2087

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

GEOLOGICAL - GEOCHEMICAL REPORT ON THE NES PROPERTY, 15 MILES SOUTHEAST OF SPENCES BRIDGE, KAMLOOPS MINING DIVISION 50° 18' N, 121° 05' W NTS: 92I-6

CLAIM	RECORD NOS.	REQUESTED ASSESSMENT CREDIT
Bin 129 - 142	71880 - 71893	1 year each claim
Bin 143 - 151	71894 - 71902	2 years each claim
DDH 1, 2	79297, 98	1 year each claim
DDH 3 Fr. - 6 Fr.	79405 - 408	2 years each claim
	Total:	42 years

Work was carried out on the above claims during the period May 5 to September 22, 1969.

REPORT BY

M. D. MCINNIS, GEOLOGIST

UNDER THE SUPERVISION OF

R.J. NICHOLSON, P.ENG.

October 15, 1969
Vancouver, B. C.

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

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C O M I N C O L T D.

EXPLORATION WESTERN DISTRICT

GEOLOGY REPORT
NES PROPERTY
KAMLOOPS MINING DIVISION
92I-6

INTRODUCTION

The Nes property consists of 29 claims and fractional claims located in the Skuhun Creek area of the Guichon Creek batholith. Twenty-three claims were staked for B. I. Nesbitt and recorded September 30, 1968. Cominco optioned the property in the spring of 1969, and subsequently staked an additional six full size and fractional claims.

During the summer of 1969, an exploration program was carried out on the property. This program included geological mapping, minor geochemical surveying, line cutting, and geophysics (induced polarization survey), which was part of a larger program involving the adjoining Bin Property and Highland Queen Property. Separate reports describe the line cutting work and induced polarization survey. This report includes the geochemical survey results.

For the most part, geological mapping of the Nes Property was complete by the end of July, with geochemical surveying complete by latter September. Personnel resident on the property for the geological work were M. R. Murrell, M. D. McInnis, J. R. Bellamy, and G. E. Grisak.

LOCATION AND ACCESS

The property is located about 15 miles southeast of Spences Bridge, approximately one mile west of the junction of Skuhun and Skuhost Creeks. Access is by dirt road from the Spences Bridge - Merritt Highway 14.2 miles southeast of Spences Bridge. The property is located about seven miles from the highway.

GEOLOGICAL MAPPING

Geological mapping was diligently carried out on a scale of 1" = 1000' over all parts of the optioned property. Because of the extensive overburden, most geological information was derived from traverses that covered hill-tops and ridges as well as areas, such as gullies and canyons, where there has been downcutting into the overburden. Usually, two two-man crews carried our separate traverses from hill-tops to the Skuhun valley floor via canyon or gully. However, overburden areas were also thoroughly examined to investigate the presence of outcropping.

A base map with a scale of 1" = 1000' and contour interval of 50' draughted from 1965 B. C. Government air photos by Lockwood Surveys was used mainly for control. Additional control was obtained through the use of 1960 B. C. Government air photos of scale 1" = ½ mile. The photos were used mainly to outline probable locations of outcrop rather than for field orientation. Outcrop position and shape were located on field maps by pace and compass and were assigned a station number. Field notes, with corresponding station numbers, were kept. Outcrop sketches and station numbers were subsequently transferred to the base map.

GEOCHEMICAL WORK

Minor silt sampling was carried out on the property. Two stream silt samples were collected from the Skuhun Creek bed using a scoop, approximately 2000 feet apart. The samples were packaged in Kraft sample bags and subsequently sent to Cominco's Vancouver laboratory for analysis. Results are tabulated in Table 1.

