

3318

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 3318 MAP

GEOLOGICAL REPORT ON THE 428 CLAIMS  
NOS. 1 - 13 INCLUSIVE (RECORD NUMBERS  
40136 to 40148 INCL.), LIARD M.D.

LOCATION: GATAGA RIVER AREA, 40 MILES  
SOUTHEAST OF SUMMIT LAKE  
(58°N, 125°W, SE)

BY: C. BANNINGER UNDER THE SUPERVISION  
OF R.A. DUJARDIN, P.ENG.

WORK DONE BY: CANADIAN SUPERIOR  
EXPLORATION LIMITED

CLAIMS OWNED BY: WINDERMERE EXPLORATION LTD.(NPL)

PERIOD OF WORK: JUNE 28 - AUGUST 12, 1971

94K/3W

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MAPS AND DIAGRAMS

#1 MAP "A"	428 Claim Group Location Map 1" = 4 miles (approximately)
#2 MAP "B" AND "C" #3	Geology and Assay Plan 1" = 100'

APPENDICES

APPENDIX I	Copy of Affidavit on Application for Certificate of Work
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SUMMARY

Proterozoic sedimentary rocks of the Aida formation occupy the area of the claim group and have undergone a weak regional metamorphism. Northerly striking basic dykes have intruded the country rock producing a minimal degree of disturbance and thermal alteration. Quartz veins occupy positions immediately adjacent to and in the near vicinity of the dykes, and occur in the form of individual veins or a composite series of veins. Faults, with associated shear zones, are numerous, and occur in juxtaposition with, as well as transecting the dykes and veins. The post dyke-vein faults have offset a number of the veins and dykes for short distances. Chalcopyrite is the principal economic mineral present, and occurs in the form of vein-fillings. Twenty-five continuous chip samples were taken across various points on the veins.

CONCLUSIONS

1. The emplacement of the dykes and veins was structurally controlled as shown by (a) their close association with adjacent faults and shear zones (b) the close association of veins with dyke margins.
2. The dykes were emplaced under quiet conditions as shown by the minor degree of wall-rock alteration and disturbance.
3. The veins containing significant copper mineralization are closely related to the type of country rock and structure as shown by their occurrence almost wholly within argillic rock units, and in their alignment with the general trend of the regional fracture cleavage.
4. The lenticular form of the quartz veins is likely the result of movement along curved tension-shear fractures.
5. The veins were formed by fissure-filling as shown by the close association with adjacent faults and shear zones, and the enclosing of wall-rock particles within the body of the veins.

6. The veins appear to be of a replacement-composite lode-type as shown by the successive quartz banding parallel to the vein walls, and the partial replacement of the wall-rock particles enclosed within the vein.
7. Copper mineralization shows a preference for sections of the quartz vein containing partially assimilated inclusions of wall-rock, especially in the footwall and/or hanging-wall zones. Flexures in the veins are also preferentially mineralized.
8. The carbonate material (ankerite) in the veins appears to be a remnant of carbonate veining prior to introduction of quartz, and has played only a minor part in the localization of the copper.
9. The copper sulphides occur in lensoid streaks which generally lie parallel to the margins of the vein.

#### ECONOMIC CONSIDERATIONS AND RECOMMENDATIONS

Mineralized quartz veins occur in many parts of the claim group, and extend over a strike length of approximately 6,700 feet. The overall length of the vein systems is approximately 4,500 feet. Individual vein systems range in length from a few feet to 750 feet, and reach maximum composite widths greater than 70 feet in places. The principal limiting factors of the deposit are in the very discontinuous and dispersed nature of the vein systems in conjunction with the less than commercial grade of the copper mineralization (representative assay value for the chip samples is near 0.50% Cu). An improvement in grade or vein width with depth does not appear to arise, as is shown by the lack of any significant change in these two factors over a vertical extent of 1,700 feet and 1,300 feet for the south and north vein systems respectively. Horizontal extensions and continuations of individual vein systems appear also unfavourable in that they tend to pinch out and terminate over short

strike distances. With these factors in mind, it does not appear likely that an economic size ore deposit meeting Canadian Superior's requirements is present within the claim group. The property does not therefore warrant additional work on the part of Canadian Superior.

#### INTRODUCTION

An examination and evaluation of the economic potential of the 428 claim group was undertaken by the writer of this report over a period of fifteen days between the 28th of June and the 12th of August.

The examination consisted of detailed geological mapping of the quartz vein systems in conjunction with related trenching and sampling.

Information pertaining to the regional and local geology of the claim group contained herein was derived from Dr. D.L. Cooke's report on the "Churchill-Racing River Project - 1970" for Windermere Exploration Ltd. Three field assistants, D. Amor, D. Pluth, and D. Hopper performed the greater portion of the trenching and sampling, and assisted the writer at various times with the mapping.

#### LOCATION (See Map "A")

The property is located approximately 40 miles south-east of Summit Lake (Alaska Highway), and 21 miles south of the Churchill Copper Corporation Mine. The claim group is situated to the east and north of the Gataga and Book claim groups respectively, and adjoins to the north-east side of the Bronson claim group.

Two streams, located on the north and south extremities of the area, bound the main mineralized showings, and drain south into the Gataga River. The property is situated on an east-west trending mountain ridge, with a small ice field located to the west of the vein systems.

4.

Mode of access to the area is either by helicopter or packhorse, or by fixed-winged aircraft to a dirt airstrip located on the Gataga River, 4 miles south of the property.

Elevations in the immediate surroundings range from 5,000 feet for the stream-beds to over 7,000 feet for the ridge tops. A prominent peak is located along the main ridge just to the west of the south slope vein systems, and has an elevation of 7,626 feet. Shallow to deep cut gullies act as the run-off channels for the slopes, and drain into the lower bordering streams. The claim group is located above timberline.

The vein systems on the south slope of the ridge extend from an elevation of approximately 5,500 feet to just over 7,200 feet, and the north side systems occur from 5,700 to 7,000 feet. The greater part of the slopes where the mineral showings occur are covered by extensive scree material, especially in the lower extremities.

