COMINCO LTD.

EXPLORATION
NTS: 105/H-12

WESTERN DISTRICT
29 AUGUST 1979



# ASSESSMENT REPORT FOR A SOIL GEOCHEMICAL SURVEY

UNDERTAKEN ON FIN CLAIMS 4, 6, 7, 8,

10, 12, 14, 18-48, 50-56

LATITUDE: 61°40'N; LONGITUDE: 129°50'W

WATSON LAKE M.D., YUKON TERRITORY

BY

S.R. LEGGETT

UNDER THE SUPERVISON OF A.B. MAWER

PERIOD OF FIELD WORK: JUNE 1, 1979 TO JUNE 27, 1979

090492

AUGUST 1979

S.R. LEGGETT

This report has been examined by the Geological Evaluation Unit and recommended to the Council to be accepted as of

$ 19,000.00

J a Morin

or

Professional Engineer

Consideration work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

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ATTACHMENTS

COMINCO LTD.

EXPLORATION
NTS: 105/H-12

WESTERN DISTRICT
29 AUGUST 1979

# ASSESSMENT REPORT FOR A SOIL GEOCHEMICAL SURVEY UNDERTAKEN ON FIN CLAIMS 4, 6, 7, 8, 10, 12, 14, 18-48, 50-56

## I LIST OF CLAIMS

| CLAIM NAME | TAG NUMBER | DATE RECORDED | YEARS OF ASSESSMENT WORK APPLIED FOR |
|---|---|---|---|
| FIN 1 | YA 35002 | Sept. 1, 1978 | 4 |
| 2 | YA 35003 | Sept. 1, 1978 | 4 |
| 3 | YA 35004 | Sept. 1, 1978 | 4 |
| 4 | YA 35005 | Sept. 1, 1978 | 4 |
| 5 | YA 35006 | Sept. 1, 1978 | 4 |
| 6 | YA 35007 | Sept. 1, 1978 | 4 |
| 7 | YA 35008 | Sept. 1, 1978 | 4 |
| 8 | YA 35009 | Sept. 1, 1978 | 4 |
| 9 | YA 35010 | Sept. 1, 1978 | 4 |
| 10 | YA 35011 | Sept. 1, 1978 | 4 |
| 11 | YA 35012 | Sept. 1, 1978 | 4 |
| 12 | YA 35013 | Sept. 1, 1978 | 4 |
| 13 | YA 35014 | Sept. 1, 1978 | 4 |
| 14 | YA 35015 | Sept. 1, 1978 | 4 |
| 15 | YA 35016 | Sept. 1, 1978 | 4 |
| 16 | YA 35017 | Sept. 1, 1978 | 4 |
| 17 | YA 35018 | Sept. 1, 1978 | 4 |
| 18 | YA 35019 | Sept. 1, 1978 | 4 |
| 19 | YA 35020 | Sept. 1, 1978 | 4 |
| 20 | YA 35021 | Sept. 1, 1978 | 4 |
| 21 | YA 35022 | Sept. 1, 1978 | 4 |
| 22 | YA 35023 | Sept. 1, 1978 | 4 |
| 23 | YA 35024 | Sept. 1, 1978 | 4 |
| 24 | YA 35025 | Sept. 1, 1978 | 4 |
| 25 | YA 35026 | Sept. 1, 1978 | 4 |
| 26 | YA 35027 | Sept. 1, 1978 | 4 |
| 27 | YA 35028 | Sept. 1, 1978 | 4 |
| 28 | YA 35029 | Sept. 1, 1978 | 4 |
| 29 | YA 35030 | Sept. 1, 1978 | 4 |
| 30 | YA 35031 | Sept. 1, 1978 | 4 |
| 31 | YA 35032 | Sept. 1, 1978 | 4 |
| 32 | YA 35033 | Sept. 1, 1978 | 4 |
| 33 | YA 35034 | Sept. 1, 1978 | 4 |
| 34 | YA 35035 | Sept. 1, 1978 | 4 |
| 35 | YA 35036 | Sept. 1, 1978 | 4 |
| 36 | YA 35037 | Sept. 1, 1978 | 4 |
| 37 | YA 35038 | Sept. 1, 1978 | 4 |
| 38 | YA 35039 | Sept. 1, 1978 | 4 |
| 39 | YA 35040 | Sept. 1, 1978 | 4 |
| 40 | YA 35041 | Sept. 1, 1978 | 4 |
| 41 | YA 35042 | Sept. 1, 1978 | 4 |
| 42 | YA 35043 | Sept. 1, 1978 | 4 |
| 43 | YA 35044 | Sept. 1, 1978 | 4 |
| 44 | YA 35045 | Sept. 1, 1978 | 4 |
| 45 | YA 35046 | Sept. 1, 1978 | 4 |
| 46 | YA 35047 | Sept. 1, 1978 | 4 |
| 47 | YA 35048 | Sept. 1, 1978 | 4 |
| 48 | YA 35049 | Sept. 1, 1978 | 4 |
| 49 | YA 35050 | Sept. 1, 1978 | 4 |
| 50 | YA 35051 | Sept. 1, 1978 | 4 |
| 51 | YA 35052 | Sept. 1, 1978 | 4 |
| 52 | YA 35053 | Sept. 1, 1978 | 4 |
| 53 | YA 35054 | Sept. 1, 1978 | 4 |
| 54 | YA 35055 | Sept. 1, 1978 | 4 |
| 55 | YA 35056 | Sept. 1, 1978 | 4 |
| 56 | YA 35057 | Sept. 1, 1978 | 4 |

