

823028

NELSON PROJECT

Toad Mountain Area - Nelson M.D.

82F (W $\frac{1}{2}$ )

Report on 1981 Exploration

For

Kerr Addison Mines Limited

By

W.M. Siroła

March, 1982

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## SUMMARY

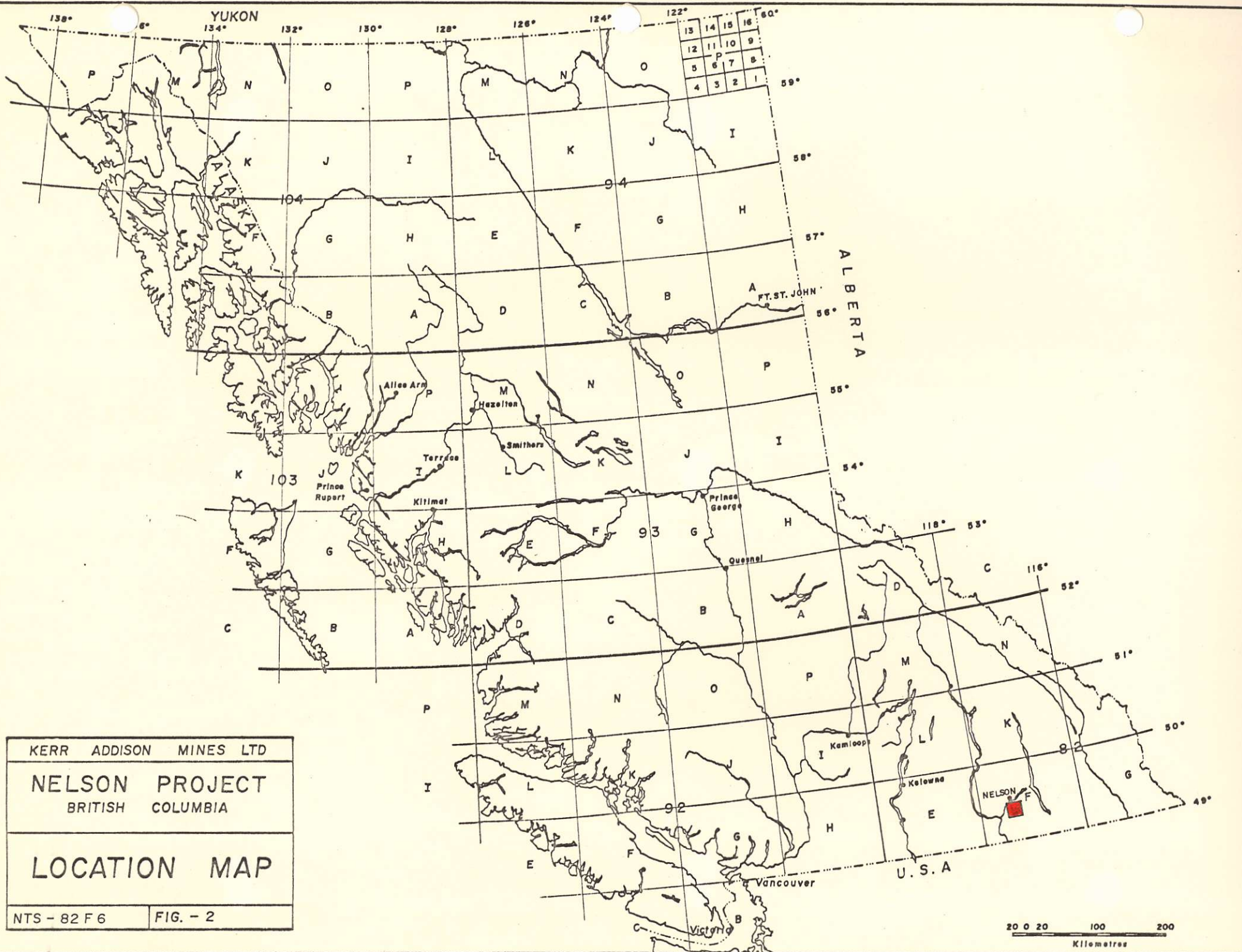
1. The Nelson Project was predicated on the presence of high Au and Cu values found in rusty soils by Lacana Mining in 1974 - 1975. This work was augmented by three percussion drill holes which located a zone of low-grade Au values.
2. Kerr Addison optioned the property in July, 1981 for the purpose of diamond drilling both the Au bearing area on Kena #7 m.c. and the high Cu anomalies found in the soils on the Kena 19 - 25 m.c.'s.
3. The best Au intercept found in three diamond drill holes on the Kena #7 m.c. was 2 grams (.064 ozs) over 15 metres in D.D.H. 81 - KK2 on the Kena #7 m.c.
4. The best Cu intercept was 0.271% Cu across 51 metres in D.D.H. KK4 on the Kena #7 m.c.
5. Both the Au and Cu values occur in pyritized Jurassic "Rossland" volcanics adjacent to the north contact of a feldspar porphyry intrusion called the Silver King Porphyry.
6. 1981 geological mapping and soil testing did not reveal conditions or targets which would justify further work.
7. No commercial tonnages or grades were encountered in the six drill holes and the option was allowed to lapse. However, we cheerfully admit that numerous geochemical anomalies remain untested.