Sedimentary outcropping is mainly confined to the upper portion of the main ridge, or along subsidiary ridges flanking the gullies. Small, isolated outcroppings also occur in the lower parts of the ridge slopes. Dyke outcroppings form prominent linear surface features along both the slopes and ridges.

GEOLOGY (See Map "B" and "C")

Sedimentary rocks of Proterozoic age occupy the major part of the area in the vicinity of and within the claim group. The rocks are composed of interbedded argillites, dolomites, and limestones, and appear to be representative of the Aida formation. The formation has been subdivided into two conformable units: (a) The upper unit consisting of brown weathering, argillaceous limestones and dolomites. (b) The lower unit consisting of grey to light brown weathering, fracture cleaved argillites and interbedded silty dolomites, with minor green (chlorite ?) argillites. It is the latter unit which forms the geologic setting for the mineralized vein occurrences located on the claim group.

The sedimentary series is intruded by a swarm of subparallel, branching, light grey to dark green dykes of basaltic to doleritic composition, which trend in a northerly direction and dip steeply to the west. A number of dykes strike to the northwest and dip to the southwest. Thicknesses range from less than a foot to over seventy feet. Narrow, and in many cases, inconspicuous chill-margins are present along many of the dyke borders. The sedimentary rocks in the immediate vicinity of the intruded dykes display only a minor degree of disturbance.

Alteration within the dykes is principally confined to the margins and fracture surfaces, and consists of epidotization and chloritization with minor serpentization along slickenside surfaces. A few attenuate dykes have undergone a degree of metamorphism resulting in a light grey-green, scaly textured rock. Alteration of the country rock bordering the dykes consists of minor recrystallization and silicification of the argillite and dolomitic rocks with associated bleaching and sericitization of the argillitic members. The alteration is restricted to a narrow zone extending less than a few feet in width from the margins of the dykes. Where the dykes abut against a dolomitic sedimentary unit, a recrystallized zone up to ten feet in width has resulted with the formation of rhomb-shaped (up to 1 inch in length) crystals of ankerite.

#### STRUCTURE

The regional structures trend in a northwest direction. The sedimentary units strike to the north-northwest and dip moderately to the west. A strongly developed fracture cleavage is present within the argillites, striking in a north to northwest direction and dipping moderately to steeply west.

A number of prominent fault zones dissect the sedimentary units within the claim group, the majority striking to the northwest and dipping steeply to the southwest. A distinct thrust fault occurs just to the west of the vein system in the northern sector of the map area, and

shows an apparent general north-south displacement. Subsidiary faults, often sinuous in form, occur contiguous with, as well as transecting the dykes and veins, and trend in a northeast to northwest direction with westerly dips. The transecting faults have, in places, cut and displaced for short distances the dykes and veins. Fractures within the dyke rock strike to the northwest with dips to the west. Minor slickenside faces are exhibited along some of these fracture faces, and along the margins of the dyke rock.

Shear zones occur in close association with the dykes and veins. These form thin (generally less than 1 foot wide) zones flanking the contact between the country rock and the dyke or vein, and generally consist of gouge filled fissures or seams. In a few instances, they intersect peripheral segments of the veins resulting in a broken and crushed zone.

## MINERALIZATION

### (a) Geometry and Structure

Vein-type deposits constitute the manner of occurrence of the copper mineralization. The vein systems consist of quartz-filled fractures occurring either as single veins, or as a subparallel series of veins and veinlets. The systems lack continuity, and tend to pinch and swell in a discontinuous manner along strike. Their dip is usually steep, mostly greater than  $70^{\circ}$ , and to the west, with the strike in a northerly direction, principally between  $N 30^{\circ}W$  and  $N 15^{\circ}E$ .

Individual vein widths are of variable thickness, ranging from a few inches to twelve feet, but averaging between one to three feet in width. Strike lengths extend up to 750 feet. Vein zones reach a maximum thickness of over 75 feet, but are very irregular and discontinuous along strike.

The veins are situated either along the margins of dykes or near them. In the former instance, thin selvages of country rock are



generally located between the dyke wall and the vein. In a number of instances, veins appear enclosed within the dyke rock, and, in one case, cut across a dyke. Where the veins are situated in close relationship to the dykes they tend to correspond in attitude with them. Where they are removed from the proximity of the dykes, the veins have a tendency to follow a sinuous or curving course, sometimes showing an abrupt change in attitude reflecting the strike and dip of the fracture cleavage of the country rock adjacent to the vein margins - particularly on the hanging wall side.

Thickening of the veins tends to occur at flexures and bends, or other changes in attitude. Several of the vein systems showed a tapering out at the lower end into a meagre zone of quartz stringers and/or a gouge-filled fissure. Where the vein margins make a jog, or where they are cut by faults or shear zones, a zone of brecciation may result consisting of broken and crushed quartz fragments and crushed argillitic rocks.

In parts of two vein systems, quartz veinlets and stringers have incorporated within the vein zone dolomitic rock sections which exhibit a recrystallized texture consisting of rhomb-shaped crystals (ankerite).

The argillitic units are the principal host rocks for the mineralized veins. Although veins do occur between the boundaries of an argillitic and dolomitic unit, or even wholly within the latter, they tend to be either barren or only very weakly mineralized.

#### (b) Gangue Material

The quartz veins are, in general, made up of massive, lenticular shaped bodies, with quartz stringers and veinlets a not uncommon occurrence in both the footwall and/or hanging-wall. The stringers and veinlets sometimes diverge from the veins for a short distance along adjoining cleavage planes.

The composition of the veins ranges, however, from predominantly milky white quartz to a combination of carbonate (generally in small amounts) and wall-rock fragments. The carbonate inclusions (ankerite) appear to be conformable to the vein walls, and, in some instances, have been weathered out leaving a weak iron-stained colouration or cavity. The wall-rock fragments, which originate from the neighbouring country rock, are common, and in many of the sections constitute the dominant ingredient. These inclusions range in size and shape from thin, residual streaks and slivers to large, angular, lensoid-shaped fragments, and, like the carbonate inclusions, tend to be conformable with the margins of the veins. Transitions occur between a distinct to a blending of the contacts between the sedimentary rock inclusions and the quartz material. A partial to complete replacement of some of the inclusions, especially the finer particles and fragments, by quartz and/or chalcopyrite is evident. Larger fragments display either negligible or only a thin, peripheral replacement around their borders.

