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Rec'd Oct. 14/68

EVALUATION OF  
CONSOLIDATED SKEENA MINES LTD.  
GEOCHEMICAL SURVEY - TOE GROUP  
PARADISE LAKE AREA  
NICOLA MINING DIVISION  
B. C. 801238

BCC

BONDAR-CLEGG & COMPANY LTD.  
OTTAWA, CANADA.

geologists • geochemists • analysts

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## INTRODUCTION

### General Statement

The writer was requested by Mr. W. M. Sharp, Consulting Geologist, on behalf of Consolidated Skeena Mines Ltd. to carry an evaluation of the soil survey on the Toe Claims Group in the Paradise Lake Area.

The writer spent September 14 and 15 1968 on the claims group in the company of Mr. J.E. White of Consolidated Skeena Mines Ltd. where the geochemical environment was examined and six previously classified anomalies were re-sampled.

### Location and Access

The Toe Claims Group is located some 25 miles south-east of Merritt, B.C. and approximately 7 miles west of Paradise Lake in the Nicola Mining Division. From Merritt, the property may be reached by travelling south on Highway No. 5 for a distance of 13 miles and then east for a distance of 20 miles on the Pot-Hole Creek Road. This road is accessible

Location and Access (Cont'd)

to two-wheel drive vehicles.

Geology

The Toe Claims Group is underlain approximately 80% by the Nicola Group volcanics. These rocks consist of relatively fresh massive intermediate to basic volcanic rocks. In the northwestern corner of the property, occurs a contact with the Nicola volcanics and the Penask granodiorite. In the contact area, the Nicola volcanics are sheared and have undergone incipient alteration.

Throughout the area minor disseminations of pyrite can be found in the Nicola volcanic rocks. Disseminated pyrite and chalcopyrite was found in the contact area (Line 48W 2600N).

## GEOCHEMISTRY

### Previous Geochemical Exploration

The existing geochemical information available to the writer consists of the map compiled by Mr. W.M. Sharp - "Detailed Geochemical Survey, Total ppm Cu in Soil, Toe Group, Paradise Lake Area, Nicola Mining Division, B.C., Consolidated Skeena Mines Ltd. (N.P.L.)". On this map is plotted the copper concentrations of a 200 x 750 and 200 x 800 grid. The samples were collected in large part from the B-Horizon and at some sample locations C-Horizons samples were also collected.

The copper concentrations were classified at 20 ppm concentrations intervals into a frequency histogram. On the basis of this distribution, all samples containing greater than 60 ppm copper were considered to be anomalous. This fractions of the distribution represented 10% of the total number of samples. On the basis of this classification, several anomalies have been outlined within the claims group.

TABLE I

COMPARISON OF CONSOLIDATED SKEENA MINES LIMITED SAMPLING  
AND BONDAR-CLEGG & COMPANY LTD. RESAMPLING OF 5 ANOMALIES

ANOMALY 1     *VALID*

<u>Sample No.</u>	<u>Location</u>	<u>Bondar-Clegg (Cu ppm)</u>	<u>Cons. Skeena (Cu ppm)</u>
CS-1	L2250E, 0+00	395	396
CS-2	"     2+00S	102	147
CS-3	"     4+00S	27	100
CS-4	"     6+00S	35	30

ANOMALY 2     *INVALID (ORGANICS)*

CS-5	L750E, 4+00S	71	57
CS-6	"     2+00S	35	32
CS-7	"     0+00	69	40
CS-8	L10+00E, 0+00	55	50
CS-9	L250, 0+00	52	250
CS-10	L0, 0+00	54	38

ANOMALY 3     *VALID*

CS-11	L6+00W, 0+00	124	115
CS-12	L8+00W, 0+00	740	423

ANOMALY 4     *INVALID (ORGANICS)*

CS-13	L16+00W, 0+00	17	17
CS-14	L18+00W, 0+00	105	87
CS-15	L20+00W, 0+00	31	29
CS-16	L22+00W, 0+00	228	406
CS-17	L22+00W, 0+00	27	27

TABLE I

<u>ANOMALY 5</u>	<i>INVALID - (ORGANICS)</i>	<u>BONDAR-CLEGG</u>	<u>CONSAL SKENA</u>
CS-18	L32+00W, 0+00	96	145
CS-19	L30+00W, 0+00	203	183
CS-20	L34+00W, 0+00	804	735
CS-21	L36+00W, 0+00	113	131

ANOMALY 6 - VALID - (SEE TEXT)

## Re-Sampling

During the writer's visit to the Toe Claims Group, 6 anomalies were re-sampled to determine the reproduceability of the field and analytical procedures and to determine if local diluting or concentrating agents were operative. The results of re-sampling as compared with the original sampling values for Anomalies 1 to 5 are presented on Table I. Results of Anomaly 6 sampling are shown on Figure I.

