remove the majority of the metals and then on active biological treatment in a two step process that achieves selenium removal anaerobically and ammonia removal aerobically. The aerobic step is also included to provide polishing of the anaerobic effluent for parameters that may be added as nutrients (carbon source and phosphorus and nitrogen if required) and also to remove any sulfide generated in the anaerobic treatment step.

This treatment scenario consists of the following process steps:

- Equalization;
- Microfiltration for reduction of total suspended solids (TSS);
- Reverse osmosis for reduction of constituents of concern (dissolved metals);
- Chemical precipitation of the brine for removal of the majority of the metals;
- Biological treatment of the brine for removal of selenium and ammonia; and
- Filtration for removal of the precipitated metals.

Reduction of TSS by microfiltration is the necessary first step for optimum operation of the staged ROs. Heating of the influent stream will also be beneficial and is assumed for this treatment option. The influent stream will be preheated to 15°C by waste heat from processing operations. The waste heat available will be

sufficient to heat a stream as low as 1°C to 15°C. RO performance is a function of both feed pressure and temperature, with lower pressure required at higher temperature. The brine from the RO system will be treated by chemical precipitation to remove most metals in a stable form. Then a biological treatment system will remove the selenium and ammonia that are not efficiently removed by the chemical precipitation system. The increased temperature will also increase the efficiency of the biological system. The pH is adjusted prior to discharge to the range of 7 to 8.

Table 1 presents the estimated effluent chemistry that will result with the use of the RO/chemical treatment/biological treatment system. The most notable change is to selenium concentrations, which are now projected to be below SSWQO values.

Table 1. Estimated worst case effluent chemistry from the effluent treatment facility using the reverse osmosis/chemical treatment/biological treatment system

Constituent	Units	Site Specific Water Quality Objectives	ETF Influent Design Basis	Removal	Estimated Effluent Chemistry	Previous estimates using ion exchange
pH	s.u.	6.2	6.2	-	6.5 to 9	6.5 to 9
Temperature	°C	15	15.0	-	-	-
Alkalinity	mg/L as $CaCO_3$	-	22.1	96%	0.807	0.221
Aluminum	mg/L	0.41	5.8	94%	0.377	0.058
Ammonia	mg/L	4.16	15.4	87%	2	1.54
Antimony	mg/L	0.03	0.05	85%	0.008	0.00051
Arsenic	mg/L	0.05	0.72	97%	0.018	0.0072
Barium	mg/L	-	0.21	94%	0.012	0.011
Beryllium	mg/L	-	0.00309	98%	0.000061	0.00015
Boron	mg/L	-	0.59	39%	0.36	0.06
Cadmium	mg/L	0.00015	0.00074	99%	0	0.000037
Calcium	mg/L	-	72.5	-	117	3.6
Chloride	mg/L	353	107	-	107	5.4
Chromium	mg/L	-	0.0066	96%	0.00026	0.00033
Cobalt	mg/L	0.01	0.47	99%	0.0052	0.0047
Copper	mg/L	0.022	0.032	98%	0.0007	0.0016
Iron	mg/L	1.5	9.3	97%	0.24	0.465
Lead	mg/L	0.008	0.015	99%	0.0002	0.00015
Magnesium	mg/L	-	24.7	96%	0.926	1.24
Manganese	mg/L	-	0.28	99%	0.00029	0.0028
Mercury	mg/L	-	0.00016	95%	0.0000076	0.0000016

Constituent	Units	Site Specific Water Quality Objectives	ETF Influent Design Basis	Removal	Estimated Effluent Chemistry	Previous estimates using ion exchange
Molybdenum	mg/L	-	0.11	84%	0.017	0.0055
Nickel	mg/L	-	0.034	96%	0.0012	0.0017
Nitrate	mg/L as NO_3	133	62	-	62	6.2
Phosphorus	mg/L	-	0.264	83%	0.044	0.026
Potassium	mg/L	-	527	0%	527	52.7
Selenium	mg/L	0.005	0.127	98%	0.003	0.063
Silver	mg/L	-	0.00260	78%	0.00058	0.00026
Sodium	mg/L	-	120	0%	120	12.0
Sulphate	mg/L	500	421	25%	317	21.1
Thallium	mg/L	-	0.0259	99%	0.00038	0.00026
Uranium	mg/L	0.027	0.122	99%	0.0018	0.0061
Vanadium	mg/L	-	0.0047	96%	0.00017	0.00024
Zinc	mg/L	0.11	0.116	97%	0.0035	0.0058

Note: ETF=Effluent treatment facility

Effluent quality criteria are concentration objectives that are applied to end of pipe, whereas SSWQO's are concentration objectives intended to be met in the receiving environment. For the purposes of the DAR, a separate set of effluent quality objectives were not developed in favour of conservatively meeting SSWQO values, to the extent economically feasible, at the end of pipe to minimize potential effects to aquatic life in Peanut Lake. Only selenium concentrations were projected to potentially exceed SSWQO values in the effluent for the IX treatment option carried forward to the DAR. With the change in treatment option to the RO treatment, all constituent concentrations, including selenium, are projected to be below the receiving water SSWQO value at the end of pipe.

Comparing the two technologies, the IX system would produce an effluent quality that is lower in some metals than the RO option, however would did not meet the SSWQO for selenium. The RO/chemical treatment/biological treatment option produces an effluent quality that is projected to meet all limits, is more robust to changes in influent water quality than the IX system, and produces secondary waste form that is more stable and compatible for disposal at the site.

Construction of co-disposal field cells

In section 3.4.2.1 of the DAR, Fortune committed to the construction of field cells using materials comparable to what will be placed in the co-disposal facility (CDF)

once the NICO Project is constructed. Co-disposed tailings and mine rock field test cells were constructed on July 19, 2011 at the NICO Project site using 1.14 m3 (approximately 1,500 L) totes, tailings samples resulting from a pilot plant completed at SGS Lakefield, and mine rock that was blasted from the bulk exploration tunnel in 2006/2007.

The tailings used to construct the co-disposed field test were generated during locked cycle testing and pilot plant operation of material mined during the bulk sampling that took place in 2006 and 2007. The combined tailings products from the pilot plant represent the best available material that simulates the tailings that will be generated during full-scale operations at the NICO Project.

The location used for collection of waste rock was selected by a geochemist. The location was determined based on visual characteristics of the rock. The material was then screened through a 10 cm square grid “grizzly” to remove the larger material. It was not possible to visually identify whether this material is Type 2 or Type 3 material; however the material was well mixed during the screening process and appeared to be visually homogeneous in colour and grain size distribution. A visually representative sub-sample was collected and submitted for geochemical testing to confirm material characteristics. A photograph of the co-disposal field cells is provided in Figure 1. Three co-disposal field cells were constructed at the NICO Project:

- **FC-11:** Mine rock alone, which will serve as a control for the co-disposed field cells;
- **FC-12:** Co-disposed mine rock and tailings, intimately blended to ensure good contact between the tailings and the mine rock; and
- **FC-13:** Co-disposed mine rock constructed using a layered approach.

In order to build a representative small scale model of the CDF, it was necessary to mix waste rock and tailings in appropriate proportions. Sub-samples of the mine rock and tailings used to construct the co-disposed field cells were collected for geotechnical and geochemical laboratory testing. Water draining through these field cells is being collected on a monthly basis and will be analyzed using the same protocols as the existing tailings, ore and waste rock field cells installed in 2008.

Figure 1. Co-disposal field cells

If you have any questions concerning this project update, please contact me at your convenience.

Sincerely,

Fortune Minerals Limited

Rick Schryer, Ph.D.

Director of Regulatory and Environmental Affairs