The Fin claims 1-56, held by Cominco Ltd., are shown on claim map Fin 79-2. Assessment credit for a period of four years has been applied for, for each of the 56 above listed claims, on the basis of geochemical work described in this report.

## II PERSONNEL EMPLOYED

| | Office | Field | Address |
|---|---|---|---|
| S. Leggett | May 27-May 31, 1979<br>Aug. 14-Aug. 18, 1979 | June 1-June 13, 1979 | 409 Granville<br>7th Floor<br>Vancouver, B.C. |
| K. Watson | May 30 & May 31, 1979 | June 1-June 27, 1979 | " |
| K. Swartz | May 30 & 31, 1979 | June 1-June 27, 1979 | " |
| D. Thompson | | June 20-June 27, 1979 | " |

## III INTRODUCTION

The Fin property was staked by Cominco Ltd. in August 1978 to cover a mineralized shale outcrop on the banks of the Fin Creek. Follow-up soil and stream geochemistry confirmed the presence of anomalous values of lead and zinc in the Fin area and trenching carried out on the main showing during the fall of 1978 produced sporadic but encouraging evidence of Pb-Zn mineralization in association with shales. On the basis of these results, geochemical and geological work was authorized to further test the property during 1979. This report outlines the results of the soil geochemistry program completed during the summer of 1979.

## IV LOCATION AND ACCESS

The Fin claim group is located in the Yukon Territory approximately 32 km north-northeast of the public campsite on Frances Lake, 24 km southeast of McEvoy Lake (Plate 79-1) on an east flowing tributary of the Yusezyu River, and 190 km northwest of Watson Lake. Access is normally by the Robert Campbell Highway to the point nearest the property which is about 16 km to the west and helicopter from there. Other access points are the north end of Frances Lake which is about 11.0 km south of the property and Finlayson Lake airstrip which is about 48 km to the west of the property.

## V GENERAL GEOLOGY

The Fin group area of the Frances Lake Map Sheet No. 6-1966 (NTS: 105/H) has been mapped by Roots, Green, Roddick and Blusson (1966), as Devonian and (?)Mississippian shales, cherts, quartzites, greywackes and chert-pebble conglomerates. The local geology, based on detailed mapping of the claim group area, consists of interbedded laminated mudstone-siltstone and sandstone-gritstone-conglomerate. The mineralization is associated with a thick sequence of laminated carbonaceous mudstones and siltstones. Structurally, the rocks in the Fin area have been folded into a series of shallow east-west trending anticlines and synclines.