Banding is common within the quartz veins, and consists of lamination of quartz material with or without strips of argillitic rock.

Vein wall contacts are sharp to gradational, the latter involving a mixing of the quartz veining with the country rock.

Vugginess within the quartz veins occurs on a minor scale, with quartz crystals filling a number of cavities.

#### (c) Sulphide Mineralization

Chalcopyrite is the principal economic mineral present, occurring as vein-fillings in association with quartz, carbonate and wall-rock inclusions. The chalcopyrite is present as fracture fillings, irregular masses, disseminations and narrow veinlets and lens-shaped pockets. The attitude of the mineralization is usually conformable with the vein margins. The mineralization occurs mainly in association with the rock inclusions, either in close proximity to, or along their borders, and partially or

completely replaces them.

Chalcopyrite mineralization shows a preference for emplacement along narrow, confined zones with layering parallel to the vein walls. The layering may be exhibited across the entire width of a vein section, or, as is more the general case, along only the footwall and/or hanging-wall. In either case, there is a marked tendency for the sections containing the greater portion of wall-rock inclusions to be zones of greater copper mineralization. In addition, flexures and bends in the vein and its margins appear to be favourable loci for the copper mineralization.

To a very minor degree, chalcopyrite is found in association with the country rock immediately adjacent to the mineralized veins, but only where there has been a fair degree of country rock alteration. Malachite is present in association with chalcopyrite, forming a thin, superficial coating on the veins or adjacent country rock.

Pyrite occurs as minor disseminations within the veins in association with chalcopyrite, and, to a limited extent, in the altered wall-rock and dyke margins. Two minor occurrences of galena were noted within mineralized sections of quartz veins.

Alteration of the wall-rock adjacent to the veins is primarily confined to the hanging-wall side, and has taken place by recrystallization, silicification, sericitization, plus the formation of iron-oxides as staining and gossan.

Abutting against the western margins of a number of vein systems in the southern map area are barren, white quartz veinlets (generally less than 1 foot wide) which strike in a N 70°E direction and dip to the northwest. These veinlets cut across the regional fracture cleavage, but tend to curve upward and align themselves with the cleavage planes at the vein margins. Where they occur at the vein borders they appear to be cut by the main vein system, except in a few instances where they appear instead to penetrate the vein. At one vein-veinlet intersection, minor amounts of

chalcopyrite and malachite were present within the veinlet.

(d) Grade and Extent

The copper mineralization is very irregular, both in extent and grade. Overall, the grade is very weak (averaging 0.50%), with only small, isolated high-grade pockets. The extent of the copper mineralization is discontinuous and erratic with only short sections showing any degree of continuity. Wide gaps between these sections are very common. The sections of the veins which exhibit a strong iron-staining or limonitic gossan zone generally carry the greater concentration of copper mineralization.

Twenty-five continuous chip samples were taken by the writer and his assistants across various sections of the mineralized veins, and their copper assay values, along with the sample widths, are given on the geological maps which accompany this report (Maps "B" and "C"). A list of the assays is given below:

ASSAY RESULTS

<u>Sample No.</u>	<u>Width</u>	<u>% Cu</u>
428 - 1	4.0'	0.84
428 - 2	2.0'	0.26
428 - 3	6.0'	0.20
428 - 4	3.5'	2.38
428 - 5	5.0'	0.61
428 - 6	4.0'	0.16
428 - 7	4.0'	0.37
428 - 8	2.0'	0.42
428 - 9	5.0'	0.48
428 - 10	1.7'	0.80
428 - 11	1.7'	0.33
428 - 12	5.5'	0.23
428 - 13	4.7'	0.13
428 - 14	4.0'	0.34
428 - 15	2.7'	0.25
428 - 16	4.7'	0.06
428 - 17	4.2'	0.14
428 - 18	4.2'	2.20
428 - 19	5.0'	0.15
428 - 20	24.0'	0.28
428 - 21	21.0'	0.50
428 - 22	4.0'	0.34
428 - 23	3.3'	0.16
428 - 24	2.7'	0.63
428 - 25	7.5'	0.61

The extent of the overall vein systems measures nearly 4,500 feet long, and occurs over a strike distance of 6,700 feet. Individual systems range in length between a few feet and 750 feet, with composite widths of over 70 feet. Individual vein widths are from less than one inch to over ten feet.

Mineralization of any significance is contained in only certain sections of the vein systems, and the above chip samples represent the better mineralized portions of these sections. The samples were taken across veins which appeared to exemplify possible economic widths and grades, as well as extent.

Samples 428 - 1 to 428 - 11 represent a vein 600 feet in length, with widths of less than 6 inches to 9 feet (average width: one to two feet). The average grade of the samples taken is 0.62% Cu. Samples 428 - 1, 428 - 3 to 428 - 7, and 428 - 9 were taken across widths of between 3 1/2 and 6 feet, and gave an average grade of 0.43% Cu. The only assay value greater than 1.0% Cu was 2.38% Cu for sample 428 - 4.

Samples 428 - 12 to 428 - 15 represent a vein 25 feet long, with a width between 3 1/2 and 5 1/2 feet and an average of 4 to 5 feet. The average grade of copper for the four samples is 0.24%, which closely represents the value for the individual samples.

Samples 428 - 16 to 428 - 19 represent a vein of approximately 40 feet in length, with an average width of 4 feet (range is 2 1/2 to 5 feet). The average grade of copper is 0.64%. Individual sample values are less than 0.20% Cu except for one "high-grade" sample of 2.20% Cu. There is a strong likelihood that this vein is an extension of the preceding vein which would give a projected length of just over 200 feet.

Samples 428 - 20 to 428 - 25 represent a 300 foot discontinuous composite-vein system composed of veins and veinlets with individual widths of less than one inch to 12 feet. Sample widths range

from 2 1/2 feet for a single vein to 24 feet for an altered argillite-quartz vein zone. The average grade of copper for the entire sampled section is 0.42%, with individual sample values less than 0.65%.

