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PROPERTY FILE

A Summary Report 8ZESE091

CASTLE MOUNTAIN NICKEL DEPOSIT

CHROMEX NICKEL MINES LTD.

HUNTER POINT EXPLORATIONS LTD.

March 15, 1972

R. Steiner, P. Geol.

# ROBERT STEINER, B.A., PROFESSIONAL GEOLOGIST

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## A SUMMARY REPORT

For the period February, 1966 through December, 1971

CASTLE MOUNTAIN NICKEL DEPOSIT

CHROMEX NICKEL MINES LTD.  
and  
HUNTER POINT EXPLORATIONS LTD.

MARCH 15, 1972

ROBERT STEINER, P. GEOL.

MAPPING - EXAMINATIONS - REPORTS

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- D. Mineral Claim Map No. 82-E-1E (M)
- E. Forest Cover Map No. 82-E-1-B
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- H. Geological Map No. 6-1957, Kettle River East Half
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A SUMMARY OF MINING CLAIMS, MINING LEASES AND INTERESTS THEREIN

AS OF DECEMBER 31, 1971

Subsurface mining rights as to minerals pursuant to the Mineral Act of the Province of British Columbia are vested in the following companies and represent a direct 100% beneficial ownership, unless otherwise stated, with contractual obligations noted.

CHROMEX NICKEL MINES LTD.:

Lot Number 2384 S	Known as Mastodon	Crown Granted Mineral Claim
2385 S	Mammoth	
2386 S	Dominion	
2387 S	Pan	
2388 S	Mastodon Fraction	
2390 S	Canyon	

All of which are located at and about Castle Mountain three miles southeast from Cascade, B.C., in the Greenwood Mining Division, Similkameen Land District, Kettle River Assessment District, with a total surveyed acreage of 190.5 and all registered with the Registrar of Titles, Kamloops Land District at Kamloops, B.C.

Current taxes are 25 cents per acre per year.

HUNTER POINT EXPLORATIONS LTD.:

	<u>Record Numbers</u>	<u>Prepaid Assessment</u> <u>Work To</u>
Ann No. to No. 100	22285 to 22384	November 26, 1981
Haney	22387	November 26, 1981
Mose	22386	November 26, 1981
Charles	22385	November 26, 1981
Surprise No. 1 to No. 4	25764 to 25767	July 4, 1982
Ann No. 101 to No. 158	29444 to 29501	May 30, 1977
Tuff No. 1 to No. 4 *	28378 to 28381	November 25, 1976
Haz-al No. 1 to No. 4 *	27619 to 27622	June 20, 1977
Haz-al No. 9 to No. 16*	28370 to 28377	November 22, 1980
H No. 1 to No. 16	29428 to 29433	May 30, 1977
Hup No. 1 to No. 8	28362 to 28369	November 22, 1980
Mineral Lease**	M.265	December 8, 1980

\*\*A Crown Lease on Lot 1756 acreage 49, with cash rental prepaid to December 8, 1976, all of which are located in proximity to the six crown granted mineral claims, and in the Greenwood Mining Division, recorded with the Mining Recorder at Grand Forks, B.C.

\*The Vendor is entitled to receive a 5% gross royalty as if and when ore is mined, calculated on minesite value to the amount of \$4,500.00.

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Basic No. 1 to No. 12	3984 to 3995	June	20, 1977
Basic No. 13 to No. 20	4750 to 4757	June	14, 1978

All of which are located about seven miles east of the six crown granted claims, Trail Creek Mining Division and recorded with the Mining Recorder at Rossland, B.C.

*RS*

## INTRODUCTION

The writer has been retained as a Consulting Geologist for Chromex Nickel Mines Ltd. and Hunter Point Explorations Ltd. on a continuous basis, from time to time, for the years 1966, 1967, 1968, 1969, 1970 and 1971.

During each of these years, exploration work has been carried out, and directed primarily to sub surface diamond core drilling, on the six crown granted mineral claims and adjoining location held mineral claims.

It is to be noted that the drilled out reserves as of December 31, 1971 are substantially situated within the six crown granted mineral claims occupying an area of 190.5 acres.

Geological reports for the period 1966 through 1971 are as follows:

March	14, 1966
January	12, 1967
January	25, 1969
May	12, 1969
April	14, 1970

## MINERAL CLAIM HOLDINGS

A summary of Mining Claims, Mining Leases and Interests therein as of December 31, 1971 certified by George R. Herbrink, Solicitor of the Supreme Court of British Columbia, immediately preceding this page, and as shown on Mineral Claim Map No. 82-E-1E(M) enclosure Item D.