LIST OF ACCOMPANYING MAPS AND SECTIONS

|                   |           |                   |
|-------------------|-----------|-------------------|
| <u>IN REPORT:</u> | Key Map   | Scale 1:7,000,000 |
|                   | Claim Map | Scale 1:50,000    |

IN ACCORDION FOLDER:

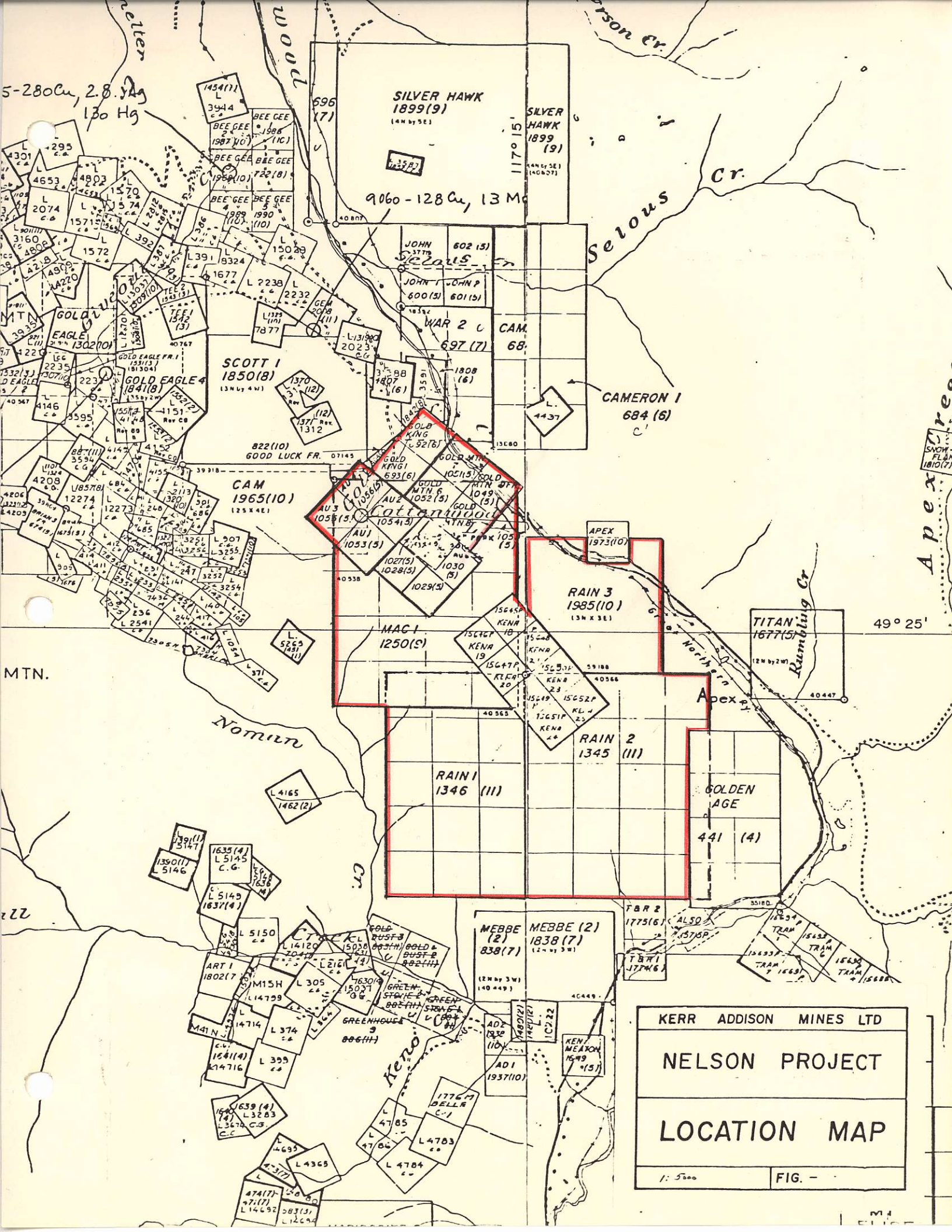
|     |   |  |               |
|-----|---|--|---------------|
| 1.  | Geology   | Outcrop Map                                    | Scale 1:5,000 |
| 2.  | Geology   | Interpretation                                 | Scale 1:5,000 |
| 3.  | <u>Geochem</u>  | Copper   | Scale 1:5,000 |
| 4.  |   | Lead   | Scale 1:5,000 |
| 5.  |   | Silver   | Scale 1:5,000 |
| 6.  |   | Gold   | Scale 1:5,000 |
| 7.  |   | Lacana Map 1975 with Kerr<br>Addison Contrours | 1" = 400'     |
| 8.  | DDH Location Plan   |  |               |
| 9.  | DDH Assay   | Section KK81 - 1 to 6                          | 1:100         |
| 10. | DDH Composite   | Section KK81 - 1 to 6                          | 1:100         |
| 11. | DDH Lots 1 to 6   |  |               |
| 12. | Sketch showing gold intercepts in<br>diamond drill holes on Kena #7 claim |  | 1:2500        |



