

4613

GEOLOGICAL & GEOCHEMICAL REPORT

- on the -

BEV, ICE, GRANITE & DOLLY CLAIMS

- for -

CANADIAN JOHNS-MANVILLE CO. LTD.,

P. O. Box 1500,
ASBESTOS, P. Q.

COVERING: BEV 1 - 12 Mineral Claims
ICE 2, 4, 6, & 19 - 21 Mineral Claims
GRANITE 1 - 7 Mineral Claims
DOLLY 1 - 4 Mineral Claims

LOCATED: (1). $50^{\circ} 40' N$; $116^{\circ} 30' W$.
(2). N. T. S. 82K/10E
(3). 22 miles west of Radium, B. C.

Prepared by:

KERR, DAWSON & ASSOCIATES LTD.,
#9-219 Victoria Street,
KAMLOOPS, B. C.

John R. Kerr, P. Eng.

September, 1973.

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 4613	MAP

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SUMMARY AND CONCLUSIONS

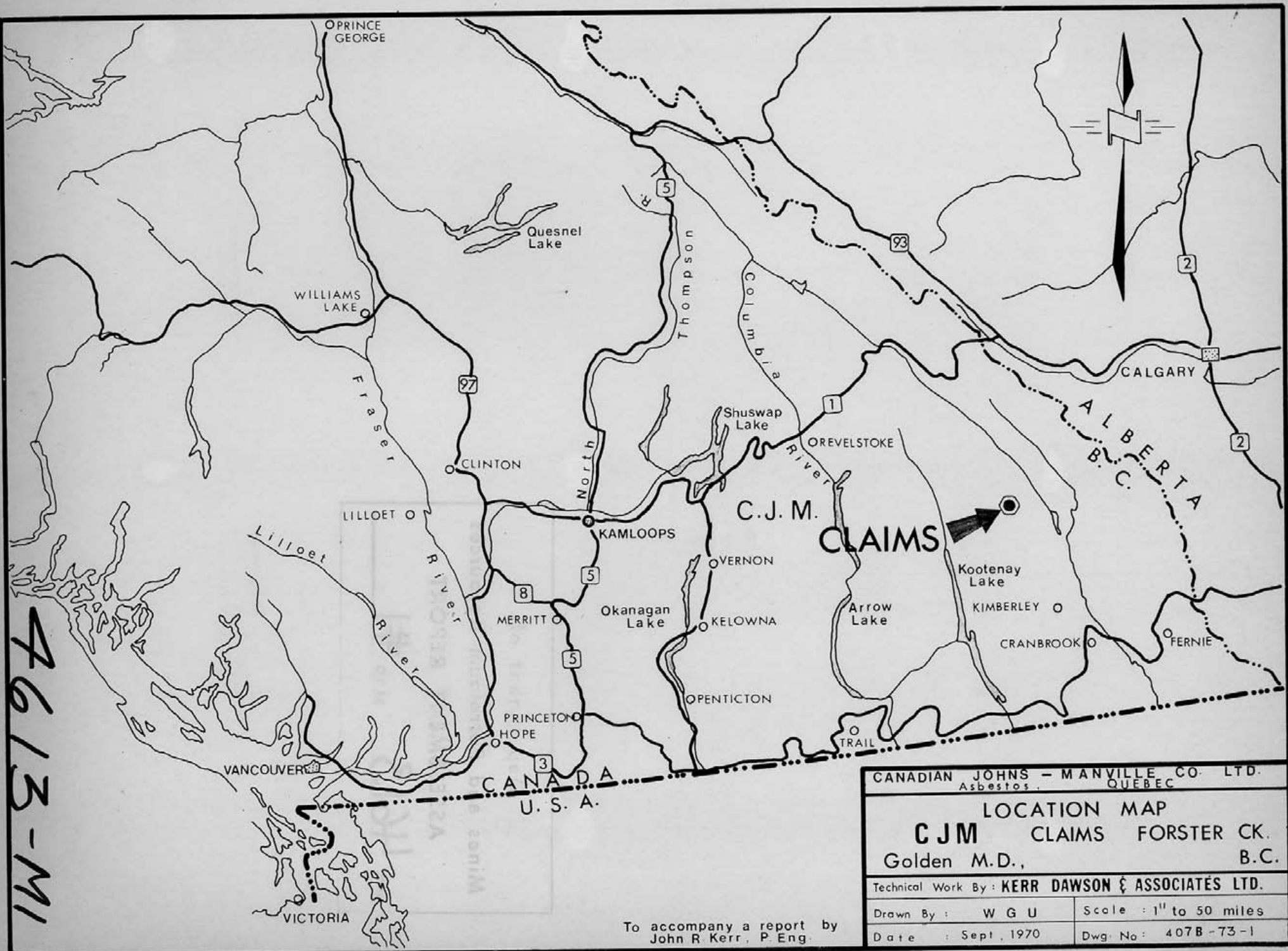
During the latter part of July, 1973, one crew of Canadian Johns - Manville Co. Ltd. completed reconnaissance and detailed talus and rock chip sampling, and geological mapping over two separate areas of the Bev, Dolly, Ice, and Granite claim groups, 22 miles west of Radium in the rugged Purcell Mountains. A total of 207 talus fines and 33 rock chip samples were collected.