## VI SOIL GEOCHEMISTRY

### A. Introduction

A grid was established on the Fin property as illustrated in Plate 79-2 by contract line cutters. Grid stations are at 25 m intervals and the lines are slope corrected.

Soil sampling was completed at 25 m intervals on (north-south) lines spaced at 100 m to 300 m intervals with the closer line spacing in the vicinity of the main mineralized showing and the wider line spacing along the edges of the claim boundary. These lines were established using compass and topofil machines.

The results of the soil geochemistry are plotted on Plates 79-3 (Pb), 79-4 (Zn) and 79-5 (Ag).

B. Topography

The topography of the Fin area is of low relief, covered by scrub spruce, alder and brush, and swamp with exception of a 75 to 100 metre deep canyon cut by the "Fin" Creek. Influencing topographic factors for the soil geochemistry were the extensive swamps and bogs to the north and south of the main showing, the thick glacial outwash gravel deposits to the west of the main showing and the alluvial deposits in the canyon adjacent to the "Fin" Creek. Several soil lines crossed extensive shale talus slopes on the sides of the canyon. Samples taken on the talus slopes contained substantial amounts of small rock chips and are labelled with an X at the sample locations on Plates 79-3, 79-4 and 79-5. Other influencing factors for the soil geochemistry were a recent layer of volcanic ash, immediately below the humus layer, and the permafrost.

C. Sample Preparation and Analyses

The soil samples were dried and sieved to minus 80 mesh before being digested in 20% hot nitric acid. Atomic absorption was used for the Pb, Zn and Ag analyses. The lead and silver values were background corrected. Analyses was supervised by F.C. Kiss, Senior Chemist for Cominco Exploration.

D. Statistical Analyses

Anomalous threshold values for Pb and Zn were obtained by computerized statistical analysis of the sample results. The results were plotted as a log transform histogram plot and as a cumulative probability plot. Of these two plots, the cumulative probability plot was judged to be the more useful. The anomalous threshold was taken as the prominent break in slope of the cumulative probability curve which came closest to approximately 2.5 cumulative percent of the plot. Based on this, the anomalous threshold for zinc was considered to be 500 ppm and for lead to be 200 ppm.

Statistical analyses for silver was not done since the majority of the geochemical values for the soils was below detection limits for the geochemical methods used. A value of 3.0 ppm Ag was arbitrarily chosen to represent a threshold limit so that the high values could be contoured.

E. Soil Geochemistry Results

The anomalies generally are anomalous both in lead and zinc and reflect known occurrences of mineralization. The principal anomaly extends from 47+00E, 49+50N to 70+00E, 47+00N and 499+00E, 51+00N to 60+00E, 45+00N and is centered on 51+00E, 49+25N which is also the centre of the known mineralization in outcrop. The extension of this anomaly as scattered high background values to the north and as a linear high background trend to the east corresponds to a weakening of the mineralization in these directions as seen in outcrop. To the west, there is an abrupt break in the anomaly which may reflect either a rapid thickening of overburden cover and/or a structural break in the rock. To the south, the main anomaly is partly split by the occurrence of the Fin Creek. Of significance to the south, however, is the spur of anomalous Pb-Zn values which extends down from the main anomaly to 60+00E, 45+00N and the scattering of small Pb-Zn high background values: 45+00E, 45+00N; 51+00E, 46+25N; 52+00E, 40+25N; 54+00E, 42+75N and 60+00E, 43+50N. These values suggest a possible extension of mineralization to the south of the known showings in the "Fin" Creek area.

The high silver values as outlined by the arbitrary 3.0 ppm contour are centered on the known occurrences of mineralization on the "Fin" Creek.

## VII CONCLUSIONS & RECOMMENDATIONS

A.