|                        |          |
|------------------------|----------|
| KERR ADDISON MINES LTD |          |
| NELSON PROJECT         |          |
| BRITISH COLUMBIA       |          |
| LOCATION MAP           |          |
| NTS - 82 F 6           | FIG. - 2 |

20 0 20 100 200  
Kilometres





5-280cu, 2.8 Ag  
130 Hg

SILVER HAWK  
1899(9)  
144 BY 5E1

9060-128 Cu, 13 Mg

Selous Cr.

SCOTT 1  
1850(8)  
13N BY 4W1

JOHN  
602(5)

JOHN I JOHN P  
600(5) 601(5)

WAR 2 L CAM  
697(7) 68

CAMERON 1  
684(6)

CAM  
1965(10)  
12S BY 4E1

RAIN 3  
1985(10)  
13N BY 3E1

RAIN 2  
1345 (III)

TITAN  
1677(5)  
12N BY 2W1

49° 25'

MAC 1  
1250(5)

RAIN 1  
1346 (III)

GOLDEN AGE  
441 (4)

MEBBE  
838(7)

MEBBE (2)  
1838(7)  
12N BY 3W1

FAR 2  
1775(6)

T.B.M.  
1774(6)

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NELSON PROJECT

LOCATION MAP

1:5000

FIG. -

## INTRODUCTION

Reports and maps for this project were submitted by Otto Janout in June, 1981. The reports have been compiled by Lacanex in 1974 and 1975 and by Quintana in 1976 and 1977.

The Lacanex work indicated very high Au Values (250 - 1,000 p.p.b.) in rusty soils for the full length of Kena #7 m.c. Four percussion holes totalling 246 metres were drilled to test the anomalies and located Au mineralization in the 1.24 - 2.17 gram range in the cuttings.

A Cu soil anomaly greater than 250 p.p.m. and containing two zones of greater than 1,000p.p.m. has a length of 1,200 metres and a width of more than 100 metres on the Kena 19 - 24 m.c.'s.

