

NAME *01. BIBLIO and Correspon.*

**MINISTRY OF ENERGY, MINES AND  
PETROLEUM RESOURCES  
VICTORIA, BRITISH COLUMBIA**

SUBJECT

MASTADON

82ESE091

*SUB*  
FILE No. *01*

001250

PROPERTY FILE

JUNE 15 1971

DRILLING CONTINUES ON GRAND FORKS PROPERTY BUT METALLURGY UNSOLVED

CHROMEX NICKEL MINES LTD.

Chromex Nickel Mines Ltd. president Michael Hretchka in his annual report says that metallurgical tests of a bulk sample of the nickel-bearing material in the company's ground near Grand Forks, south central B.C., indicate that concentration by flotation methods "is quite impractical." He hopes that pilot plant testing of chemical leaching with solvent extraction and electro-winning will be underway before long. As of 31Dec69, reserves were 330,875,000 short tons grading 0.25% nickel available to open pit. Consultant Robt. Steiner advised that the increase in tonnage reserves for 1970 will be 40,000,000 tons. Some 4,800 feet was diamond drilled in 1970 including a vertical hole 921 feet deep, representative samples of which indicate 0.23% nickel over the core length, advised Mr. Steiner. The 1971 program of 5,000 feet, at a cost of some \$35,000, resumed in May.

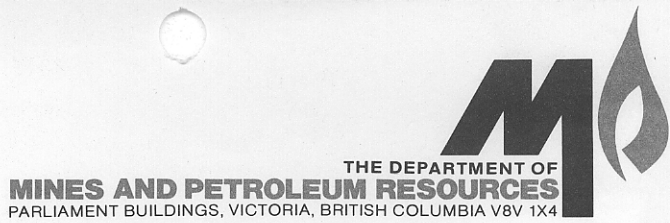
From the Bella Coola highway, an access road was completed in 1970 to the gold prospect of the subsidiary, Kleena Kleene Gold Mines Ltd., some 120 air miles W of Williams Lake, B.C., and a geophysical survey was flown. This year a geological survey and bulldozer stripping and trenching are planned.

Including \$324,814 cash, current assets were \$329,374 at 31Dec70. Auditors note that loans receivable representing \$1,600 of this sum cannot be confirmed. Current liabilities were nil. Chromex received \$37,307 in the year to 31Dec70, being \$30,105 interest earned, \$6,000 contract income and \$1,202 miscellaneous income. \$52,898 was applied, being \$731 purchase of claims and equipment and \$52,167 deferred development. Working capital decreased \$15,591 in the year to \$329,374 at 31Dec70 when, of 8,000,000 shs. auth., 2,901,096 were issued.



MEMORANDUM FROM JURGEN KOHWEDDER

TO J. S. POYEN



DATE May 13/75

RE: CROMEX NICKEL MINES LTD.

Background

- Cromex Nickel Mines Ltd. holds directly or indirectly through its wholly owned subsidiary, Hunter Point Exploration Ltd., a nickel prospect at the Christina Lake area, Greenwood, B. C. The mineralized zone contains 391 million tons grading .24% nickel with minor values of chromium, magnesium, gold, silver and platinum.

- The metallurgy of the mineralization is complex and no commercial processes of beneficiation exist. The submitted process has only been confirmed in laboratory tests.

- E. W. Grove concludes that the deposit is only in the exploration stage and that the data is insufficient to evaluate tonnage, mineralogy and mineral distribution.

Recommendation

Dr. J. T. Fyles recommends no further investigation. It does not appear that the project would be viable in the near future unless high grade ore zones are discovered or an economical process of beneficiation is found. Inco's sulphide ore reserves contain 1.6% nickel and 1.0% copper. The average laterite deposit contains around 1.3% nickel.

It should be communicated to Cromex Nickel Mines Ltd. that the Department is not interested in any direct involvement concerning the deposit.

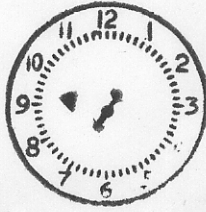
FILING CLERK	FILE NO.	JR:ps	M. R.	GEOLOG.	ACCTS.	G.C.	ACPR	DGC	C.P.R.	C.G.C.	ADM (P)	ADM (M)	D.M.	REFERR. TO	DATE	CHINA
														Jurgen Kohweder		

*Jurgen Kohweder*

AUG 16 '76 AM

8241

8/17/76 - Discussed with JTFyles with no action to be taken at this time re apply



THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA AND PETROLEUM RESOURCES

March 27, 1975

Mr. Michael Hretchka,  
Manager,  
Chromex Nickel Mines Ltd.,  
1955 Greelman Avenue,  
Vancouver, B.C.