Soil geochemistry outlined a large Pb-Zn-Ag anomaly over an area of known mineralization on the "Fin" Creek with possible extensions to the south of this main showing. Further detailed geochemistry should be undertaken to outline this scattering of anomalous and high background to the south of the main anomaly, particularly the spur extension off of the main zone to 60+00E, 45+00N.

B.

Geophysical surveys should be undertaken on the main zone and on the geochemical anomalies to the south of the main showing to test the extent of the mineralized zone. Geophysics should also be done to the west of the main showing to attempt to find if the mineralization extends to the west of the main zone.

## VIII REFERENCES

Roots, E.F., Green, L.H., Roddick, J.A., and Blusson, S.L., 1966: Frances Lake, Yukon Territory and District of MacKenzie; Geol. Surv. Can., Map 6-1966, with descriptive notes.

Report by: _____
S.R. Leggett
Geologist

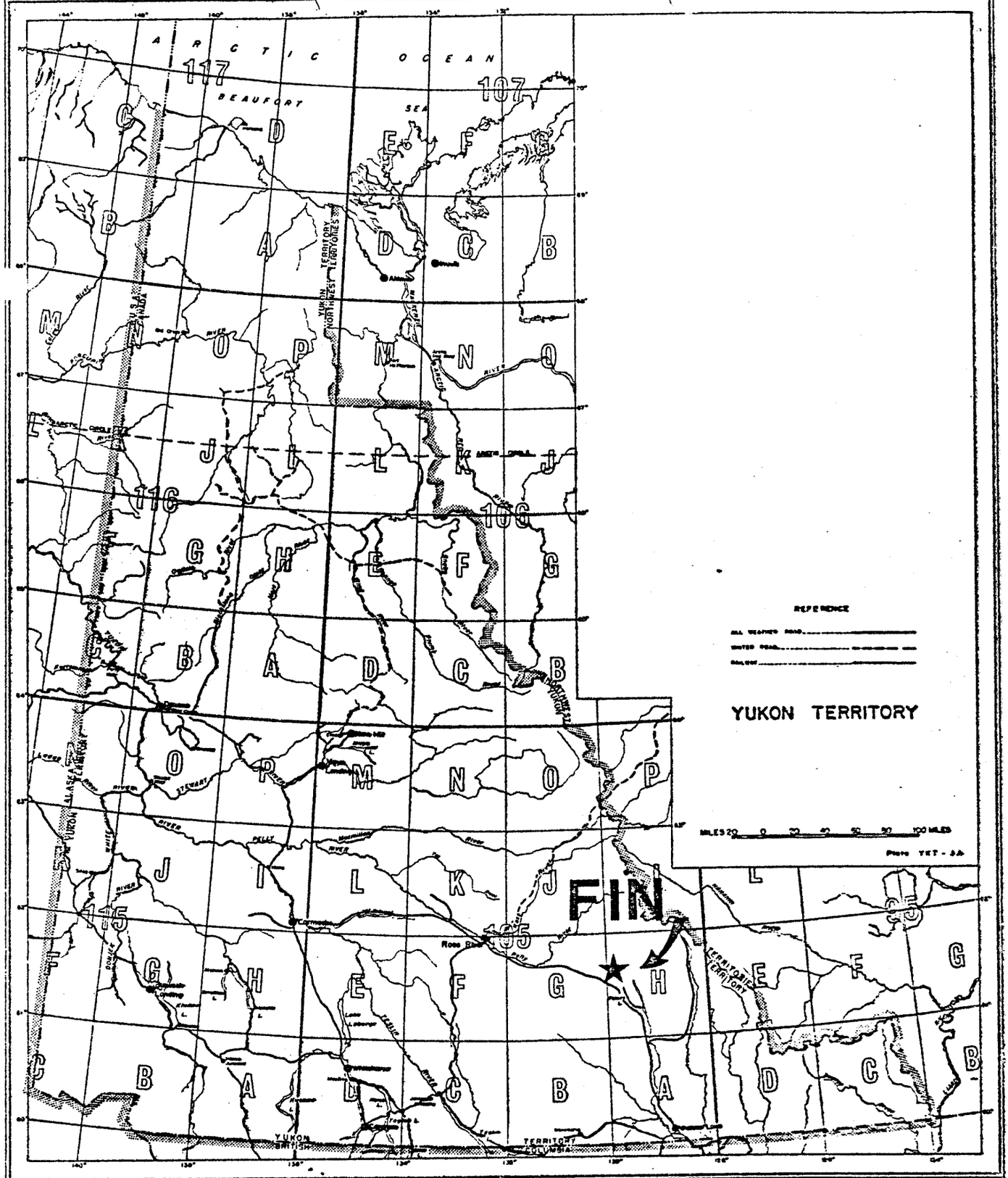
Endorsed by: _____
A.B. Mawer
Senior Geologist