The remaining vein systems not sampled were of less than economic interest, and generally were either of very poor extent and/or width, or in degree of mineralization.

#### DYKE-VEIN RELATION

In most occurrences within the claim group, the relationship between the dykes and the veins in regard to age is, at best, ambiguous. This is due either to a lack of close proximity with respect to each other, or, which is often the case, a positioning of thin selvages of country rock between the respective units where they abut against one another.

A number of localities do present occurrences which bring attention to this age relationship. These occurrences generally consist of quartz veins which appear to be wholly incorporated within the dyke rock, or, to a lesser extent, which follow the margins of a dyke before cutting into and across the dyke body. Although it may be arguable as to whether the former constitutes prima facie evidence for either a post-dyke vein or a post-vein dyke emplacement, it is difficult not to conclude a later vein occurrence in the latter case.

Possible conclusive evidence would be the incorporation of one rock type within the other, and this appears to occur at one locale where altered dyke rock inclusions are present in the margin of a quartz vein.

A difficulty which arises in the consideration of a later dyke emplacement is the problem of satisfactorily explaining the occurrence of long, attenuate quartz veins in juxtaposition on either side of wide, curving dykes.

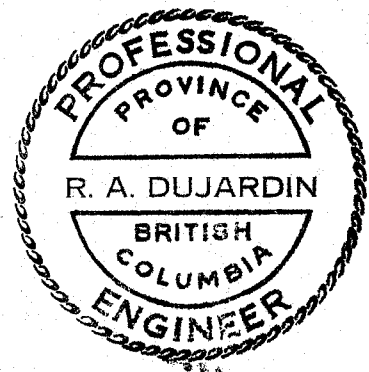
Taking into consideration the overall evidence, there appears to be reason to conclude that in respect to the dyke-vein situation which occurs in the map area examined, the quartz veins are either later than or possibly contemporaneous in nature with regards to the dykes.

Signed:

C. Banninger  
C. Banninger, Geologist

Supervised by:

R. A. Dujardin  
R.A. Dujardin, P. Eng.



Vancouver, British Columbia  
15 October 1971.



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

MINERAL ACT (Section 51) FORM B

SUB-MINING RECORDER RECEIVED SEP 24 1971 M.R. # VANCOUVER, B.C.

Affidavit on Application for Certificate of Work

1. I, R. A. DUJARDIN Agent for WINDERMERE EXPLORATION LTD. (N.P.L.) 2827 West 43rd Avenue, Vancouver 13, British Columbia Free miner's Certificate No. 102361 Date issued May 14, 1971 1418 - 355 Burrard Street, Vancouver 1, British Columbia Free Miner's Certificate No. 102028 Date issued May 6, 1971

make oath and say:—

2. I have done, or caused to be done, work on the 428 #1 - 14 Mineral Claim(s)

Record No.(s) 40136 - 40148

situate at Racing River, B.C. in the LIARD Mining Division,

to the value of at least 1,358.10 dollars. Work was done from the 28 day of June, 1971, to the 23 day of September, 1971

3. The following is a detailed statement of such work:—

(Set out full particulars of the work done in the twelve months in which such work is required to be done. There are three types of work: (1) Physical (trenching, drilling, tunnelling, and overburden removal); (2) road or trail work; (3) geological, geochemical, geophysical (includes line-cutting). The total value of each type of work and the number of years' work and type to be applied to each claim must be shown below.)

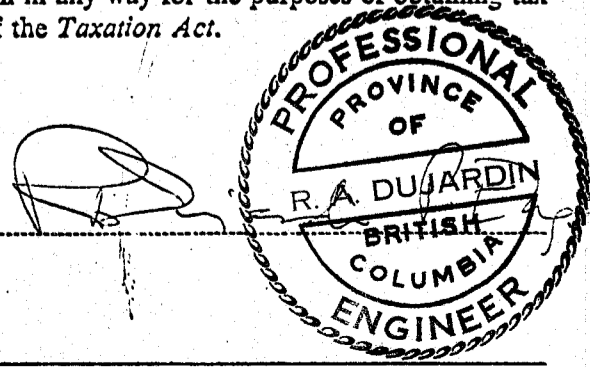
Geological (Detailed) mapping and sampling. The report is not completed but will be filed in 30 days. Details of Expenditures:

Table with 3 columns: Name, Days, Amount. Rows include Cliff Banninger (Geologist), David Pluth (Assistant), David Amor (Assistant), and a total of \$1,358.10.

Please apply 1 certificate of work each for 428 #1 - 13 for a total of 13 certificates

4. That I have not and will not use the work declared herein in any way for the purposes of obtaining tax exemption on a Crown-granted mineral claim under the terms of the Taxation Act.

SWORN and subscribed to at this day of VANCOUVER, B.C. 19, before me SEP 24 1971 Sub-Mining Recorder



This affidavit may be taken by a person empowered to take affidavits by the Evidence Act of British Columbia.