Previous work on the old Bev claims has indicated two zones of MoS_2 mineralization in quartz veins. Results of rock chip sampling over these zones indicates the presence of substantial Mo values disseminated in the hornfels. This content of Mo together with the obvious MoS_2 in quartz veins is certainly of economic significance.

Results of prospecting and sampling the western and southeastern extension of the contact zone of the Horsethief Stock, indicates only scattered occurrences of MoS_2 in quartz veins. Two significant geochemical anomalies in the southern extension referred to as Can Sup Creek certainly warrant further investigation.

Diamond drilling, rock trenching and sampling are recommended on the main showing on the Bev claims. Further geochemical investigations and detailed prospecting are recommended for anomalous zones on Can Sup Creek.

4613-M1



CANADIAN JOHN'S - MANVILLE CO. LTD. Asbestos. QUEBEC	
LOCATION MAP	
CJM CLAIMS FORSTER CK.	
Golden M.D., B.C.	
Technical Work By: KERR DAWSON & ASSOCIATES LTD.	
Drawn By: W G U	Scale: 1" to 50 miles
Date: Sept, 1970	Dwg No: 407B-73-1

To accompany a report by John R. Kerr, P. Eng.

INTRODUCTION

A total of 30 contiguous Ice, Granite, Bev, and Dolly claims have been grouped to cover a large gossan zone and scattered MoS_2 mineralization in quartz veins along the northeast contact of the Horsethief stock. The main showing located on the Bev 3 and 4 claims, was discovered in the fall of 1971, and mapped in detail by C. I. Choi in 1972. During the 1973 field season an additional 7 Granite claims were staked to cover the eastern extension of the contact zone, and an additional 4 Dolly claims were staked to cover the western extension of the contact zone. Detailed talus fine sampling, geological mapping, and prospecting were completed over these two new claim blocks during the 1973 field season. Also, experimental rock - chip sampling was completed over the main showing. This report summarizes the 1973 field programme.

Normal introductory remarks regarding location, access, topography, etc. are well documented in previous company reports by H. K. Conn and C. P. Lin (1971), and Schrijver (1971), and Kerr (1972), and are summarized below. The claim block covers what has been named Can Sup Creek, a small southerly flowing tributary of Forster Creek, and Molly - Dolly Lakes, at the head of a small northerly flowing tributary of Frances Creek, located approximately 22 miles due west of Radium, B. C. Access is possible up either Forster Creek or Frances Creek from Radium via well maintained logging roads, and thence a two mile hike up the steep ridge to the main showing area. There are many good helicopter landing sites near Molly - Dolly Lakes, and at the head of Can Sup Creek. Relief within the claims ranges from 5,000 ft. a.s.l. in the floor of Forster Creek, to over 8,500 ft. a.s.l. along the ridge between Forster and Frances Creek. Much of the claim area is very precipitous and very dangerous to travel on foot.