Dear Mr. Hretchka:

Further to your telephone enquiry today to the Department we wish to advise that we are in receipt of your letter dated February 16th, 1975 and supporting documentation.

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Yours very truly,



J.S. Poyen,  
Director,  
Economics & Planning Division.

:sgn



MEMORANDUM

TO.....Mr. J. S. Poyen,.....  
.....Director,.....  
.....Economics and Planning Division  
.....(MINERAL DEVELOPMENT)

FROM THE

DEPARTMENT OF MINES  
AND PETROLEUM RESOURCES

VICTORIA, B.C., March 26th, 1975

WHEN REPLYING PLEASE REFER  
TO FILE No. 871

Re: CHROMEX NICKEL MINES

Upon receiving the report of E.W. Grove and W.M. Johnson it is clear that both the property and the process are in a very early stage of exploration.

I do not recommend following through with a further investigation.



JAMES T. FYLES  
Associate Deputy Minister



JTF:bg Att: Reports

1955 Greelman Ave  
Vancouver V6J 1B8  
16 Feb, 1975

Dear Mr McMynn;

Thank you for seeing me some few weeks ago in respect to the nickel deposit of Chromex Nickel Mines Ltd some 2.5 miles south and east from Cascade B.C.

Various reports maps etc are submitted for your staff's evaluation of the overall potential of the nickel deposit.

A copy of patent Number 890348 is enclosed, in my opinion this appears to be the best process at the moment.

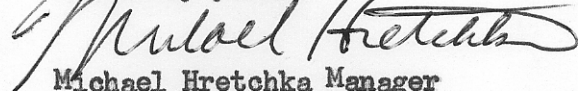
All such further documents data or other information including my personal presence on request to 738-1494 or 873-3991.

I believe lake Placer here in Vancouver during 1973 prior to Bill 31 that it would take about \$65,000,000 to place the property into production at 30,000 short tons a day. Output would be from 90 to 100,000 pounds of refined nickel, 1200 short tons of pure iron eq, plus substantial amounts of Chromium, soluble magnesium which could be converted into feed stock for production of magnesium, gold silver and platinum values which could be recovered, plus by addition of phosphate a large quantity of Magnesium phosphate fertilizer could be produced.

The property is unencumbered in any way.

DEPUTY MINISTER OF MINES & PETROLEUM RESOURCES			
REC'D FEB 20 1975 205			
REFERRED	TO	DATE	INITIAL
ACCTS			
A. D. M.			
A. D. P.			
M. R.			
E. & P.			
A. D.			
FILE			

Sincerely yours.



Michael Hretchka Manager  
Chromex Nickel Mines Ltd.



*See carbon copy  
for corrections*

82E/1E  
82E/SE-91

CASCADE CHROMITE  
OCCURRENCES

The occurrences of chromite on Castle Mountain east of Cascade are covered by the following Crown-granted mineral claims: Mastodon, lot 3384 S; Mammoth, lot 2385 S; Dominion, lot 2386 S; Pan, lot 2387 S; and Canyon, lot 2390 S. In addition to these, several mineral claims have been staked in the vicinity, these include the Blacktail, recorded in May, 1939, for R.E. Wolverton, Greenwood, and the Power Nos. 1 to 4 inclusive, Power No. 5 fraction, Power Nos. 6 and 7, Power No. 8 fraction, Power No. 9 fraction, Power No. 10 fraction and Power No. 11, recorded in May, 1939 by R.P. Brown, Penticton.

The chromite showings are on the westerly and southerly slopes of Castle Mountain, immediately east of Cascade. The best showings and underground workings are adjacent to the Grand Forks-Rosslund highway at a point  $6\frac{1}{2}$  miles east of Cascade. Other and poorer showings lie northward up the slopes of Castle Mountain (see Figure ( )).

The hillside in the vicinity of the showings is steep and the cover variable. In the vicinity of the workings near the road the hillside is relatively open and covered by grass and only a few trees, but higher up the mountain side the underbrush becomes dense and the trees numerous. The overburden is not thick; in general it ranges from a few feet to three feet. Outcrops are scattered and not numerous.

The deposit consists of chromite occurring in massive serpentine. The chromite possesses three more or less related modes of occurrence as follows: (1) lenses of relatively pure chromite that assay over 40 per cent. Chromic oxide, (2) irregular areas of disseminated grains of chromite, sometimes known as areas of "pebble chromite", that assay between 15 and 40 per cent. Chromic oxide, and (3) long streaks or "schlieren" of chromite grains, commonly too narrow to sample. The present examination did not reveal any structural control within the serpentine for the occurrence of the chromite bodies.



Although the host rock for the chromite is serpentine, several other rock types occur in the general area of the mineral occurrences. These rock types include greenstone breccia, tuffs and flows and a variety of light-coloured dykes that include feldspary porphyry, monzonite and granite. The areal distribution of the serpentine and surrounding rocks is shown in Figure ( ).