Approved for
Release by: _____
G. Harden, Manager
Exploration
Western District

SRL/gk

Distribution:

Mining Recorder (2)
Administration (1)
Western District (1)

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# FIN CLAIMS

Scale:

Date:

Plate: 79-1

COMINCO LTD.

EXPLORATION
NTS: 105/H-12

WESTERN DISTRICT
29 AUGUST 1979

APPENDIX I

IN THE MATTER OF THE ACT

RESPECTING QUARTZ MINING IN THE YUKON TERRITORY

AND IN THE MATTER OF A SOIL GEOCHEMICAL PROGRAM CARRIED OUT ON

PORTIONS OF THE FIN MINERAL CLAIMS ON THE FIN PROPERTY

LOCATED 16 KM NORTH OF THE WEST ARM OF FRANCES LAKE, YUKON,

IN THE WATSON LAKE M.D. OF THE YUKON TERRITORY

# S T A T E M E N T

I, Sidney R. Leggett, of the City of Ingersol, in the Province of Ontario, make oath and say:-

1. THAT I am employed as a geologist by Cominco Ltd. and as such, have a personal knowledge of the facts to which I hereinafter depose;

2. THAT annexed hereto and marked as "Appendix II" to this statement is a true copy of expenditures incurred on geochemical surveys on the Fin mineral claims;

3. THAT the said expenditures were incurred between the 1st of June and the 27th of June 1979 for the purpose of mineral exploration on the above noted claims.

Signed: S. Leggett

Sidney R. Leggett
Geologist

# APPENDIX II

## FIN CLAIMS

## STATEMENT OF EXPENDITURES

| | |
|---|---|
| **I GEOCHEMISTRY** | |
| **A. Salaries** | |
| S. Leggett - 10 office days, 14 field days | $ 2,581 |
| K. Watson - 2 office days, 28 field days | 2,428 |
| K. Swartz - 2 office days, 28 field days | 2,428 |
| D. Thompson - 8 field days | 648 |
| **B. Camp Costs** | |
| 78 man days @ $16/day | 1,248 |
| **C. Analytical Costs** | |
| 1200 soil geochemical samples | 3,780 |
| **D. Transportation** | |
| Charges for geochem samples | 600 |
| **E. Drafting Expenses** | |
| Pencil manuscript base map $1100 x½ | 550 |
| **F. Communications & Expediting Services** | 694 |
| **G. Weekly Supply Flights** | |
| Fixed-wing 3 x $200 | 600 |
| **H. Field Equipment & Supplies** | |
| Maps, pencils, field books, paper, geochem sample bags, topofil thread, etc. | 1,120 |
| Sub-Total: | $16,677 |
| **II MOBILIZATION & DEMOBILIZATION** | |
| **A. Commercial Airlines** | |
| (Winnipeg-Vancouver, SL; Vancouver-Watson L., SL,KW,KS) | 526 |
| **B. Accomodations & Expenses** | 296 |
| **C. Helicopter** | |
| Includes weekly supply flights, mobilization, demobilization, fuel and transportation of fuel) | 4,742 |
| Sub-Total: | $ 5,564 |
| **III LINECUTTING (CONTRACT WORK)** | |
| 13 km x $185/km and mob & demob | 2,605 |
| TOTAL: | $24,846 |

COMINCO LTD.