GEOLOGY

The general geology of the Horsethief Stock is well documented in G. S. C. Memoir 369, Geology of the Lardeau Map Area, East Half, by J. E. Reesor, and in a private company report entitled Geology of the Horsethief Stock by K. Schrijver. The detailed geology of the Bev claims, and mineralized showings is described in a Geological and Geochemical Report on the Bev Claims, by Kerr (1972). In summary, the entire claim area is underlain by the northeastern contact zone of the Horsethief Stock. The stock was recognized by K. Schrijver as concentrically zoned, grading from a fine - medium grained granodiorite, with occasional large orthoclase phenocrysts, in the center, to a coarse - grained, pink and purple quartz monzonite along the periphery. The coarse - grained quartz monzonite is the most dominant rock type of the exposed stock, and is the only variety underlying the claim group. The Horsethief Stock intrudes sedimentary rocks of the Upper Purcell Group, more specifically subdivided into the Mt. Nelson and Dutch Creek Formations. Sedimentary rocks along the contact are highly thermally altered, and are described as hornfels. Thermal alteration zones have been recognized.

MoS₂ mineralization is found mainly as flakes and rosettes in quartz - veins in both the quartz - monzonite and hornfels. The main showing indicates persistent MoS₂ bearing quartz - veins over a surface area of 1,000 ft. long by 600 ft. wide. No attempt has been made to establish surface grade. Although all recognized MoS₂ has been found in quartz veins, results of the rock geochemistry (See Geochemistry) suggest a substantial content of MoS₂ as fine disseminations in the hornfels, possibly in content 0.05 - 0.10% MoS₂.

During the 1973 field season, the four new Dolly claims, the seven new Granite claims, and a portion of the Ice claims were mapped in detail by R. Willis, junior geologist. Results of mapping the Dolly claims are shown on Figure 407C - 73 - 3, on a scale of 1":200'. Results of mapping the Granite and Ice claims are shown on Figure 407C - 73 - 5, Geological Plan, Can Sup Creek, on a scale of 1":500 ft.

The detailed geology of the two areas mapped is similar to that mapped on the Bev claims. In the area of Can Sup Creek an intense gossan zone parallels the contact, along the creek bed. The outline of this gossan is shown on the accompanying map.

Showings of MoS_2 in quartz veins have been discovered on both areas mapped, and are located on the accompanying map. Zones of pervasive MoS_2 bearing quartz veins have not been encountered; however, geochemistry, associated with some of the showings, has indicated targets of further exploration.

GEOCHEMISTRY

During the 1973 field season talus fine sampling was completed over the Can Sup Creek area (Granite and Ice claims), and over the new Dolly claims. Rock chip sampling was completed over the known showing areas on the Bev claims. Each programme is discussed below.

TALUS FINE SAMPLING

Field Methods:

A total of 125 talus fine samples were collected off 200 ft. contours across the contact and gossan zone on Can Sup Creek. Sample interval was 100 ft. where possible along each contour. A total of 82 talus samples were collected along random contours and reconnaissance lines over the four Dolly claims, sample interval at 100 ft. along each traverse. Location of all samples are shown on Figure 407C - 73 - 4 (Dolly claims), and Figure 407C - 73 - 6 (Can Sup Creek). Control for sampling was topographic maps, using pace and altimeter methods. Samples were collected from shallow pits in talus slopes, and placed in brown Kraft envelopes supplied by the laboratories. All samples were collected by J. E. Binnie, an experienced senior field assistant.

Analytical Techniques:

Samples were sent to the Vancouver laboratories of Bondar - Clegg and Co. Ltd. for geochemical analysis of Mo, only. The samples were dried at 40 - 50°C in infra-red ovens, and sieved to -80 mesh in Tyler screens. An aliquot of the -80 mesh fraction was digested in hot aqua regia to extract the metals, and the Mo content was determined by

atomic absorption methods at a detection limit of 1 ppm.

Classification of Data:

A statistical analysis was completed on each of the two groups of sample results from each area, treating all samples within each area as one population. Cumulative frequency diagrams were plotted on probability log paper, and the best fit straight lines were drawn. (See Appendix A).

The resulting straight lines show some deviation from the actual plot of the sample points, and is probably due to the varying nature of the samples collected, and also that samples were collected over two various rock types. To attempt a statistical analysis for each type of sample collected over each rock type would be meaningless, as there would be so few samples in each population group.

