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Report on Chromex
Nickel Mines Ltd. Proposal

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CHROMEX NICKEL MINES LTD. PROPOSAL

OBJECT: To examine and evaluate the geological, mineralogical and metallurgical data and processes submitted to Mr. John McMynn by Mr. M. Hretchka, Manager, Chromex Nickel Mines Ltd. regarding the Castle Mountain Nickel deposit and the proposed means of beneficiation.

SCOPE: The geological and metallurgical (Patent Process No. 890348 Canada) potential of the Castle Mountain deposit was evaluated on the basis of the limited information supplied.

SUMMARY:

1. Chromex Nickel Mines Ltd. has a mineralized zone in ultrabasis rock purported to contain at least 391 million tons averaging 0.24% Nickel plus values in Chromium, Magnesium, Gold, Silver, and Platinum.
2. Magnetite which comprises 5% of the rock contains 45% of the total Nickel content, and 42% is contained in very fine grained sulfide minerals.
3. The information supplied is not sufficient for a reasonable evaluation of the tonnage, mineralogy and mineral distribution.

LOCATION: The mineral claims comprising the holdings of Chromex Nickel Mines Ltd. and Hunter Point Exploration Ltd., which include the Castle Mountain Nickel deposit are located about three

miles southeast of Cascade, B. C., on the southwest slope of Castle Mountain at an average elevation of 3,200 feet.

ACCESSIBILITY: The claims are easily accessible by road from Cascade.

HISTORY: The presence of interesting quantities of Chromite on the slopes of Castle Mountain has been known for some time. In 1918 - 19 about 800 tons of Chromite ore (30-45% Cr_2O_3) was shipped from workings on the Mastadon Crown-granted claim. Work was discontinued on this and adjoining claims until 1931 when mineralization averaging 40% Cr_2O_3 was exposed and examined on the Mastadon Group as well as Midnight and Blacktail Crown-granted claims.

In 1938 Dr. John S. Stevenson examined, mapped and sampled the significant Chromite showings for the B. C. Department of Mines. His work indicated that these Chromite occurrences were generally discontinuous small lenticular masses localized along northerly and southeasterly fault or shear zones within serpentinized ultrabasics. The distribution of this serpentine, the cross cutting dikes, and the nature of the surrounding country rocks was shown on a series of geological maps.

The presence of significant or potential Nickel-bearing mineralization within the serpentinized ultrabasics was not estimated until 1967 when Hunter Point Exploration Ltd., drilled the Mastadon claim. In 1968 after further drilling Hunter Point Exploration Ltd., indicated the presence of mineralized ultrabasic rock assaying about 0.25% Nickel plus Chromium values.

Exploration between 1967 and 1972 by Hunter Point Exploration Ltd., and their associate Chromex Nickel Mines Ltd., has mainly included 20,000 feet of diamond core drilling, some geological mapping, magnetometer survey and lesser ancillary mineralogical and metallurgical studies.

GEOLOGY: The geological report and map appended to the proposal by Mr. Hretchka, compiled by Robert Steiner outlines a wedge-shaped ultrabasic mass cut northwesterly and northeasterly trending faults and feldspar porphyry dikes. The ultrabasic zone examined, including Dunite, Gabbro, and Peridotite and serpentinized equivalents, has a maximum extend of about 6,000 (N-S) by 3,500 (E-W) but lies mainly within the confines of the Crown-granted Mastadon claim. Unmineralized younger dike rocks appear to comprise about 25 to 30% of the rock mass in this area.

MINERALOGY: The "ore" minerals recognized in the ultrabasic apparently include Magnetite, Pyrite, Chromite, Pentlandite, Millerite, and Heaselwoodite. The host rock is apparently serpentinized and variably oxidized. According to Steiner the sulfides and oxides are more or less uniformly distributed throughout the host ultrabasic material.

The 1938 detailed study by Stevenson on the Mastadon claim indicated that disseminated Magnetite and Chromite were developed in the serpentine and sheared serpentine which assayed from 0.3 to 0.5% Cr_2O_3. Also as indicated previously the only significant Chromite was developed in and along shears and faults. It may also be significant to record that a mineralogical study of the nickeliferous rock from the Mastadon by a Vancouver consultant indicated that Heazelwoodite (Ni_3S_2-Ni = 72.13%, S-22.16%+Fe) was the major Nickel bearing mineral.

Unfortunately the amount and distribution of the Nickel-Chromium minerals as well as the distribution of this mineralization within the explored ultrabasic zone has not been included in the Chromex report. The present evidence is possibly conflicting and could only be resolved by an examination of the diamond drill core, the logs, and the analyses.

ORE RESERVES: The Chromex report suggests that on the basis of the 1967-72 exploration a total of 391 million tons averaging 0.24% Nickel plus assorted by-products has been outlined. This assertion cannot be accepted or rejected without having the detailed calculations, drill logs, and analyses available for evaluation.

METALLURGICAL TESTING/ MINERALOGY:

The Chromex report suggested that 45% of the total Nickel value in the host rock is present in solid solution in Magnetite which comprises up to 5% of the rock with 42% Nickel in the sulfide minerals. The grain size of the sulfides has been indicated as very fine grained (5 to 80 microns) but no grain size analyses were included for study.

Various metallurgical extraction techniques for Nickel recovery were apparently discussed but no full scale pilot tests were submitted for evaluation.

As part of the submission, Chromex included a patented process thought applicable to the Mastadon Nickel mineralization. This process has been evaluated by Dr. W. Johnson of the Analytical Laboratory.

GEOLOGICAL EVALUATION:

A large tonnage of low grade nickeliferous ultrabasic rock has been presented as a possible production venture using unproven metallurgical technology. The distribution of the nickeliferous mineralization has not been documented and the detailed mineralogy which must be known to discuss the metallurgy has also been omitted.

The mineralization must at present be viewed as an unproven resource which could only become viable with the application of new or advanced technology.

PATENT NO. 890348: It is apparent that this method has been tested only on a laboratory bench scale model. While the chemical, kinetic and other factors have been proven to work on that scale, it would require a pilot plant trial to prove out some of the materials handling and other practical engineering problems likely to be encountered. This would also be required to estimate the likely cost of such an operation.

The pollution aspects would seem to warrant some investigation from two points of view. First the low grade and disseminated nature of the rock being processed would probably require open pit operations with all the inherent environmental considerations. In addition, tailings and waste disposed would be a major problem.

The second pollution consideration is, potentially, the more serious one. This is the necessity of adding large amounts of sodium chloride (Page 11, Lines 23, 30) and, while quenching, other reagents (Page 13, Lines 24, 25) "such as lime, soda ash, caustic soda, etc.". All of these materials would have to be extracted from any tailings waters before they could be released to

the environment. This would likely involve complete recycling various processing fluids, etc. and all of these problems would probably require pilot plant experience to resolve.

Another possible pollution problem is the high arsenic content of some low grade Nickel occurences. However, the reducing agent (coal) may prevent the liberation of arsenic to the atmosphere during the roasting stage. Again however, it would require pilot plant facilities to resolve this problem.

In summary, the information contained in Patent No. 890348 is confined to that generated from experiments run on a laboratory bench scale using quartz tubes for the roasting process. This is not sufficient to extrapolate costs or mechanical problems from and a pilot plant would be required to give more information on these aspects.

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