In addition, a geochemical orientation survey was carried out on Bin 134 claim September 19 to 22. The purpose of this survey was to establish whether geochemistry could be successfully used on this property to indicate mineralization masked by overburden. An area of known mineralization on Bin 134 claim was chosen for examination. The survey was carried out as follows:-

a) Area Description

The area consists of a steep grassy slope cut by a gully. The sides of the gully are talus covered, with malachite staining common on the talus. One source of the stain is suspected to be a narrow bornite - mineralized quartz vein at intersection of line 5 N and 8 W (see plate 1, 1" = 400'). The vein strikes at approximately N 30° W.

b) Method

Using claim lines as a reference, an east - west grid was flagged with lines at 400' interval. Samples were collected every 200'. A second grid was flagged in a NE - SW direction at 100' interval, with samples collected every 100 feet.

Samples were taken at various depths throughout the soil profile in order to establish an optimum sampling depth.

Sixty-eight soil samples were analyzed for copper by Cominco's Geochemical Laboratory in Vancouver. A hot nitric acid digestion and analysis by atomic adsorption was employed. Analyses are tabulated in Table II.

c) Results

1. Soils in this area are very well drained due to a high amount of sand throughout the soil profile. The soil can essentially be called a regosol; a light coloured eluvial Ae horizon about 1 inch in thickness usually exists, but further soil development is scarce. The well drained soil has caused an overall reduction of background copper in the area.

2. The median in the control area is 40 ppm, the standard deviation is 17 ppm, and the threshold is 74 ppm copper.

3. Using the above values, 17 statistical anomalies were found. The NE - SW traverses outlined the continuation of the quartz vein uphill, and possibly downhill. (A statistical anomaly is a geochemical value which is at or above the median value plus two standard deviations. This value may or may not be geologically anomalous).

4. Minor disseminated chalcopyrite in an adit on line 1 N is expressed in the results above and below the adit.

d) Conclusions

1. On a steep slope, where overburden cover is not overly thick, geochemistry can be effective in tracing known mineralization.

2. The soil development on the Nes property is not conductive to geochemical prospecting. Particularly in areas of deep overburden, as the soil is too well drained to hold metallic ions.

3. Where there is no horizon development, a sampling depth of 8 inches is satisfactory.

TABLES OF GEOCHEMICAL RESULTS

Table I

Stream Silt Samples from Skuhun Creek

Sample No.	Cu in ppm	Mo in ppm
SS-9	30	1
SS-10	50	1

Table II (a)

Soil Samples from the Bin 134 Vicinity - 200 x 400' grid

Sample No.	Location	Cu in ppm
BN-1	Line 12N-0W	100
2	2W	70
3	4W	30
4	6W	20
5	8W	15
6	10W	90
7	12W	15
8	14W	20
9	16W	25
BN-10	Line 8N -16W	70
11	14W	140
12	12W	30
13	10W	30
14	8W	25
15	6W	50
16	4W	45
17	2W	40
18	0W	95
BN-19	Line 5N -0W	65
20	2W	55
21	4W	65
22	6W	115
23	8W	50
24	10W	35
25	12W	300
26	14W	30,40,50
BN-53	Line 1N -12W	35
54	10W	45
55	8W	35
56	6W	300
57	4W	270
58	2W	190
59	0W	60
60	2E	85
61	4E	40

Sample No.	Location	Cu in ppm
BN-62	Line 3S-4E	50
63	2E	65
64	0	30
BN-65	Line 7S-4E	50

Table II (b)

Soil Samples from Bin 134 - 100' x 100' Grid

Sample No.	Location	Cu in ppm
BN-27	Traverse "A"	65
28	"	45
29	"	70
30	"	75
31	"	45
32	"	40
33	"	50
BN-34	Travers "B"	40
35	"	40
36	"	45
37	"	35
38	"	85
39	"	80
40	"	65
BN-41	Traverse"C "	40
42	"	35
43	"	120
44	"	65
45	"	60
46	"	25
BN-47	Traverse "D"	105
48	"	165
49	"	95
50	"	75
51	"	40
52	"	35

GEOLOGY

The Guichon Creek Batholith has been described in K.E. Northcote's PhD. thesis. His classification scheme is used here. On the Nes ground, only one rock unit is found - the Guichon variety of the Highland Valley phase.