The sample data were therefore classified into the following anomalous categories, as two separate populations for each sampling area.

		<u>Can Sup Creek</u>	<u>Dolly Claims</u>
Negative	o - b	0 - 28 ppm Mo	0 - 5 ppm Mo
Possibly Anomalous	b-(b+s)	29 - 72 ppm	6 - 14 ppm
Probably Anomalous	(b+s)-t	73 - 189 ppm	15 - 36 ppm
Definitely Anomalous	> t	> 189 ppm	> 36 ppm

where b - background (arithmetic mean)
 s - standard deviation
 t - threshold, derived from 2nd. probit
 of cumulative frequency distribution

Presentation of Data:

Figure 407C - 73 - 4 (Dolly Lake), and Figure 407C - 73 - 6 (Can Sup Creek) shows all individual sample results with the following coding of anomalous categories:

- | | |
|---|------------------------|
| 0 | - Negative |
| ⊗ | - Possibly Anomalous |
| ⊙ | - Probably Anomalous |
| ● | - Definitely Anomalous |

Anomalous zones are represented by contours of the various anomalous limits.

ROCK CHIP SAMPLING:

A total of 33 rock chip samples were taken across one traverse over the two showing areas on the Bev claims. Samples were taken at 50 ft. intervals where outcrop was available. Showing #1 is underlain by quartz - monzonite of the Horsethief Stock, from which 8 samples were collected. Showing #2 was underlain by hornfels from which 25 samples were collected.

Samples were collected from outcrop area of approximately 10' x 10', containing a minimum of 10 chips per sample. Care was taken to collect fresh rock chips, not being contaminated by surface debris, fracture coatings or vein material. All samples were collected by J. E. Binnie.

The samples were forwarded to the Vancouver Laboratories of Bondar - Clegg and Co. Ltd. for geochemical analysis of Mo. Samples were ground to -80 mesh, and an aliquot of this was digested in hot aqua regia to extract the metal. The Mo content was measured by atomic absorption methods at a detection limit of 1 ppm.

Statistical analysis of the sample results was considered impractical as only 8 and 25 samples could be considered in each population. Therefore to derive anomalous limits, consideration was given to the absolute content of Mo in each sample, and possible economic significance. As there is 68% Mo in the mineral MoS_2 , and as approximately 75 - 80% Mo is extracted by geochemical methods, a value of 100 ppm Mo, could represent 200 ppm MoS_2 or 0.02% MoS_2 . As the bulk of obvious MoS_2 is in quartz veins, an additional 0.02% MoS_2 in rock, could be a significant economic factor. Therefore, the following limits were established:

0 -	Negative	0 - 49 ppm Mo
● -	Possibly Anomalous	50 - 100 ppm Mo
● -	Definitely Anomalous	100 ppm Mo

DISCUSSION OF RESULTS

DOLLY CLAIMS: Prospecting and mapping indicated the presence of several isolated MoS_2 bearing quartz veins. There was no evidence of pervasive quartz veining. Geochemical values of Mo in talus were very low, the highest being 41 ppm Mo, on an absolute scale reflecting less than 0.01% MoS_2 in talus. As talus is mainly a mechanical weathering process, the content of Mo should reflect the approximate Mo content in bedrock.

Two small anomalies were interpreted from the results, both appearing to be smaller than 400' x 400'. A low priority follow-up programme is suggested as detailed sampling over both anomalies, and possibly tracing the southwestern anomaly further upslope.

CAN SUP CREEK: Prospecting and mapping on Can Sup Creek indicated the presence of scattered MoS_2 occurrences in the highly altered and rusty hornfels near the contact of the Horsethief Stock. Extensive talus slopes, and possibly a leached surface capping prevented a thorough examination of all rocks for MoS_2 occurrences.

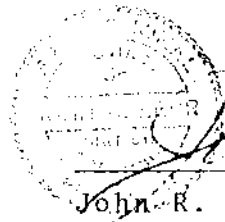
Geochemical values of talus fine samples indicated high values of Mo in talus, possibly reflecting actual Mo content in bedrock. The threshold was calculated at 189 ppm, which could possibly reflect 0.03 - 0.04% MoS_2 . Two anomalous zones were delineated from interpretation of results. Both zones are separated by a large unsampled area, between 6,600 ft. and 7,000 ft. due to steep, inaccessible cliffs.