Anomaly 1: This anomaly is located on Lines 2250E and 3000E at the base line. Comparison of the re-sampling and original sampling on Anomaly 1 indicates extremely good coincidence values, except on Sample CS-3 where on the original concentration of 100 ppm gave a re-check value of 27 ppm. Occasional sporadic values of this nature can be expected in survey of this nature because of the nature of sampling, i.e. several phases are present, containing different amounts of copper. The re-check samples on Anomaly 1 indicate the anomaly to be valid. Sample CS-1 contain the highest concentration of copper (396 ppm) and at this location overburden is thin, the sample is inorganic and B-Horizon. The bedrock is massive Nicola volcanics with minor disseminated pyrite.



Anomaly 1: (Cont'd)

The source of the anomaly is probably the disseminated pyrite which contains minor copper.

Anomaly 2: Samples CS-5 to CS-8 are located on a gentle southerly slope with relatively thin overburden and are all composed of similar B-Horizon samples. At the location of sample CS-9 the original sample site was not found and this probably explains the wide diversions in copper concentrations (52 ppm against 250 ppm). In this area overburden is thin and outcrop is extensive. Finely disseminated pyrite was observed in very low concentrations. Anomaly No. 2 is described in addition by two other samples containing 108 and 109 ppm copper, respectively. In view of the failure to reproduce the 250 ppm value, this anomaly can be reduced to a lower priority category.

Anomaly 3: Anomaly 3 is described by three samples containing respectively 115, 423 and 192 ppm copper. Re-sampling of two of these original sites gave good reproducibility in the copper values (Table I). Overburden in this area is somewhat thicker than is common. Pebbles and boulder in the float contain disseminated pyrite.

Anomaly 4: Anomaly 4 consists of two values, 87 ppm copper and 406 ppm copper. Re-sampling of the originally anomalous samples plus three other samples in the vicinity indicates that the original anomaly is valid on the basis of reproduceable field and analytical results. Sample CS-16 contains considerable organic material. Organic accumulation of copper is suspected and without this sample, the anomaly is reduced to a lower priority.

Anomaly 5: Anomaly 5 is described by Sample CS-18 to CS-22. One other sample was anomalous in the original survey containing 89 ppm copper. The locations re-sampled show extremely good correlation with the original values. Examination of the sample sites indicates that sample numbers CS-19, CS-20 and CS-22 display considerable drainage characteristics and all samples contain organic material. Organic accumulation of copper is probable on this anomaly; however, pyrite is prominent in bedrock and incipient alteration (silicification and possibly albitization) was observed.

Anomaly 6: Anomaly 6 is located near the contact of the Penask intrusive and the Nicola volcanics (Lines 48W, 56W and 25N). Considerable alteration (Silicification) occurs near the contact of the Nicola volcanics with the intrusive

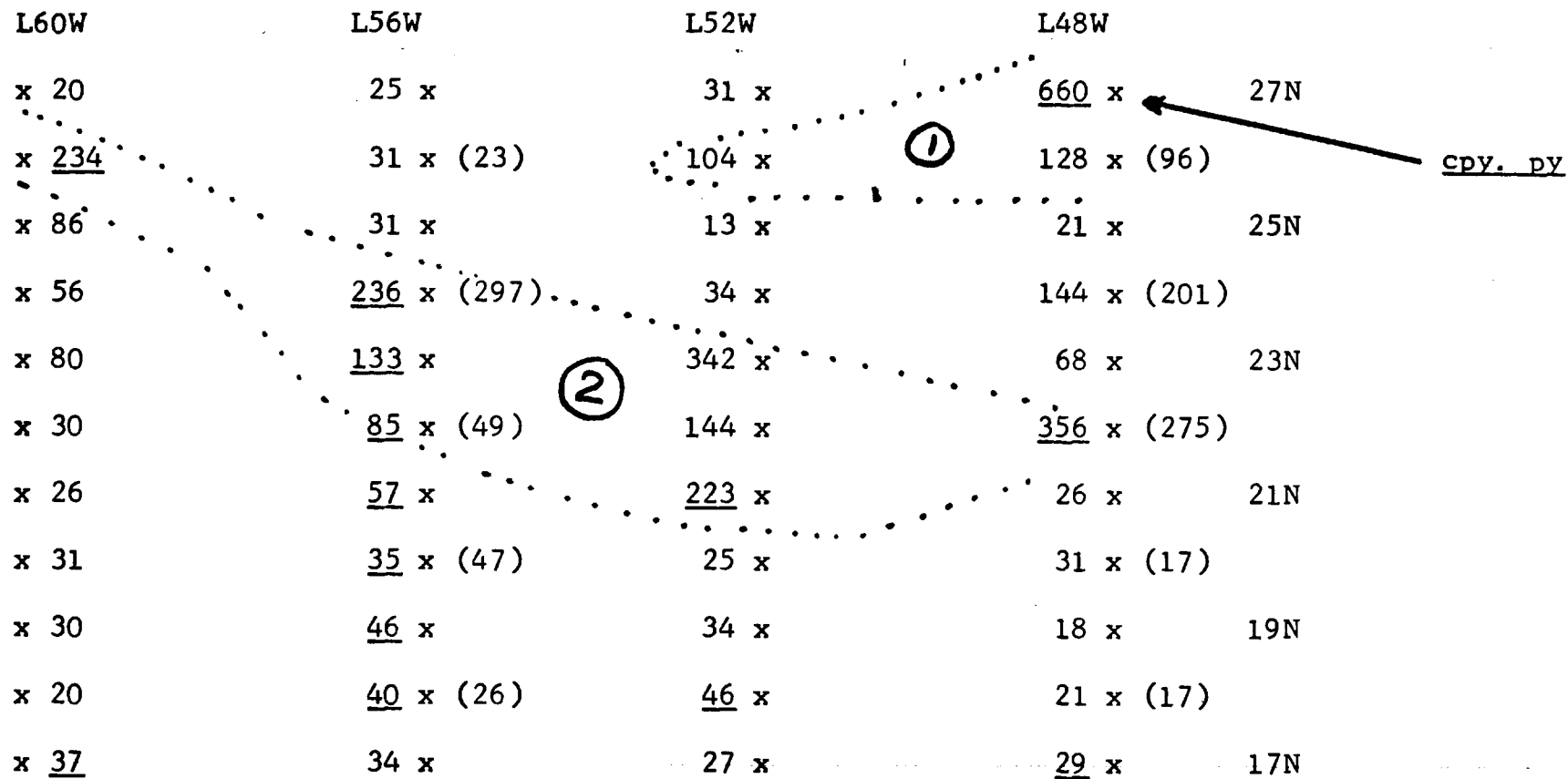
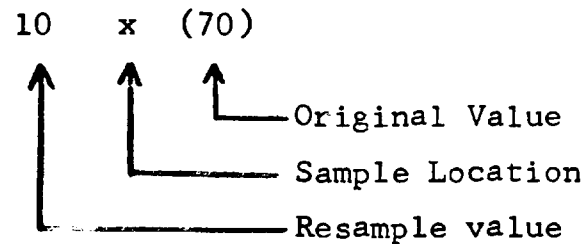