Quintana produced an alteration map of the Cu zone in 1976, carried on surface sampling, then closed their office at the end of the year. No drilling was done. This work was predicated on the hypothesis that the surface mineralization represented the upward extent of a porphyry copper sulphide system.

Kerr Addison's Option Agreement dated July, 1981 was predicated on the concept that insufficient testing had been done on the Au zone on Kena #7 m.c. and no diamond drilling had been done on the extensive Cu anomalies on the Kena 19 - 24 m.c.'s. Admittedly a near surface adit driven many years ago revealed only low grade Cu mineralization (0.16% Cu across 82.2 metres).

The impressive size and amplitude of the Au and Cu geochemistry justified (in our view) further investigation by diamond drilling.

LOCATION AND OWNERSHIP

The claims involved in the Nelson Project are located on the east flank of Toad Mountain at elevation 1,500 metres (5,000 feet). They are reached by driving 3kms south from Nelson on Highway 6, then by an old switch-back logging road for another 6.5 kms. The list of claims and owners is as follows:

| <u>CLAIM NAME</u> | <u>GRANT NO.</u> | <u>MINING DIV.</u> | <u>OWNER</u>  |
|-------------------|------------------|--------------------|---|
| Mac #1            | 1250             | Nelson             | Mr. D.J. McDonald<br>301 - 700 Chilco Street<br>Vancouver, B.C. V6G 2R1               |
| AU 1-4            | 1053-1056        | Nelson             | Esperanza Explorations Ltd.<br>1027 - 470 Granville Street<br>Vancouver, B.C. V6C 1V5 |
| Golt Mtn.         | 1028             |                    |   |
| Gold Mtn. 1       | 1027             |                    |   |
| Gold Mtn. 2       | 1029             |                    |   |
| Golt Mtn. 3       | 1030             |                    |   |
| Gold Mtn. 6       | 1052             |                    |   |
| Gold Mtn. 7       | 1051             |                    |   |
| Gold Mtn. 8       | 1050             |                    |   |
| Gold Mtn. 9F      | 1049             |                    |   |
| Kena 18           | 15645P           | Nelson             | Otakar Janout<br>310 - 1509 Martin Street<br>White Rock, B.C. V4B 3W8                 |
| Kena 19           | 15646P           |                    |   |
| Kena 20 - 25      | 15647P-15652P    |                    |   |
| Kena 7            | 15329P           |                    |   |
| Rain 1            | 1346             | Nelson             |   |
| Rain 2            | 1345             |                    |   |
| Rain 3            | 1385             |                    |   |

EXPLORATION HISTORY

The first mention of mineralization on the Kena claims is a description of the old Cottonwood Mines by G.M. Dawson in G.S.C. Annual Report for 1888 - 1889.

In 1947, Alex Smith mentioned pyritized zones in the vicinity of Gold Creek on what was then called the Pactolus claim. Smith's samples ranged from 21 feet or 6.3 metres of .622 grams Au to 6 metres of 6.53 grams Au.

In 1973 and 1974 Otakar Janout staked the Kena 1 - 32 m.c.'s and after some prospecting and preliminary sampling found an old trench at the site of the old Cottonwood Mine which averaged 2.27 grams Au across 9.75 metres. He also found evidence of a Cu mineralization over a length of 360 metres and a width of 180 metres on the Kena 19 - 24 m.c.'s.



In 1974 - 1975, the property was optioned to Lacanex who mapped all the claims, carried out extensive soil sampling and drilled 4 percussion holes. The results of the drilling suggested a mineralized zone 6 - 12 metres thick and averaging 1.24 - 1.55 grams of Au with a possible strike length of 225 metres.

In 1976, Quintana optioned the property, produced an alteration map of the Cu zone and carried I.P. Surveys in the same zone. They then closed their Vancouver office at the end of the year.

Kerr Addison Option Agreement was signed in July, 1981 and terminated on January 31, 1982 following a programme of diamond drilling, mapping and soil geochemistry. This programme did not sufficiently enhance the grade of either the Au or Cu mineralization to justify extending the option.