Further work is required on these zones, probably the most practical would be very detailed prospecting, accompanied by detailed sampling along unsampled contours, where possible.

ROCK CHIP SAMPLING: The rock sampling programme, although not a complete programme, was interesting in that Mo values were obtained from rock appearing to be barren. The highest value obtained, 960 ppm Mo, possibly represents an economic grade, 0.15 - 0.20% MoS₂. With the knowledge that most of the obvious MoS₂ values are in quartz veins, a low content of MoS₂ disseminated in the host rock, could have a marked influence on the economic features of the deposit. Rock trenching, detailed sampling and diamond drilling are certainly warranted on this zone.

Respectfully Submitted by:

KERR, DAWSON AND ASSOCIATES LTD.



John R. Kerr
John R. Kerr, P. Eng.,
GEOLOGIST

September, 1973,
KAMLOOPS, B. C.

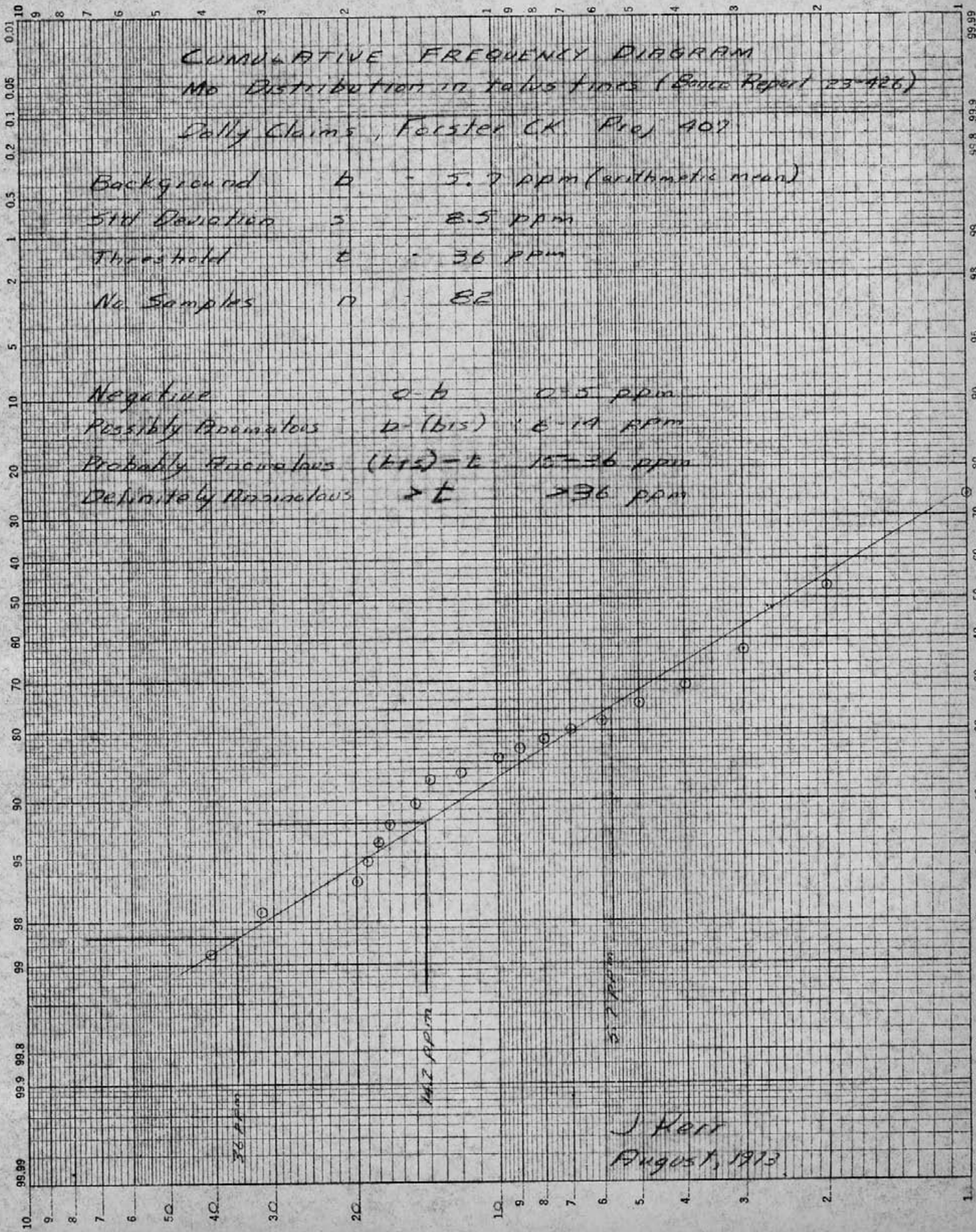
APPENDIX A

CUMULATIVE FREQUENCY DIAGRAMS

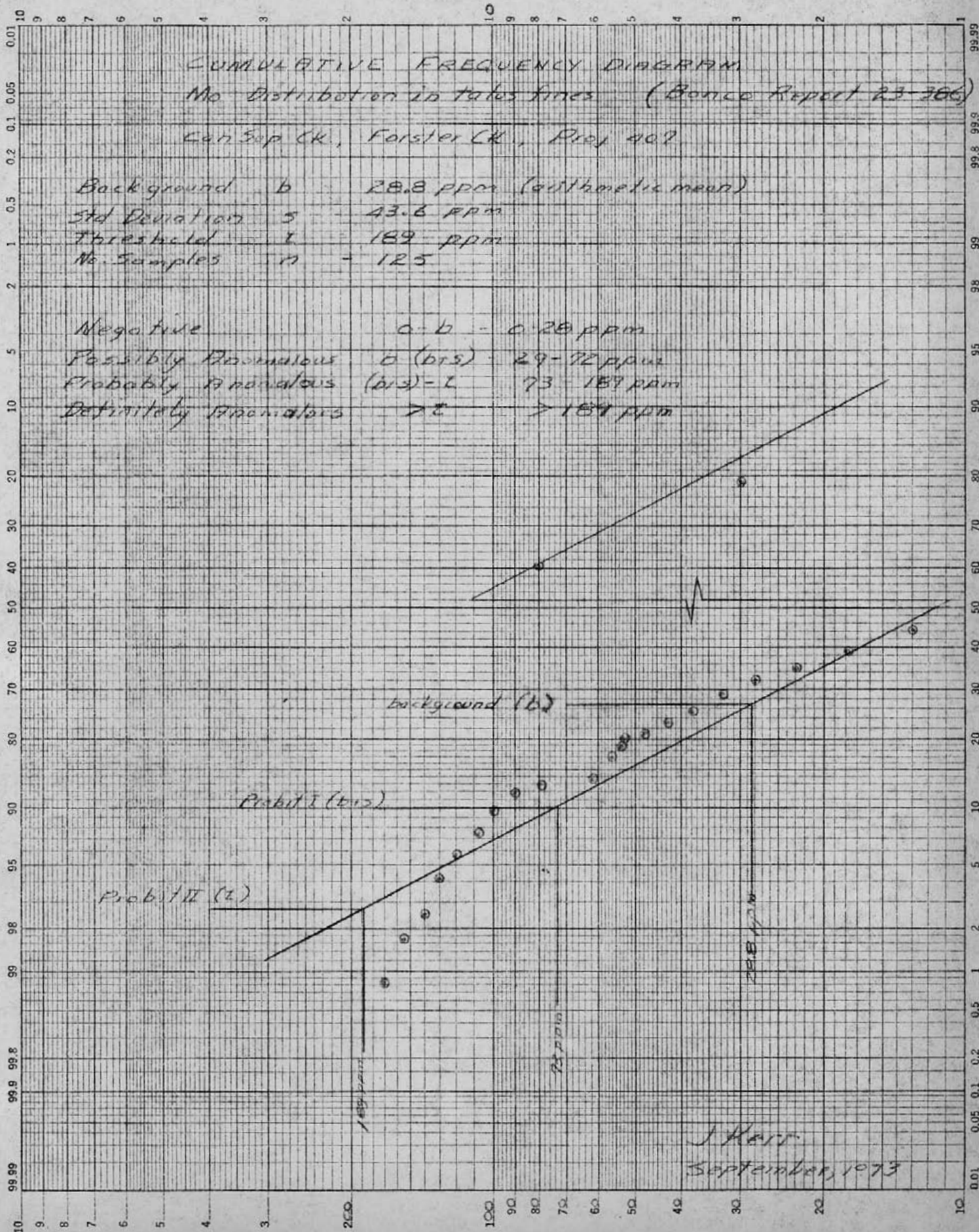
CUMULATIVE FREQUENCY DIAGRAM
 Mo Distribution in talus fines (Source Report 23-426)
 Dally Claims, Forster CK Proj 407