The serpentine is a massive, black, fine-grained rock. Mineralogically the rock consists entirely of the mineral serpentine; no vestiges of original minerals were seen. However, some occurrences of bastite, presumably pseudomorphous after pyroxene and the mesh-work texture displayed by the mineral serpentine, presumably inherited from fractured olivine, suggest that the serpentine rock may have originally been peridotite.

Where this massive serpentine rock is sheared, a dense, yellow mineral of the serpentine group has developed within the shears. Small, scattered grains of magnetite and chromite are common within the serpentine, and samples of ordinary serpentine rock assayed: Chromic oxide, from 0.3 to 0.5 per cent.

The gneiss is a coarse-grained, foliated rock consisting of feldspar, quartz and biotite; the outcrops are very badly weathered and as a result the rock is rusty in colour.

The term greenstone includes breccia, tuff, and flow rocks; all are extensively altered to chlorite, carbonate and fibrous amphibole. The breccias consist of sub-angular greenstone fragments, ranging from <sup>1/2 of an inch</sup> ~~1/2 to 3 inches~~ to 3 inches in diameter, set in a tuffaceous matrix. The tuffs are rather massive, fine-grained rocks that contain fragmental feldspar and some amphibole set in a dense matrix completely altered to chlorite, carbonate and fibrous amphibole. The flow rocks are fine-grained porphyritic rocks that consist of a non-fragmental aggregate of feldspar and <sup>phenocrysts</sup> amphibole/set in a dense, altered matrix.

Dunite, although not seen in the immediate vicinity of the chromite showings, occurs on Murt Carroll's prospect (see Figure ( )). It is a massive, medium-grained, granular rock of a yellowish-green hue and consists almost wholly of relatively unserpentinized olivine grains

Monzonite was seen, likewise only on Murt Carroll's prospect. It is a massive, medium-grained, gray rock, consisting of feldspar and conspicuous biotite.



Granite occurs as a few isolated outcrops that probably constitute part of a dyke-like mass. The rock is fine-grained, light gray in colour and consists of feldspar and abundant quartz; black minerals are scarce.

Feldspar-porphry occurs in dykes that range from 25 feet to 100 feet wide. The rock is gray in colour and porphyritic in texture, and consists of  $1/8$  of an inch to  $1/4$  of an inch feldspar phenocrysts set in a dense matrix of feldspar, biotite and amphibole.

Shears and faults are common with the serpentine. The shears may occur singly or in zones of shears up to 10 feet wide. In either case yellow serpentine is abundantly developed along the shears. In the shear-zones the rock is sliced into sharp-edged ellipsoids of serpentine rock bounded and often completely replaced by a yellow serpentine-mineral. The faults range from ~~1/2~~ <sup>1/2</sup> of an inch to 6 inches in width and consist of crushed rock and frequently granulated chromite. They post-date both the shears and chromite lenses. In particular, the chromite lenses in the adit have been cut by a strong fault, and the faulted portions displaced an unknown amount by a strong fault.

The workings consist of one adit and several open-cuts and strippings. Their relative position is shown in Figure ( ), and the details of the main underground workings and open-cuts are shown in Figure ( ).

Three lenses of high-grade chromite mineralization occur in the adit. These lenses all lie in the hanging-wall of a strong fault, strike north-easterly and dip 50 degrees south-easterly, which contains 6 inches of crushed rock and in places a little drag-ore from chromite lenses. The dimensions of these lenses, as measured in the walls of the adit, are as follows: No. 1, 3 feet by 18 inches, No. 2, 6 feet by 3 feet, No. 3, 3 feet by 10 inches. The exact attitude of these lenses could not be determined, but the exposures in the walls of the adit indicate that they are either horizontal or dip gently south-easterly; if the lenses can be assumed to lie about parallel to the streaks of pebble/<sup>chromite</sup>in the two raises, then they would dip approximately 20 degrees south-easterly. A sample taken across lens No. 2 and considered to be typical of the other massive chromite lenses, assayed: ~~Chromite oxide~~, 42.8 per cent.

Two inclined raises on slopes of approximately 20 degrees, have been driven on streaks of pebble chromite that lie in the hangingwall-side of the fault. The first incline begins from a point 4 feet above the floor of the adit and breaks through to the surface at the bottom of a small gory-hole 6 feet above. The streak of pebble chromite in this raise ranges from 6 inches to 12 inches in width and with one short break extends the full length of the raise. The second inclined raise begins at a point 10 feet above the floor and extends westward on a slope of 20 degrees for 12 feet. Both walls expose a streak of pebble chromite that extends from a point 4 feet up the raise to the face; the streak ranges in width from 6 inches to 2 feet. This streak strikes north-easterly and dips 20 degrees south-easterly. It is to be expected that streaks and possibly lenses of massive chromite in any one area would parallel each other in strike and dip; that is, the general strike of lenses may be assumed to be north-easterly and the dip south-easterly.