## GEOLOGY

### Regional

In the vicinity of Nelson, B.C., the four mile map accompanying G.S.C. Memoir #308 (Little 1960) indicates roof pendants of lower Jurassic sediments which are over-lain by the Rosslund formation volcanics consisting of andesite, latite, basalt and porphyry. These rocks are enveloped on all sides by Cretaceous Nelson plutonic rocks varying in composition from granite to quartz diorite. Some but not all varieties are porphyritic.

The Nelson batholithic rocks are generally speaking massive and unaltered. The intruded sediments and to a lesser extent the volcanics, have been altered to the "green schist" facies.

### Property

\*Mulligan (1952) and \*\*Little (1960) classified the volcanics as "Rosslund" type.

The volcanics and sediments underlying the Nelson project claims were considered by these authors to be lower to mid-Jurassic with the exception of the Silver King Porphyry which is either Cambrian or Tertiary.

While Kerr Addison personnel did not re-map the Kena claims because of prior mapping by Lacana in 1974-75, they hired Sawyer Consultants to map Mac #1 and the Rain #1 and #2 m.c.'s. Because of severe topography, Rain #3 was not mapped. The work was done by Glen Griesbach (a recent graduate) working for Sawyer Consultants.

From the Lacana geological data and Sawyer Consultants' mapping, we drew a composite map which we hope reflects at least in a general way, the geological picture of the claims.

Harold Jones of G.A. Noel and Associates logged the drill core for Kerr Addison and added some nomenclature not previously used by other workers. The rocks he called sericite schists are probably called felsic dykes on Lacana's map and some of the volcanic sediments he called 'tuffaceous'. In this we concur with Jones and add the possibility that the term "felsic dykes" might well connote felsic flows in certain places.

Our composite geological map shows the following divisions:

- |   |   |
|---|---|
| 1. Rosslund volcanics<br>(Lower Jurassic) | andesites, porphyritic andesites<br>chlorite and sericite schists |
| 2. Hall formation<br>(Mid Jurassic)       | argillite, sandstone and<br>conglomerate                          |

\* G.S.C. Paper 52-13

\*\* G.S.C. Memoir 308

3. Silver King Intrusions (Cretaceous ?) quartz - diorite, porphyry
4. Felsic dykes or flows (Tertiary ?)

For those who might be interested in more detailed study of the volcanic units, we refer you to Griesbach's outcrop map but caution with respect, that you might find correlation of some units difficult.

The volcanics with the exception of some massive andesite exhibit foliation striking north 50°W and dipping 50 - 70°SW. Regional mapping indicates that they form part of the east flank of a major north-west trending syncline. No evidence was found on the property to suggest that more than one period of folding has occurred. In Hall Creek south of the property however, folds with east-west axes were mapped in the Hall sediments by Mulligan. These sediments on the property are limited to one exposure at the south-west corner of the Rain #1 m.c.

The main mass of the Silver King porphyry has a length of 3,000 metres and a width of 500 metres. Satellitic extension adds an additional 1,500 metres to the south-east and a second 200 metre wide occurrence cuts the south-west corner of Mac #1 and Rain #1 m.c.'s.

The orientation of the porphyry is parallel to the trend of the volcanic units in plan. No evidence was found in mapping to suggest that there were any appreciable thermal effects on the intruded rocks.

Megascopically the unit is feldspar porphyry with 50% euhedral to sub-rounded, 2 - 5 mm long pheno crystals in a ground mass of feldspar, hornblends, chlorite and minor quartz.

Sheared equivalents become sericitic and have the appearance of an augen gneiss.

### Alteration

The alteration is green schist propylitic characterized by weak silification, chlorite and epidote. Sericite shows up only where felsic rocks have been sheared. The alteration effects pertain to both the Au and the Cu zones. We believe that the Au mineralization may well be immediately post porphyry in age and hence younger than the Cu mineralization which may well be derived from the "Rossland" volcanics in the course of hydro thermal alteration.

An alteration map produced by \*Quintana in 1976 on the Kena 16 - 25 m.c.'s indicated an over shaped epidote alteration area 720 metres x 240 metres in which the rocks are sericitized, silicified and mineralized with chalcopyrite.