Background μ - 5.7 ppm (arithmetic mean)
 Std Deviation σ - 8.5 ppm
 Threshold t - 36 ppm
 No Samples n - 82

Negative $0 - \mu$ 0-5 ppm
 Possibly Anomalous $\mu - (b1\sigma)$ 6-19 ppm
 Probably Anomalous $(t1\sigma) - t$ 15-36 ppm
 Definitely Anomalous $> t$ >36 ppm



J Kerr
 August, 1913



APPENDIX B

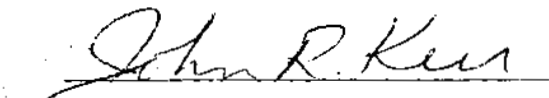
COST STATEMENT

COST STATEMENT

BEV, DOLLY, ICE, & GRANITE CLAIMS

(1).	Field Personnel - July 18-21, and 25-28, 1973:		
	J. Binnie - Sr. Assistant		
	8 days @ \$40.00 per day	\$320.00	
	R. Willis - Jr. Geologist		
	8 days @ \$35.00 per day	<u>280.00</u>	\$ 600.00
(2).	Transportation:		
	4 x 4 truck - 8 days @ \$20.00/day	160.00	
	3B1 Helicopter - 4 hrs. @ \$150/hr.	<u>600.00</u>	760.00
(3).	Room and Board:		
	8 man days in town at \$14.00/man/day	112.00	
	8 man days in camp at \$ 7.00/man/day	<u>56.00</u>	168.00
(4).	Geochemical Analysis (includes preparation):		
	207 soil samples for Mo at \$1.20/sample		
	248.40	
	32 rock samples for Mo at		
	\$1.85 per sample.	<u>59.20</u>	
		307.60	
	Less 20%	<u>61.52</u>	246.08
(5).	Interpretation and Report Preparation:		
	J. Kerr, P. Eng.	500.00	
	Drafting	160.00	
	Secretarial	20.00	
	Photocopying and Reproduction.	<u>24.00</u>	704.00
	TOTAL COSTS HEREIN		<u><u>\$2,478.08</u></u>

CERTIFIED CORRECT:


John R. Kerr, P. Eng.