a) Guichon Variety

The Guichon variety is a light grey to grey, medium to coarse grained, hypidiomorphic rock. It shows some effects of contamination from older pre-batholithic rocks and ranges in composition from quartz diorite to granodiorite. Mafics, consisting of hornblende and biotite, make up 15 - 25% of the total rock. Hornblende occurs a fine to medium grained, anhedral to subhedral crystals, often showing a sericite texture. Commonly, the hornblende is slightly poikilitic enclosing grains of feldspar and quartz. In many areas, the hornblende grains are well chloritized, giving an overall greenish coloration to the rock. Biotite occurs as evenly distributed aggregates, with ragged edges. This feature is characteristic of the Guichon rock.

Although most of the Guichon rock type is massive, it has been noted in several places that the mafics are aligned, giving a

foliated appearance to the rock. Associated with this foliation, is an overall decrease in mafic grain size.

b) Leucocratic Dykes

Leucocratic dykes, late phases of the batholith, are found intruding the Guichon rock on the property. The dykes have variable grain sizes, ranging from fine to medium-grained and are composed primarily of orthoclase gives these dykes a definite pink colour. In most cases, the dykes are equigranular, although in some areas, particularly in the north of the property, quartz forms anhedral blebs interstitial to the feldspar. Minor mineralization can be found in many of these dykes.

c) Basic Dykes

Swarms of basic dykes can be found on the property intruding the Guichon rock. These aphanitic dykes comprise a variety of lithologies and mineralogies but most appear to be andesitic in composition. Some dykes are characterized by pheno-crysts of pink feldspar approximately 2" in length.

d) Alteration

1. Chloritization

Weak chloritization is common in the rocks on the property. Chloritized rocks often show a greenish coloration due to the breakdown of mafics to chlorite. This alteration usually occurs locally especially in areas of shear.

2. Potassic alteration

Thin, crystalline films of potassic alteration are found on fracture plane surfaces in areas of shear. It appears to have been introduced along fracture planes and has subsequently altered the wall rock to a depth of no more than 1". More often than not, the crystalline material has undergone a secondary argillic alteration and forms a pink, powdery substance on the fracture plane surfaces.

STRUCTURAL GEOLOGY

Structures on the property have been both inferred from field inspection and from air photo interpretation. Faults were inferred on the basis of steep, often slickensided valley walls whose floors are covered with much large, angular rubble. In some cases, a projection of these faults has been described using air photo interpretation.

There are two regional fault directions found on the property. The dominant directions in the Guichon rock type are southeasterly and south-southeasterly. There is little evidence of large displacement in the valleys examined. Joint sets generally parallel major structural trends, indicating that they are secondary resulting from regional stress after crystallization.

MINERALIZATION

Bornite is the only primary ore mineral found on the property. It is found in the north of the property where it occurs as irregular masses within leucocratic dykes. In places, it penetrates the Guichon wall rock along fractures, forming elongated blebs. Weak chloritization accompanies the mineralization.

Abundant secondary malachite and azurite is found associated with a shear zone also in the northern portion of the property. Weakly chloritized Guichon rock is cut by a leucocratic dyke which, in turn, is cross-cut by a basic dyke. A shear zone parallels the leucocratic dyke along its westerly contact with the wall rock. At the junction of the leucocratic dyke and basic dyke abundant malachite and azurite fill spaces and coat breccia fragments in the shear zone.

CONCLUSIONS

The lack of encouragement to-date does not preclude the possibility of economic mineralization on the property. Further investigation will be carried out.

Attachments

1. Plan, "Nes Property, Geology", Scale 1" = 1000'
2. Plan, "Nes Property, Claim Location", Scale 1" = 1000'
3. Plan, "Orientation Survey Sample Locations", Scale 1" = 400'
4. Statement of Expenditures
5. Statutory Declaration relating to Expenditures
6. Statement of Qualification.