\* N.J. Dircks, December 1976

Pyritization within this zone averages 2 to 3% with local increases to 5 and 8%.

Mineralization - Surface and Underground Evidence

Pyritization (2 - 3%) is widespread on the property and the volcanic rocks in contact with porphyry on the Kena claims are covered with a mantle of red to brown soil.

\*Chalcopyrite disseminated along foliation planes occurs in outcrop of Quintana lines 40E, 44E and 48E. The maximum value obtained in their sampling was 0.53 Cu across 21 metres near the centre of line 48E on the Kena #19 m.c.

A chip sample from an old adit near line 80E on the Kena #22 m.c. averaged 0.16% over 81 metres.

\* Peter Dunn, Quintana 1978

## GEOCHEMISTRY

Soil sampling for Kerr Addison was contracted to Hinterland Explorations of Vancouver.

A baseline was flagged on a bearing of N55<sup>0</sup>W and crosslines were established at 250 metre intervals. Soil samples were collected every 50 metres along these lines.

### Gold in Soils

Soil sampling by Lacana in 1974-75 indicated widespread parallel, to an echelon, lenticular gold anomalies extending along the axis of the claims for a length of 4,000 metres. The higher amplitude (1,000 p.p.b.) cores of these anomalies occur in the lens-like form with a maximum length of 1,000 metres and a maximum width of 120 metres.

Detailed soil work by Lacana on the Kena #7 claim has perhaps tended to weight the geochemical evidence disproportionately on that claim. This is particularly true since laboratory analyses in 1974 were much higher in gold content than the samples collected in 1975 from the same general area. Values of 500 - 1,000 p.p.b. were common and one sample assayed 4,600 p.p.b.

We cheerfully grant that the rusty soils on the Kena #7 claim would be enriched in gold but this does not explain the lack of correlation with the 1975 results which were 50% lower.

In retrospect a most interesting situation exists on the Au claim where the geochemistry suggests at least six mineralized bands, the most southerly of which actually occurs over rocks mapped as Silver King porphyry. This claim is traversed by two strong linears, one of which is north-easterly along Gold Creek and another (visible on air photos) runs north-south through the junction of the road and Gold Creek.

From a total of 600 soil samples collected at 50 metre intervals on lines 250 metres apart, we found the mean of the gold content to be 11.47 p.p.b. and the threshold to be 17.92 p.p.b. These statistics do not embody any of the results of previous work by Lacana but we have shown the outline of Lacana's anomalies for illustrative purposes.

We did not pursue any of the gold anomalies found on the Mac #1 or Rains #1 and #2 m.c.'s as there were, in the main, single anomalous samples.



### Copper in Soils

Copper soil geochemistry by Lacana in 1975 indicates elongated, narrow, en echelon lenses of mineralization extending from the Au claim on the north-west to the Kena m.c. on the south-east.

On the Kena and 24 m.c.'s, the 250 p.p.m. copper contour broadens to 200 metres or more over a length of 1,000 metres.

Soil sampling for Kerr Addison on the Rain #2 m.c, suggests a split in anomalous trends at the south-west corner of Kena #24 m.c. with one branch extending 1,200 metres southward.

The mean of 600 soil samples analyzed for copper was 63 p.p.m. and the threshold was 78 p.p.m.

### Silver and Lead in Soils

Silver and lead were not determined in the Lacana work and only a few single-sample anomalies of 100 p.p.m. or more lead were found in Kerr Addison's work.

The mean for silver was 0.37 p.p.m. with a threshold of 1.59 p.p.m. The highest value found was 1.9 p.p.m. and hence the silver content of the soils was considered insignificant.

### Summary of Soil Geochemistry

Because of the rusty residual soils derived largely from pyritic volcanics, both gold and copper values were enriched. Regardless of enrichment however, soil sampling has proven a most useful tactic for discriminating between mineralized and unmineralized areas of the property.