APPENDIX II

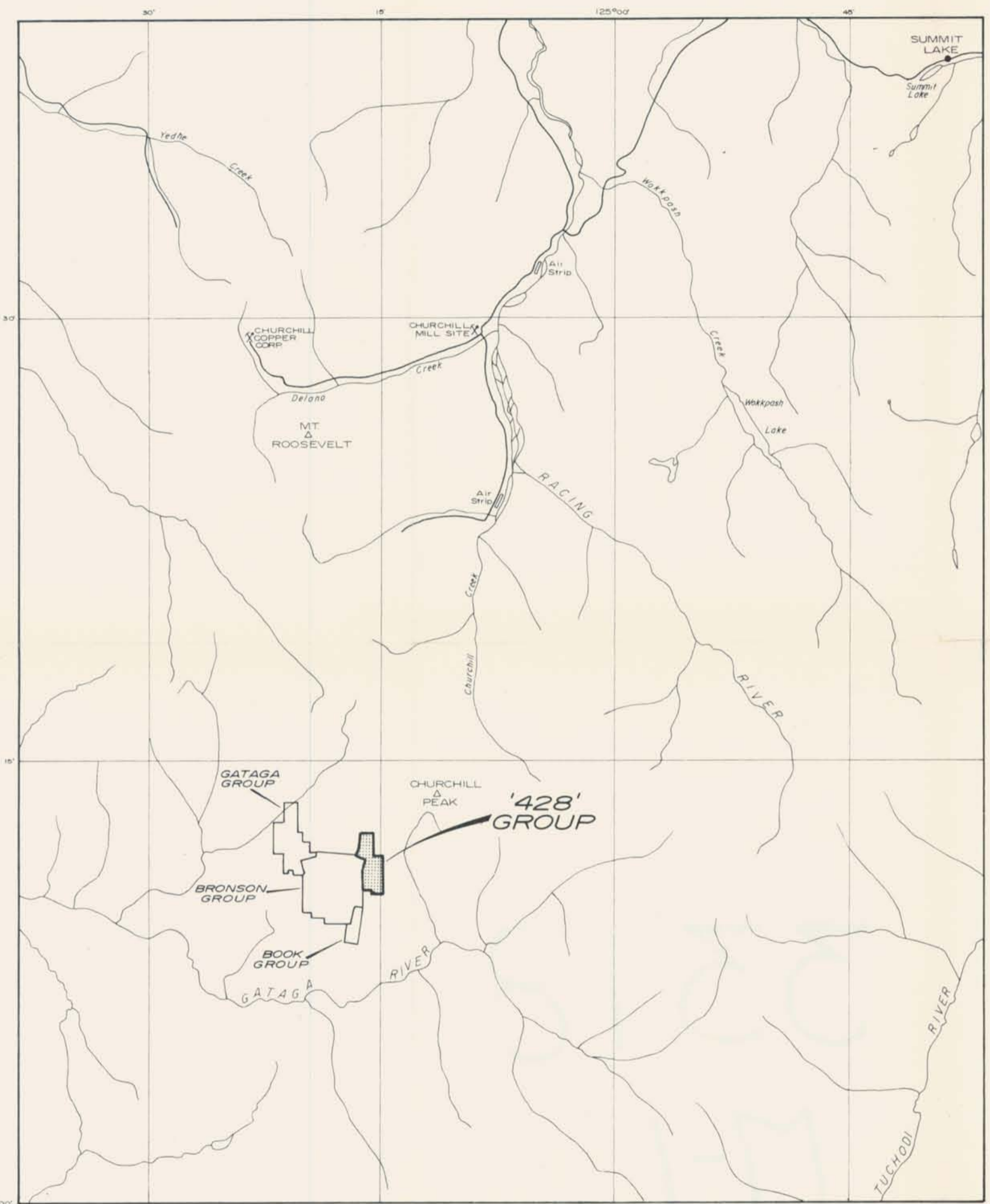
I am a geologist employed with Canadian Superior Exploration Limited.

I graduated with a B.Sc. degree in Geology from the University of British Columbia, Vancouver, British Columbia in 1966.

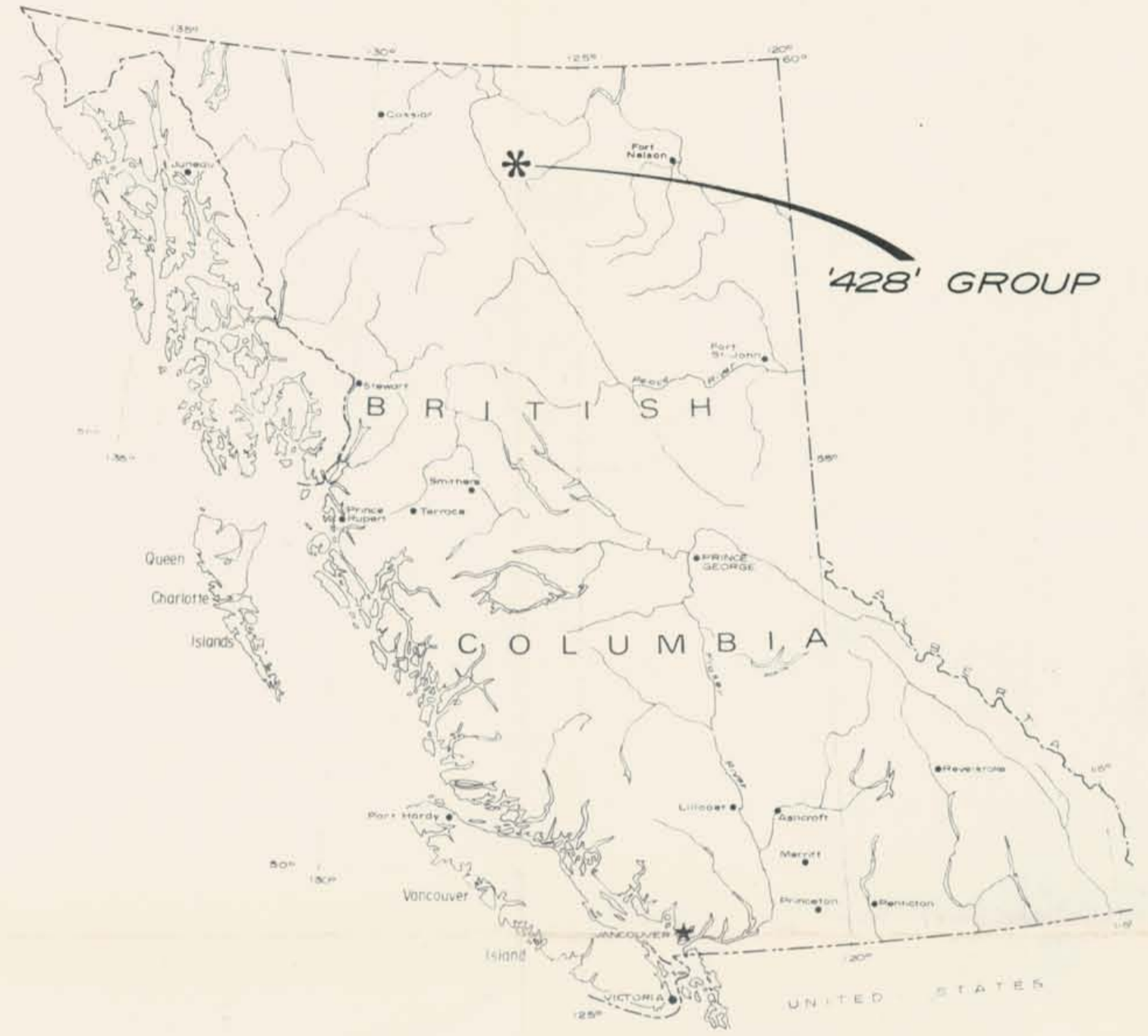
I have worked in the mining industry since graduation in the Yukon, Northwest Territories and in the Province of British Columbia.