## GENERAL STATEMENT

The area occupied by the six crown granted mineral claims and adjoining claims is located on the southwest slope of Castle Mountain, at an average elevation of 3200 feet, with a gradual increase in elevation north and east. Many miles of abandoned logging roads, all usable, places the property in a very favourable position with respect to exploration, development and potential open cast mining, with a minimum of ecology, tailings disposal or other environmental problems now associated with the mining industry.

No camps or housing will at any time be required. The mineral claims and adjoining lands are not occupied.

## LOCATION OF MINERAL CLAIMS

About three miles southeast from the resort area of Christina Lake and Cascade, B.C. and alongside the 49th parallel and north and eastward. The claims are located about 110 miles north of

*RS*

Spokane, Washington, U.S.A.; about 350 miles east of Vancouver, B.C. via Southern Trans-Provincial Highway #3 and 14 miles east of the City of Grand Forks, B.C.

### FACILITIES

High voltage transmission lines of the West Kootenay Light and Power Company and an Inland Natural Gas Co. Ltd. pipeline traverse the property in an east/west direction. Drilled out area is located within three miles of Canadian Pacific Ltd. and Burlington Northern Inc. railroads, the Southern Trans-Provincial Highway #3; within one mile of ample water supply from the Kettle River and two miles from the drainage outlet of Christina Lake. The area has a typical dry belt climate with negligible precipitation and three-month mild winters.

### GEOLOGY AND MINERALIZATION

Generally the mining property is situated within a series of ultra basic and volcanic (sedimentary) rocks of the lower cretaceous and jurassic age respectively. The nickel bearing ultra basics have a surface dimension of some 8,000 feet, striking north from the 49th parallel, with a maximum width of 4,000 feet. They intrude the jurassic rocks which underlie most of the mineral claims and surround the ultra basics to the west, north and north-east.

Geological studies and mapping during the past six years confirm that the principal rock types of the ultra basics are a dunite and a gabbro. They appear to be much larger bodies than previously indicated and constitute the greater part of the southern and western slopes of Castle Mountain, 4698 feet. They are substantially occupied by the six crown granted and adjoining mineral claims.

Serpentine is present, but to no great extent. It represents the alteration of olivine, a mineral constituent of pure dunite. As such it would entail a substantial increase in overall rock volume, and accounts for the presence of sheared slickened and shattered serpentine, the largest mass occurring near the summit of the southern peak of Castle Mountain.

The dunite, gabbro and other associated rock types of the ultra basics, in diverse degrees of alteration, have been susceptible to replacement by varying amounts of mineralization, somewhat evenly distributed within the masses, carrying sulfides and oxides of nickel, iron and chromium, small amounts of copper and water soluble magnesium.

Only a small portion of the ultra basics has to date been geologically mapped and diamond core drilled.

RL



## METALLURGICAL FLOTATION, MAGNETIC SEPARATION, LEACHING

It has been determined that the drilled out portion of the ultra basics carries about 5% magnetite and that about and no more than 45% of the total nickel present is in a solid solution directly associated with the magnetite. About 42% of the overall nickel content is in the form of, and associated with, sulphides and iron pyrites in the 5 to 80 micron range. Microprobe testing and examinations could not establish the form of the nickel balance.

Pentlandite is somewhat evenly distributed throughout the ultra basics; in less altered dunite, which occupies the largest area, millerite predominates; and where more altered, heazlewoodite occurs.

Flotation tests, carried out on representative drill core rejects, in bulk and in the various Tyler mesh sizes, demonstrated that flotation is not a practical or economical method to be considered for concentration. It can be reasonably expected that advanced flotation practices can only effectively float that portion of the nickel sulphides from 50 microns up, and to the extent of from 75 to 80%.

Magnetic separation testing, carried out with laboratory Jones Wet Magnetic separators, has confirmed that in the 150 mesh Tyler sizing, a minimum of 80% of the magnetite could be concentrated with commercial units.

Chemical leaching tests, using ammonia in solution, at atmospheric pressure, indicate that nickel recovery, on a large scale operation is potentially possible. However, the economics of this method have not been sufficiently investigated, with regards to optimum particle size and heap versus tank methods. Ammonia can be synthesized very cheaply from natural gas. Thus the close proximity of the natural gas pipeline enhances the value of the deposit.