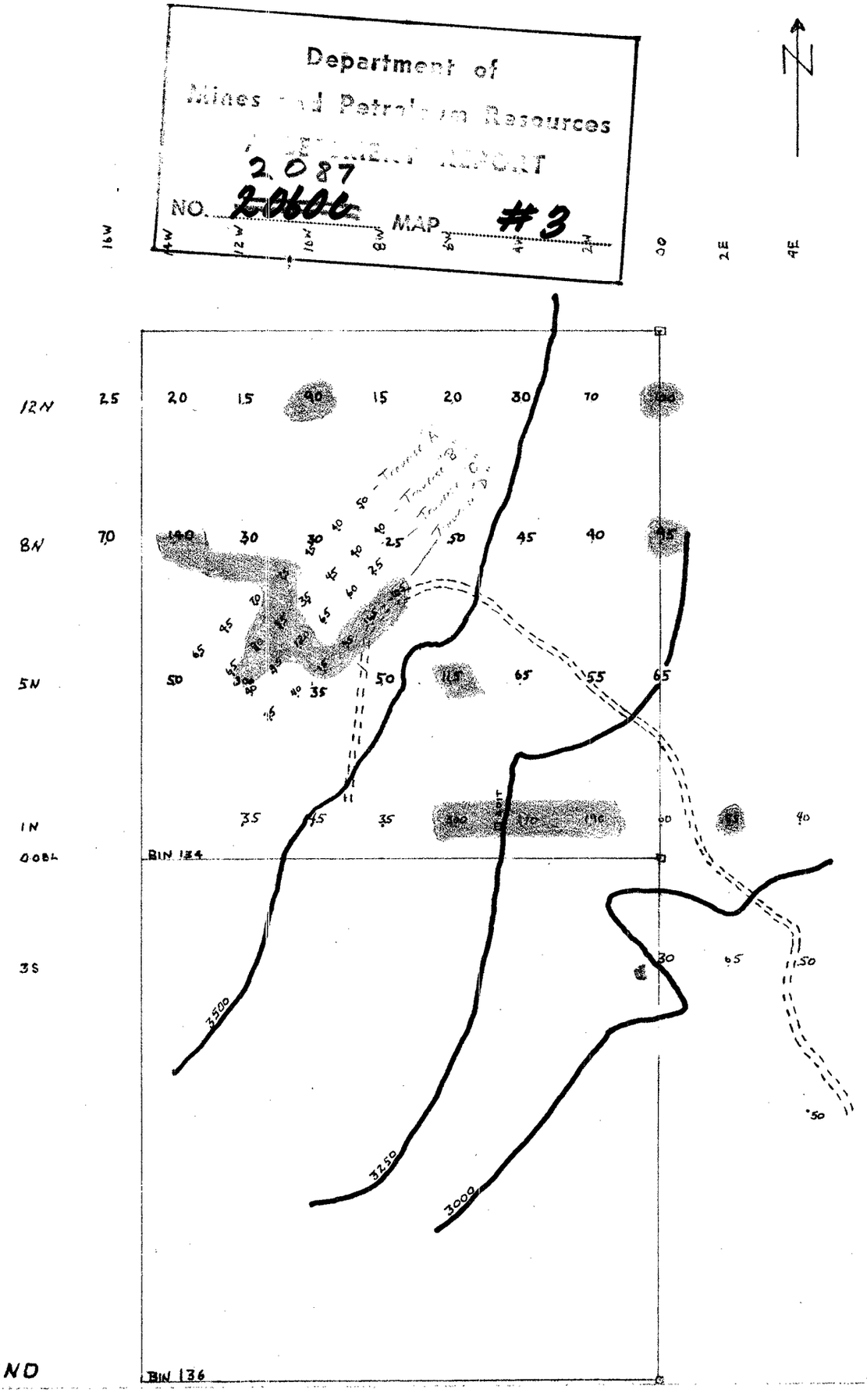
Report by: "M. D. McInnis"

Endorsed by: J. Richardson
J. Richardson,
Professional Engineer

RJN/nc
October 16, 1969

Distribution

Mining Recorder	(2)
Western District	(1)



LEGEND

.35 ppm Copper
MEDIAN = 40 ppm
2S = 34 ppm
THRESHOLD = 74 ppm

STATISTICAL ANOMALY

To accompany Geology Report, dated October 16, 1969, by M.D. McInnis, on the NES Property. Kamloops M.D.