EXPLORATION
NTS: 105/H-12

WESTERN DISTRICT
29 AUGUST 1979

APPENDIX III

FIN CLAIMS

# C E R T I F I C A T I O N

I, Sidney R. Leggett, of R.R. #4 of the City of Ingersol, in the Province of Ontario, do hereby certify that:-

1. I graduated from Brock University in 1974 with a B.Sc. specializing in geology and I am currently a graduate student at the University of Manitoba also specializing in geology.

2. I have been employed as a professional geologist periodically for the last seven years.

Signed: _____
S.R. Leggett
Geologist

15 YA35016 | 16 YA35017 | 17 YA35018 | 18 YA35019 | 47 YA35048 | 48 YA35049 | 49 YA35050

13 YA35014 | 14 YA35015 | 19 YA35020 | 20 YA35021 | 45 YA35046 | 46 YA35047 | 50 YA35051

11 YA35012 | 12 YA35013 | 21 YA35022 | 22 YA35023 | 43 YA35044 | 44 YA35045 | 51 YA35052

9 YA35010 | 10 YA35011 | 23 YA35024 | 24 YA35025 | 41 YA35042 | 42 YA35043 | 52 YA35053

7 YA35008 | 8 YA35009 | 25 YA35026 | 26 YA35027 | 39 YA35040 | 40 YA35041 | 53 YA35054

5 YA35006 | 6 YA35007 | 27 YA35028 | 28 YA35029 | 37 YA35038 | 38 YA35039 | 54 YA35055

3 YA35004 | 4 YA35004 | 29 YA35030 | 30 YA35031 | 35 YA35036 | 36 YA35037 | 55 YA35056

1 YA35002 | 2 YA35003 | 31 YA35032 | 32 YA35033 | 33 YA35034 | 34 YA35034 | 56 YA35057

FIN CREEK

FIN CREEK

61°39'N