I am the author of this report.

Signed: C. Banninger  
C. Banninger.



SCALE 1"=4 MILES

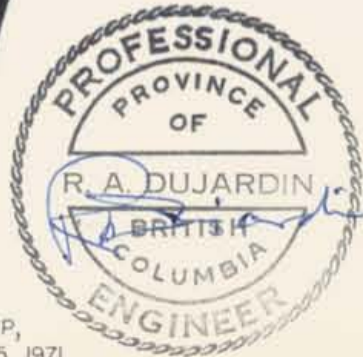


SCALE 1"=136 MILES (APPROX.)

3318  
M-1

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 3318 MAP #1

NOTE  
To accompany geological report by C. Banninger  
and R.A. Dujardin, P. Eng., on the '428' GROUP,  
Gataga River Area, Liard M.D., dated Oct. 15, 1971



CANADIAN SUPERIOR EXPLORATION LIMITED.		
WINDERMERE EXPLORATION PROJECT		
'428' CLAIM GROUP LOCATION MAP		
MAP A.	DATE. OCTOBER 15, 1971	DWG. C. BANNINGER





PEAK Δ 7626'

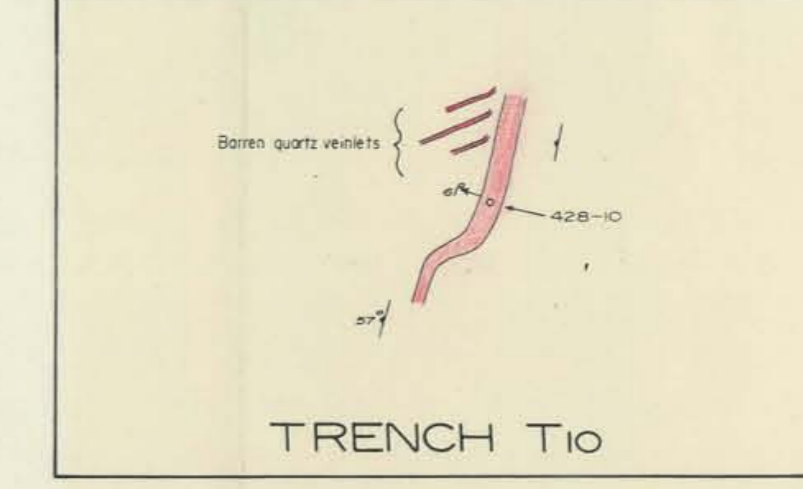
ARGILLITE & ARGILLACEOUS DOLOMITE

ARGILLITE & ARGILLACEOUS DOLOMITE

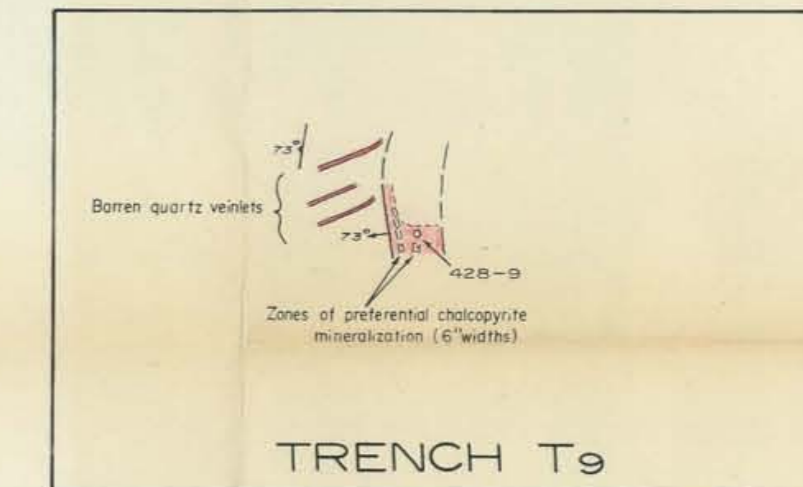
ARGILLITE & ARGILLACEOUS DOLOMITE

ARGILLITE & ARGILLACEOUS DOLOMITE

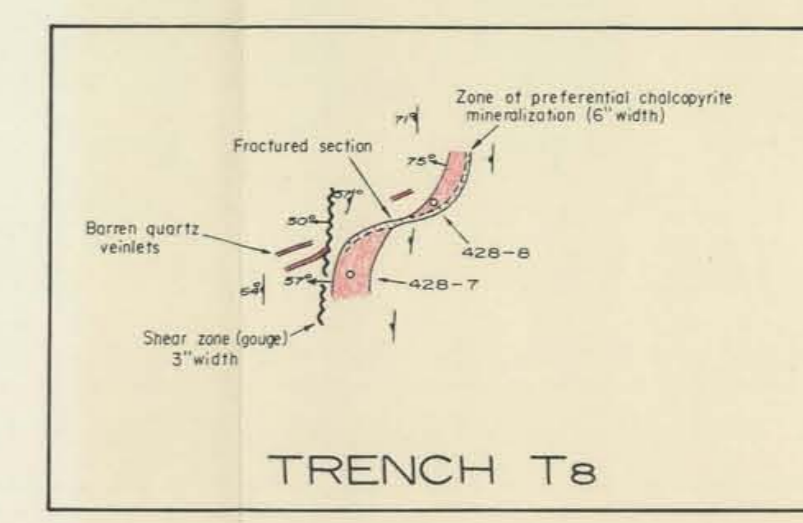
ARGILLITE & ARGILLACEOUS DOLOMITE



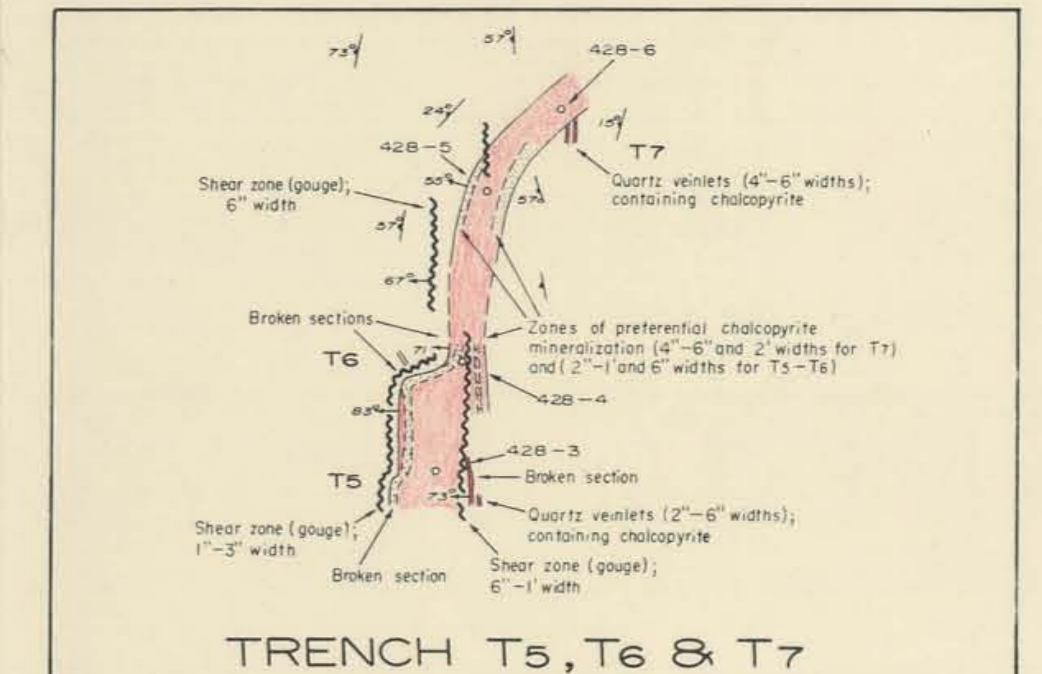
TRENCH T10



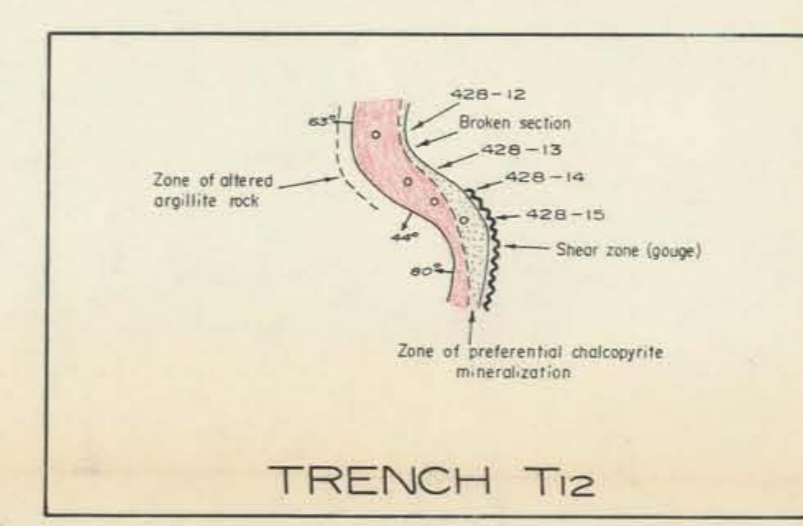
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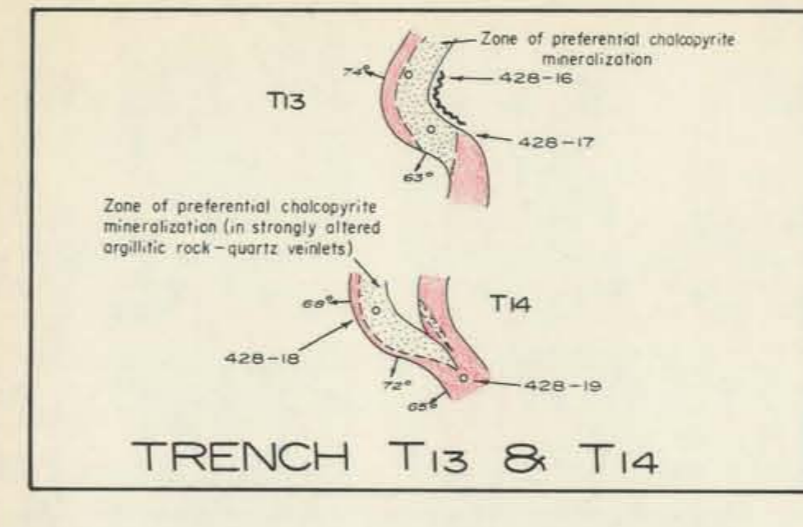
TRENCH T8