At the portal of this adit a deep pit has been sunk; at the time of the writer's examination, the water-level in this pit came to within 8 feet of its edge. From the top down to the water-level, four small lenses of massive chromite are exposed in the east wall of the pit; these lenses are approximately 3 feet long and range from 6 inches to 1 foot in thickness.

The open-cut leading into the adit, and the adit, are all in massive, black serpentine.

No. 1 cut exposes a lens of chromite that measures 2 feet by 1 foot.

No. 2 and 3 workings, a cut and trench respectively, do not expose any chromite.

The face of No. 4 working, in the west group of workings, exposes a vertical streak of pebble chromite that measures 10 feet long and ranges in width from 1 inch to 12 inches. A sample taken across a 12-inch section assayed: Chromic oxide, 20.5 per cent.

No. 5 working consists of an irregularly shaped pit from the east side of which an incline has been sunk eastward for 28 feet on a 35-degree slope. This incline exposes three lenses of massive chromite. Two of these measure 6 feet and 8 feet in length and range from 6 inches to 18 inches in thickness; the third, and largest lens, measures 10 feet in length by 1 foot in thickness; this lens is in the floor of the incline. Two samples, one across 18 inches of the uppermost lens, and one along 5 feet of the lowermost lens, assayed: Chromic oxide, 39.5 and 40.6 per cent. respectively. The floor, roof and both sides of the incline contain evenly disseminated chromite; a representative chip sample of this material assayed: Chromic oxide, 14.6 per cent.

Open-cuts Nos. 6 and 7 do not expose any chromite, neither lenses nor pebble chromite.



In addition to the workings already described, several open-cuts have been dug in the hillside above (see Figure ( )). These are all very old workings and any trails that led to the workings have been so badly overgrown that it is now almost impossible to follow them.

No. 8 is a trench that extends for 8 feet in an easterly direction; it has a 4-foot face on the north side. The cut exposes only a small amount of pebble chromite and no massive chromite.

No. 9 is a trench 8 feet wide that extends for 20 feet in an easterly direction, and has an 8-foot face on the north side. The best mineralization consists of a vertical lens, strike easterly, of fairly massive chromite that measures 2 feet horizontal by 3 feet vertical by 3 inches across its thickness; the lens pinches out along a shear. A sample representative of a small pile of mineralized material assayed: ~~23.7 per cent. Cr<sub>2</sub>O<sub>3</sub>~~  
Chromia oxide, 23.7 per cent.

No. 10 working is driven in a direction north 70 degrees east as an open-cut for 35 feet and then as an adit for 8 feet. Neither pebble nor massive chromite was seen in the walls of this working, although some pebble chromite has been collected during mining operations into a pile measuring 6 feet by 5 feet by 1 foot. A representative sample of this material assayed: ~~24.8 per cent. Cr<sub>2</sub>O<sub>3</sub>~~  
Chromia oxide, 24.8 per cent.

No. 11 working is merely a small, irregularly blasted area on the side of an easterly trending bluff 10 feet high. This exposes a zone of lean, pebble chromite that is 5 feet long by 3 feet wide and trends easterly; a sample of this material assayed: ~~xxxxxx~~  
Chromic oxide, 4.6 per cent.

No. 12 is a rock trench that extends north-westerly for 20 feet; a hole 4 feet in diameter by 6 feet deep extends south-easterly from the south-east end. No mineralization was seen in the trench; however, some was encountered during the digging of the trench, as is shown by a dump of pebble chromite on the edge of the trench; this dump measured 6 feet in diameter by 2 feet in depth and a sample taken from it assayed: ~~27.9 per cent.~~  
Chromic oxide, 27.9 per cent.  
~~xxxxxx~~

The writer advances the hypothesis that the chromite lenses, pebble chromite and "schlieren", occur in a zone or zones of mineralization that possess strikes and dips similar to the strikes and dips of the contained chromite masses, namely a northerly to north-easterly strike and an easterly to south-easterly dip. The fault in the adit has displaced the north-westward extension of the chromite bodies, and it follows, has displaced the north-westward extension of the zone of mineralization. It is not known whether the chromite in the incline, No. 5 showing, represents the displaced part of the zone in the adit, or represents a second zone of chromite mineralization.

As a result of the above reasoning, the writer suggests that the lenses of ore in the adit and in the incline, No. 5 showing, be prospected eastward and south-eastward down their dip.

Property examined June, 1938.

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John S. Stevenson,

B.C. Dept. of Mines.