Other methods of solvent extraction, ionic exchange concentration and metal recovery methods, researched, developed and presently being used by the writer, are also applicable to the recovery of nickel from the deposit described in this report.

CALCULATION OF ORE RESERVES

- A. As of December 31, 1968, drilled out tonnages, available for open cast mining, totalled 150,686,000 short tons, grading 0.25%Ni/ton.
- B. As of December 31, 1969, drilled out reserves increased by 180,189,000 tons, for an aggregate tonnage of 330,875,000 tons, carrying an average of 0.25%Ni/ton.
- C. As of December 31, 1971, the total tonnages available for mining and occupying a drilled out open cast block, having a width of 2,500' x 5,000' in the minimum, totals 391,000,000 tons, an increase of 60,125,000 tons for the two-year period preceding December 31, 1971, and containing a minimum of 0.24%Ni/ton, water soluble magnesium and subordinate values in chromium, magnetic iron and copper.

BASIC NO. 1 TO NO. 20 MINERAL CLAIMS

Situated as per Geological Map No. 6-1957, Kettle River East Half, southeast corner, Enclosure H, Mineral Cl in Map No. 82-E-1E(M) Enclosure D.

During 1971, a total of 1949 feet of diamond core drilling was completed adjacent to the natural gas pipeline and in proximity to the Coryell granite intrusions,

DD Hole No. 38	vertical	terminated at 423 feet
39	45-E	508
40	45-S	398
41	vertical	323
42	45-S	189
43	vertical	198

Extensive surface dimensions confirm a large area of nickel-iron mineralization, occupying a large open cast pit area of some 2,400' by 6,000', northward from the 49th parallel and at an average elevation of 4400 feet.

Geological studies carried out by the writer indicate that the nickel bearing intrusion is an altered picrite. In excess of 20,000,000 short tons is indicated with an average nickel content of .20%.

No metallurgical testing has been carried out as to treatment and recovery processes.

HAZ-AL NO. 1 to NO. 4 MINERAL CLAIMS

During 1971, a total of 1068 feet of diamond core drilling was completed on a test pattern on what appeared to be extensive

surface outcrops of nickel mineralization,

DD Hole No.	44	vertical	terminated at 144 feet
	45	45-S	208
	46	vertical	233
	47	45-NE	333
	48	45-N	150

It was established that the surface nickel mineralization is a plating of soluble nickel salts, precipitated on and inter-mixed with greenstones and limestones of the Mount Roberts Formation, and carried only to a depth of a few feet.

#### HISTORY AND RECORD OF PRODUCTION

No information or records are available indicating any past history or production from the area occupied by the Haz-al or basic mineral claims. The six crown granted and adjoining mineral claims were under exploration and development during the years 1916 through 1918, when about 670 short tons of chromite ores, averaging 38.5% Chromic Oxide were mined from high grade lenses with the dunite and shipped to a Ferro Chrome facility in the United States.

Reference: "Mastodon Group", 1918, Minister of Mines Annual Report for British Columbia.

#### 1972 EXPLORATION RECOMMENDATIONS

More diamond core drilling should be carried out, at designated stations, on the Basic No. 1 to No. 20 Mineral Claims. Some two miles of new access roads will have to be constructed.

Fill in drilling should be carried out within the drilled out area and eastward from Diamond Drill Hole No. 17. Vertical movement along the fault trending through diamond drill holes 13, 16 and 17, uplifted the block east of the fault about 500 feet, relative to the west side. The east block carries the highest grade of nickel drilled out to date.

Wedge out by drilling the area east and west from DD Holes Nos. 52, 53 and 54 and south towards the 49th parallel. The extension outwards and termination of the known surface nickel mineralization in close proximity with the Rossland volcanic and sedimentary contacts will be at the lowest surface elevation. It is to be noted that ultimate open case production will commence at this point.

Estimated cost about \$30,000.

Respectfully submitted,

*Robert Steiner*

Robert Steiner, P. Geol.

March 15, 1972

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## CERTIFICATE

I, Robert R. Steiner, do hereby certify that I:

Hold a B.A. Degree in Geology, granted to me in 1950, by the University of British Columbia.

Am a member, in good standing, of the Association of Professional Engineers of Alberta, classified as a Professional Geologist.

Do not hold any interest in the securities or properties, directly or indirectly, of Chromex Nickel Mines Ltd. and Hunter Point Explorations Ltd.

Respectfully submitted,



March 15, 1972.

Robert Steiner, P. Geol.