R.J. Nicholson P.Eng.

Dominco

Drawn by: BWS		Traced by:	
Revised by	Date	Revised by	Date

NES PROPERTY, ORIENTATION SURVEY SAMPLE LOCATIONS - BIN 134 CLAIM AREA

Scale: 1" = 400' | Date: Sept 23/69 | Plate: 1

BCIL 2187 C

210-0610

EXHIBIT "A"

EXPENDITURE STATEMENT
GEOLOGICAL MAPPING
NES PROPERTY
KAMLOOPS MINING DIVISION

Salaries		
Senior Geologist, D.W.Heddle, 1 day during July @ $35/day	$ 35.00	
Senior Geologist, S.J.Pedley, 2 days during May @ $35/day	70.00	
Senior Geologist, R.J.Nicholson, 7 days May to Aug. 31 @ $35/day	245.00	
Geochemist, B.W.Smee, 4 days Sept. 1 to Sept. 30 @ $30/day	120.00	
Geologist, M.D. McInnis, 20 days May 5 to Aug. 31 @ $30/day	600.00	
Geologist, M. R Murrell, 13 days May 12 to Aug. 8 @ $30/day	390.00	
Field Assistant, G.E.Grisak, 16 days May 12 to Aug. 31 @ $25/day	400.00	
Field Assistant, J.R.Bellamy, 13 days May 14 to Aug. 31 @ $25/day	325.00	
Geochemical Technician, R.W.Brown, 4 days Sept. 1 to Sept. 30 @ $25/day	100.00	
Draughtsman, G. Toop, 2 days in May and 1 day in Sept. @ $25/day	75.00	$2,290.00
Contract Charges		
Topographic Map (Lockwood Surveys)	$ 162.00	
Road Maintenance (Chateway Lodge)	25.00	$ 187.00
Camp Services including expense accounts		$1,000.00
Communication		$ 25.00
Transportation		
Truck rental - 2 vehicle months @ $300/month		$ 600.00
Geochemical Laboratory Charges		$ 100.00
		$4,202.00

Signed by: R.J. Nicholson

R. J. Nicholson, P. Eng.

This is Exhibit "A" to the Statutory Declaration of R.J. Nicholson declared before me the 17th day of October, 1969.

A Commissioner for Taking Affidavits for British Columbia

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of

STATUTORY DECLARATION RELATING TO EXPENDITURES ON A GEOLOGICAL SURVEY OF THE NES PROPERTY, KAMLOOPS MINING DIVISION.

I, ROBERT JOHN NICHOLSON, Professional Engineer

of the City of Vancouver

in the Province of British Columbia, do solemnly declare that

1. I do personally know M. D. McInnis who prepared the accompanying geological report as a result of a survey carried out under my supervision on certain mineral claims situated in the Kamloops Mining Division.
2. Copies of the said report are being filed with the Mining Recorder in Vancouver.
3. Attached hereto and marked with the letter "A" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the geological survey of the said claims showing in addition the dates during which those making the said survey performed their work.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 17th day of October 1969, A.D.

R. J. Nicholson

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia

In the Matter of

Statutory Declaration

(CANADA EVIDENCE ACT)

C O M I N C O L T D.

EXPLORATION WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

M. D. McInnis was responsible for carrying out the geological survey on the Nes property and for the preparation of this report. Mr. McInnis graduated as Bachelor of Science from the University of British Columbia in Honours Geology 1969. He has been working in a responsible capacity with Cominco Ltd. since May 5, 1969.