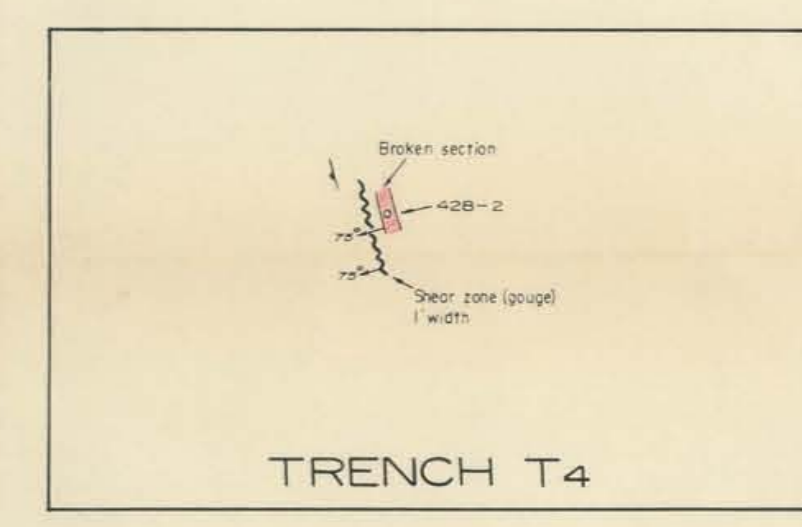
TRENCH T5, T6 & T7



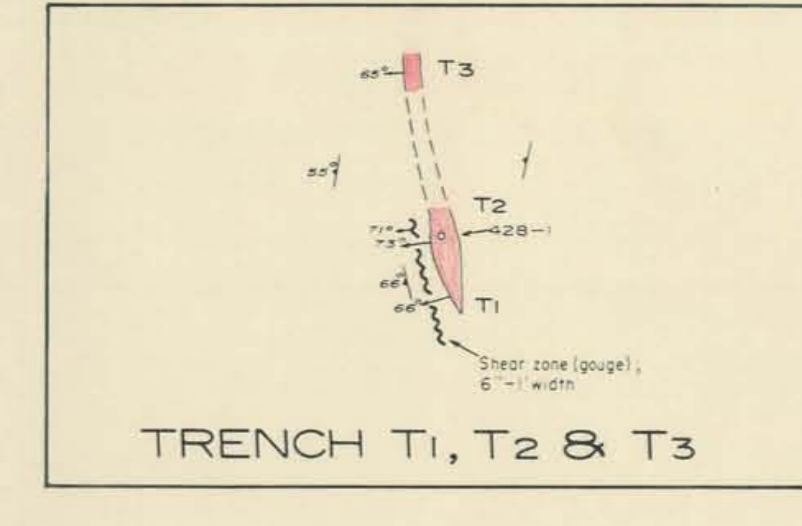
TRENCH T12



TRENCH T13 & T14



TRENCH T4



TRENCH T1, T2 & T3

ASSAY RESULTS

SAMPLE No.	WIDTh(in)	Cu%
428-1	40	0.84
428-2	2.0	0.26
428-3	6.0	0.20
428-4	3.5	2.38
428-5	5.0	0.61
428-6	4.0	0.16
428-7	4.0	0.37
428-8	2.0	0.42
428-9	5.0	0.48
428-10	1.7	0.80
428-11	1.7	0.33
428-12	5.5	0.23
428-13	4.7	0.13
428-14	4.0	0.34
428-15	2.7	0.25
428-16	4.7	0.06
428-17	4.2	0.14
428-18	4.2	2.20
428-19	5.0	0.15

LEGEND

- ARGILLITE & ARGILLACEOUS DOLOMITE
- Argillite
- Basaltic-gabbroic dyke
- Attitude of quartz vein (showing dip)
- Broken vein material
- Fault (observed, inferred, apparent direction of movement, and dip)
- Thrust fault (hath in hanging wall)
- Attitude of bedding
- Attitude of fracture cleavage
- Geological contact (observed, inferred)
- Limit of outcrop or mapped unit
- Contour interval (approximate) 200 feet
- Trench
- Sample location (Canadian Superior)
- Sample location (Windermere)
- Claim line
- Ridge line
- Elevation point (±20 feet)



NOTE: To accompany geological report by C. Banninger and R.A. Dujardin, P.Eng on the 428 GROUP, Gatope River Area, Lard M.D., dated Oct. 15, 1971.

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. 3318 MAP #2

SCALE: 1"=100' OFFSET SCALE: 1"=20' N.T.S. 94 K/3

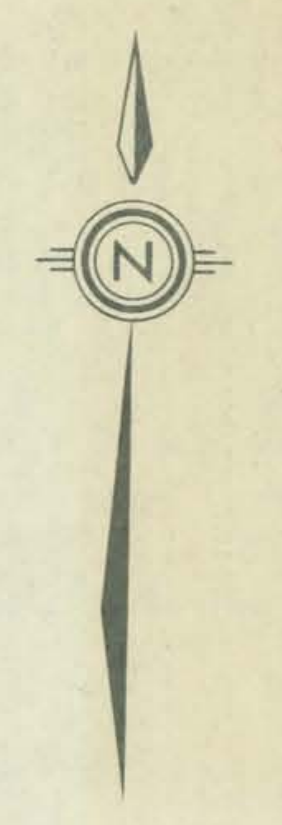
CANADIAN SUPERIOR EXPLORATION LIMITED

WINDERMERE EXPLORATION PROJECT

'428' CLAIM GROUP GEOLOGICAL MAP & ASSAY PLAN

MAP B (SOUTH SHEET) DATE: OCTOBER 15, 1971 DWG. C. BANNINGER





ASSAY RESULTS

SAMPLE No.	WIDTH (ft)	Cu %
428-20	24.0	0.29
428-21	21.0	0.50
428-22	4.0	0.34
428-23	3.5	0.61
428-24	2.7	0.63
428-25	7.6	0.61

LEGEND

- Argillaceous dolomite (with interbedded argillite)
- Argillite
- Basaltic-doleritic dyke
- Attitude of quartz vein (showing dip)
- Broken vein material
- Fault (observed, inferred, apparent direction of movement, and dip)
- Thrust fault (seen in hanging wall)
- Attitude of bedding
- Attitude of fracture cleavage
- Geological contact (observed, inferred)
- Limit of outcrop or mapped unit
- Contour interval (approximate) : 200 feet
- Trench
- Sample location (Canadian Superior)
- Sample location (Windsorshire)
- Cullin line
- Ridge line
- Elevation point (20' feet)

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 3318 MAP #3



NOTE  
To accompany geological report by C. Banninger and R.A. Dapinski, P. Eng  
on the 428 GROUP, Gatoga River Area, Laird M.D., dated Oct 15, 1971

SCALE : 1" = 100' N.T.S. 94 K/3

CANADIAN SUPERIOR EXPLORATION LIMITED  
WINDERMERE EXPLORATION PROJECT  
**'428' CLAIM GROUP**  
**GEOLOGICAL MAP & ASSAY PLAN**  
MAP C. (NORTH SHEET) DATE OCTOBER 15, 1971 DWG. C. BANNINGER