129°50'W

0 1000 2000ft

0 200 400 600m

# FIN PROPERTY

NTS 105H12

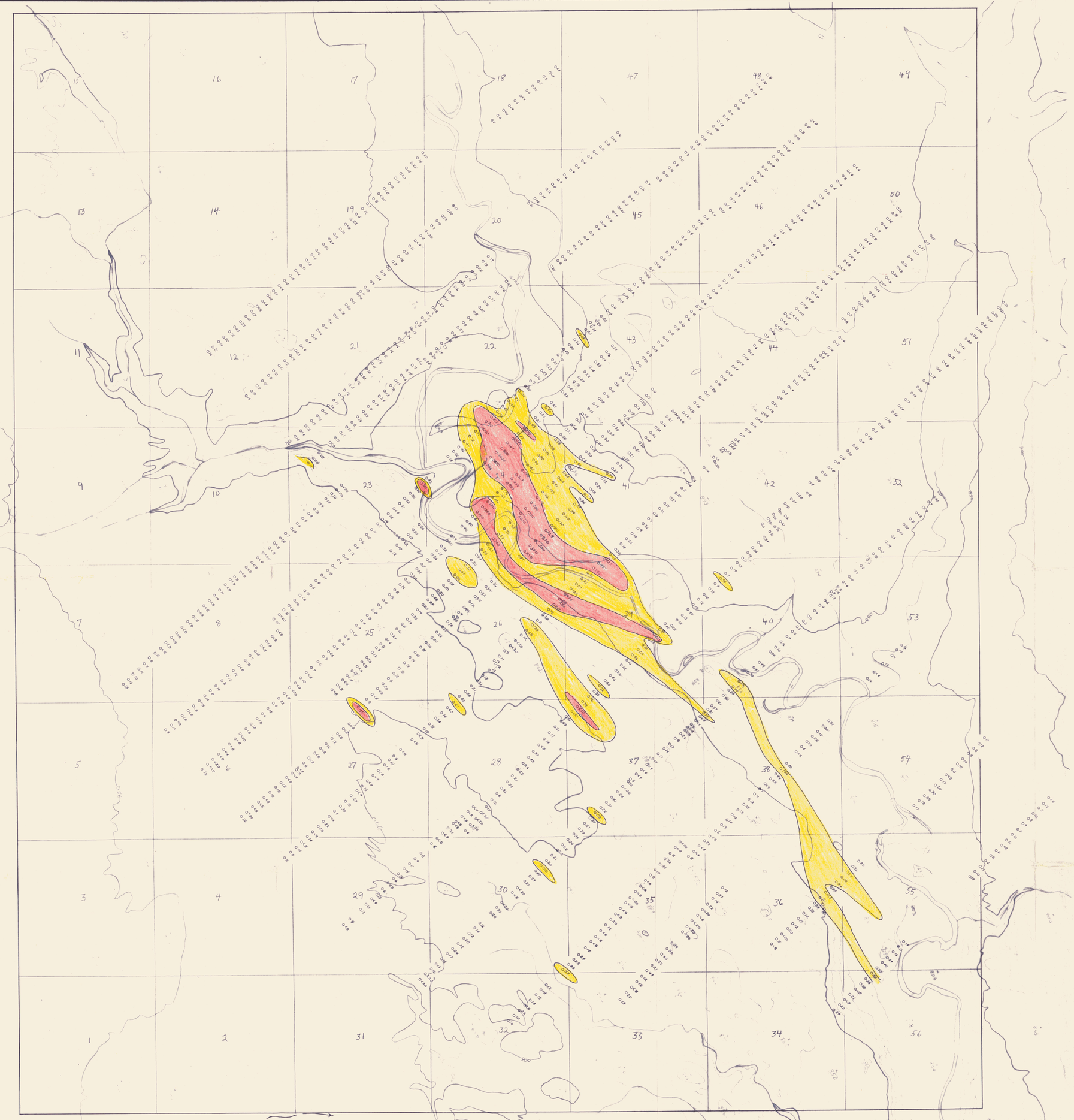
| Drawn by: SL | | Traced by: SL | |
|---|---|---|---|
| Revised by | Date | Revised by | Date |
| | | | |

GRID LOCATION AND CLAIM MAP

Scale: 1:5000 Date: AUG. 1979 Plate: 79-2

NCI - 119 - C.L.

FORM 210 0680




FIN PROPERTY

NTS 105H12

| Drawn by: SL | | Traced by: SL | |
|---|---|---|---|
| Revised by | Date | Revised by | Date |
| | | | |

SOIL GEOCHEMISTRY - LEAD

Scale: 1:5000 Date: AUG. 1979 Plate: 77-3

FORM 210 0680

NCI - 119 - C.L.

LEGEND

- 0 - 249 ppm Zn
- 250-499
- 500-7000
- • Sample contains rock talus

Anomalous threshold: 500 ppm Zn

0 1000 2000 ft

0 200 400 600m

# FIN PROPERTY

NTS 105H12

| Drawn by: SL | | Traced by: SL | |
|---|---|---|---|
| Revised by | Date | Revised by | Date |
| | | | |

SOIL GEOCHEMISTRY - ZINC

Scale: 1:5000 | Date: AUG. 1979 | Plate: 79-4

NCI - 119 - C.L.

FORM 210 0680

LEGEND

0 - 2·9 ppm Ag

3·0 - 35·0

* Sample contains rock talus

0 1000 2000ft

0 200 400 600m

FIN PROPERTY

NTS 105H12

| Drawn by: SL. | | Traced by: SL. | |
|---|---|---|---|
| Revised by | Date | Revised by | Date |
| | | | |

SOIL GEOCHEMISTRY - SILVER

Scale: 1:5000 Date: AUG. 1979 Plate: 79-5

FORM 210 0686

NCI - 119 - G.L.