I consider him to be a capable geologist.

R. J. Nicholson, P. Eng.

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To accompany Geology Report dated October 16, 1969, by M.D. Mehner, on the NES Property, Kamloops M.D.

R.J. Nicholls P.Eng.

Cominco

NES PROPERTY

CLAIM TENURE

NTS 92 I 6

Drawn by: R.J.N. | Traced by: G.K.T. | Scale: 1" = 1000' | Date: SEPT. 24, 1969 | Photo:

N

SKUHUN CREEK

SEE CLAIMS

SAN JOSE 14 | SAN JOSE 13 | SAN JOSE 16 | SAN JOSE 15 | SAN JOSE 18 | SAN JOSE 17 | SAN JOSE 20 | SAN JOSE

BIN 40 | BIN 38 | BIN 36 | BIN 34 | BIN 32 | BIN 30 | BIN 39 | BIN 37 | BIN 35 | BIN 33 | BIN 31 | BIN 29 | BIN 46 | BIN 45 | BIN 44 | BIN 43 | BIN 42 | BIN 41 | BIN 91 | BIN 93

BIN CLAIMS | CURMO 1-6 | BIN PROPERTY | KU CLAIMS | SAN JOSE | SAN JOSE

BIN 70 | BIN 68 | BIN 66 | BIN 64 | BIN 82 | BIN 80 | BIN 84 | BIN 86 | BIN 88 | BIN 90 | BIN 92 | BIN 94 | BIN 96 | BIN 97 | BIN 99 | BIN 101 | BIN 103 | BIN 111 | BIN 113 | BIN 115 FR

BIN 63 | BIN 110 | BIN 108 | BIN 106 | BIN 109 | BIN 95 | BIN 98 | BIN 100 | BIN 102 | BIN 104 | BIN 112 | BIN 114 | BIN 116 | BIN 162 FR

HIGHLAND QUEEN PRT | CURMO CLAIMS | BIN 166 FR | BIN 163 | BIN 161 | BIN 126 | BIN 124 | BIN 122 | BIN 120 | BIN 118 | BIN 119 | BIN 117

LD 7 FR | LD 8 FR | LD 6 FR | LD 5 FR | TH 26 | TH 29 | TH 27 | TH 42

BRENT CLAIMS | HIGHLAND QUEEN PROPTY | 'B' GROUP | 'A' GROUP | HIGHLAND QUEEN PROPERTY | TOP CLAIMS

DDH 3 FR | DDH 4 FR | DDH 5 FR | BIN 150 | BIN 148 | BIN 146 | BIN 144 | BIN 142 | BIN 140 | BIN 138 | BIN 151 | BIN 149 | BIN 147 | BIN 145 | BIN 143 | BIN 141

NES PROPERTY | SKUHUN CREEK

JT 22 | JT 31 | JT 32 | JT 34 | JT 45 | TH 44 | TH 43 | TH 46 | TH 45 | TH 32 | TH 49 | TH 50 | TH 51 | TH 52

ABBOTT LAKE

TH 16 | TH 15 | TH 18 | TH 17 | TH 20 | TH 19

2087

To accompany Geology Report dated October 16, 1969 by W.D. Williams on the NES Property, Kamloops, B.C.

W.D. Williams P.Eng

Cominco

NES PROPERTY GEOLOGY

N.T.S. 92 I 6E

Drawn by: | Traced by: G.K.T. | Scale: 1" = 1000' | Date: Oct. 17, 1969 | Plate:

LEGEND

- 5 Guichon Variety
- 4 Chataway Variety
- 3 Skeena Phase
- 2 Witches Brook Phase
- 1 Bethsaida Phase

SYMBOLS

- Geochemical Samples - assay in p.p.m.
- Shear Zone
- Fault
- Pink Potassic Alteration
- Mineralization
- Chloritization
- Epidote Stringers
- Geological Contact Inferred

SKUHUN CREEK