Figure 1 1" = 200'

Cu Distribution in Anomaly 6

Toe Claims Group (in part)



Note: When resample value  
Underlined Organic Matter Present

Anomaly 6: (Cont'd)

rocks. In this alteration zone some pyrite and chalcopyrite have been found. Geochemically the area is anomalous in the up drainage direction, suggesting that mineralization may be more extensive than has been found.

To further explore this anomaly, detail sampling was carried out on a 100 x 400 grid, the results of which are shown on Figure 1. Two distinctly anomalous zones are shown on Figure 1. Zone No. 1 is associated with the copper mineralization found in the contact and is shown to extend a distance of 400 feet west of the showing. The eastward extension has not been tested. Zone No. 2 is continuous throughout all four lines sampled and is indicated to be approximately 10 times the local background. The zone occurs within a small valley and copper accumulation both in organic phases and in ferric oxides is considered operative. In spite of the probable accumulations of copper in the organic phases, this area still stands out as being anomalous and is considered worthy of follow-up.

### Some General Observations

The degree of development of soils in the area is variable, that is:

- 1 - the amount of ferric oxide coatings on the particles is variable
- 2 - the organic content of the soils is variable throughout the area
- 3 - although glacial deposits are not thick or extensive, they do occur and dilute the normal copper content of the soils.

These factors suggest that several background concentrations of copper may be operative. The overall effect of this diluting results in a lower background concentration than is realistic. In this manner, the indicated background is approximately 20 ppm which may be too low. The contrast in copper concentrations, however, suggest that even though the background may be miscalculated, truly anomalous situations do exist. These anomalies result from anomalous bedrock copper contents and accumulations. To make a truly discriminating analyses of the soil concentrations of copper, the approximate organic content of all samples should be known, all drainage aspects, particularly local ones, should be recorded, estimations of the thickness of glacial deposits and the degree of development of the B-Horizons should also be recorded.

## SUMMARY AND CONCLUSIONS

The Toe Claims Group was sampled on a 200 x 750 and a 200 by 800 grid. B-Horizon or equivalent samples were collected by Consolidated Skeena Mines Ltd. personnel and analyzed for copper. The analytical data were classified by Mr. W.M. Sharp and a series of anomalies outlined. The writer visited the area re-sampled six of the anomalies and inspected the geological environment. Results of these observations and re-analyses permit the following conclusions:

1. The field and analytical procedures used on the Consolidated Skeena Mines Ltd. soil survey are reproduceable.
2. Of the six anomalies visited and re-sampled, three of these anomalies (1, 3 and 6) are valid in that the concentrations in soils are considered to reflect bedrock sources of copper. The other three anomalies, (2, 4 and 5) have a strong organic character which probably concentrates copper.
3. The valid anomalies, (1, 3 and 6) may have a source in disseminated pyrite and chalcopyrite in the Nicola volcanics.
4. All of the geochemical anomalies outlined on the property should be checked to evaluate the organic effect prior to further exploration.