### GEOPHYSICS

In Quintana time (1977) Mullen and Hallof conducted an induced polarization survey of the Kena 16 - 25 m.c.'s. This survey, as was to be expected, detected good I.P. response but did not indicate any pronounced drop in resistivity which one would expect from a major alterations zone.

DIAMOND DRILLING

A contract for 914 metres (3,000 feet) was awarded to Bergeron Drilling of Greenwood, B.C. Three holes were drilled on the Kena #7 m.c. to check gold zone encountered in three percussion holes drilled by Lacana in 1974. The other three holes were drilled on the copper zone on Kena 18 - 19, 20 and 22 m.c.'s. Bergeron carried out this work with great dispatch. Drilling commenced on August 4, 1981 and was completed on August 22. Production exceeded 60 metres per day. Core recoveries were nearly perfect.

In hindsight, our drilling of gold anomalies could have been better distributed but we have no quarrel with the spacing of our drill holes over the copper anomalies.

The three holes on the Kena #7 claim were drilled at minus 60<sup>0</sup> on bearings of N40<sup>0</sup>E. Three auriferous zones at different elevations were encountered as follows:

| <u>From - To</u> | <u>Elevation</u> | <u>Length</u> | <u>Thickness<br/>(True Width)</u> | <u>Grade<br/>(Oz. Au)</u> | <u>Hole Nos.</u> |
|------------------|------------------|---------------|-----------------------------------|---------------------------|------------------|
| 0+37W - 1+52E    | 1,434 m          | 189.7 m       | 3 m                               | .059                      | (1, 2 & 3)       |
| 0+37W - 1+52E    | 1,420 m          | 189.7 m       | 2.5 m                             | .052                      | (1, 2 & 3)       |
| 0+91E - 1+52E    | 1,390 m          | 61 m          | 10 m                              | .073                      | (2)              |

Please note that hole numbering from west to east is #1, #3 and #2. They are 60 metres apart.

Drilling of the copper anomalies located two zones as follows:

| <u>From - To</u>         | <u>Elevation</u> | <u>Length</u> | <u>Thickness<br/>(True Width)</u> | <u>Grade<br/>(Oz. Au)</u> | <u>Hole Nos.</u> |
|--------------------------|------------------|---------------|-----------------------------------|---------------------------|------------------|
| HW 14+32E-24+69E<br>Zone | 1,555-1,460      | 1,036 m       | 32 m                              | 0.22% Cu<br>.003% Au      | 4, 5 & 6         |
| FW 14+33E-14-94E<br>Zone | 1,482-1,456      | 61 m          | 28 m                              | 0.22% Cu<br>.004% Au      | 4 only           |

From our studies of the drill logs, andesite and chlorite schist with quartz-carbonate veining appear to be the most favourable hosts for gold mineralization.

Diamond drilling of the copper zone however, indicates as in D.D.H. - KK-6, that both felsic and mafic flows are mineralized. In that drill hole, copper mineralization is centred at a rhyolite-andesite contact.

These drill holes, as in the gold zone, were drilled at minus 60° on bearings of N40°E.

### CONCLUSIONS

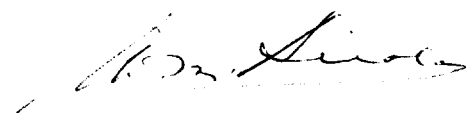
Both gold and copper mineralization appears to be localized in certain zones regardless of the composition of rock. In other words ground preparation (shearing?) with attendant later silification, pyritization and quartz-carbonate veining probably localized both the precious and the base metal mineralization.

Why gold alone was found in the drilling of K #7 m.c. and copper with negligible gold content was found in the drilling of the copper zone remains a question for which we have no obvious answers.

We can surmise that gold is later because of the geochemical response of that element over porphyry on the Au claim; beyond that we really have no useful theories.

Those areas that were tested by diamond drilling did not yield a sufficient combination of tonnage and grade to encourage additional drilling.

Our mapping and soil sampling of the Mac #1 and the Rain 1 and 3 m.c.'s did not reveal targets either geological or geochemical that could be considered an improvement over the zones tested by diamond drilling.

A handwritten signature in cursive script, likely reading "A. J. ...", is located in the lower right quadrant of the page.