APPENDIX C

WRITER'S CERTIFICATE

JOHN R. KERR, P.ENG.
GEOLOGICAL ENGINEER

9 - 219 VICTORIA STREET
KAMLOOPS, B.C.
PHONE (604) 374-6427

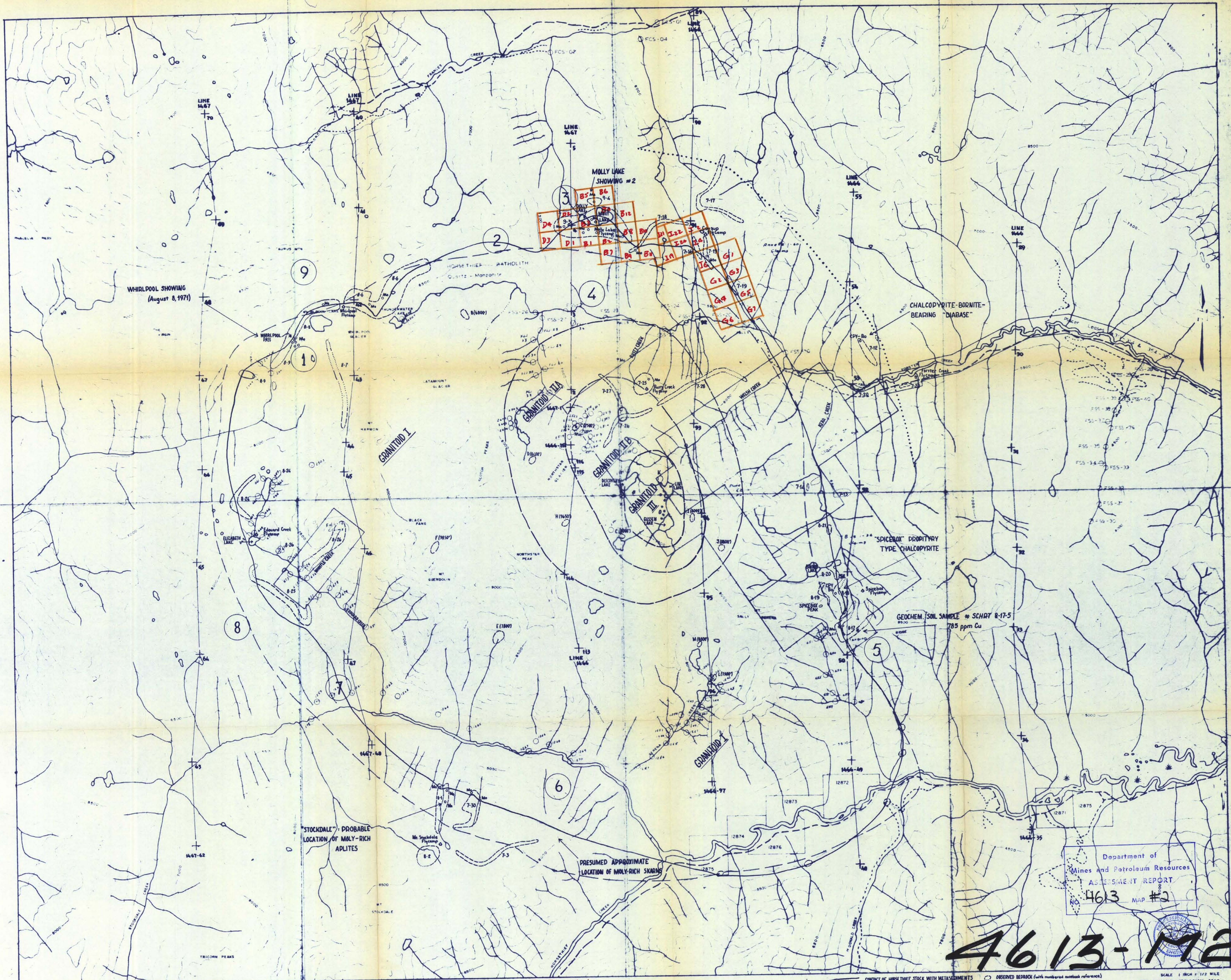
I, JOHN R. KERR, OF KAMLOOPS, B. C., HEREBY CERTIFY THAT:

- (1). I am a member of the Association of Professional Engineers in the Province of British Columbia, and a Fellow of the Geological Association of Canada.
- (2). I am employed by Kerr, Dawson and Associates Ltd., with my office at #9 - 219 Victoria Street, Kamloops, B. C.
- (3). I have practiced as a geologist for 9½ years since graduation from the University of British Columbia in 1964 with a B. A. Sc. in Geological Engineering.
- (4). I have no direct interest or holdings of securities of Canadian Johns - Manville Co. Ltd., or in the Bev, Dolly, Granite and Ice claims described in this report.
- (5). The work described in this report was completed July 18th. - 21st., and 25th. - 28th., 1973, and was supervised directly by myself.
- (6). The costs, as shown in Appendix C of this report, are to the best of my knowledge correct.
- (7). This report is based on published and unpublished data, my own personal knowledge of the area, and the field data collected during the field programme.



John R. Kerr
John R. Kerr, P. Eng.,
GEOLOGIST

Sept., 1973,
KAMLOOPS, B. C.



*B - Bev Claims
D - Dolly Claims
I - Ice Claims
G - Granite Claims*

Fig 407C-73-2

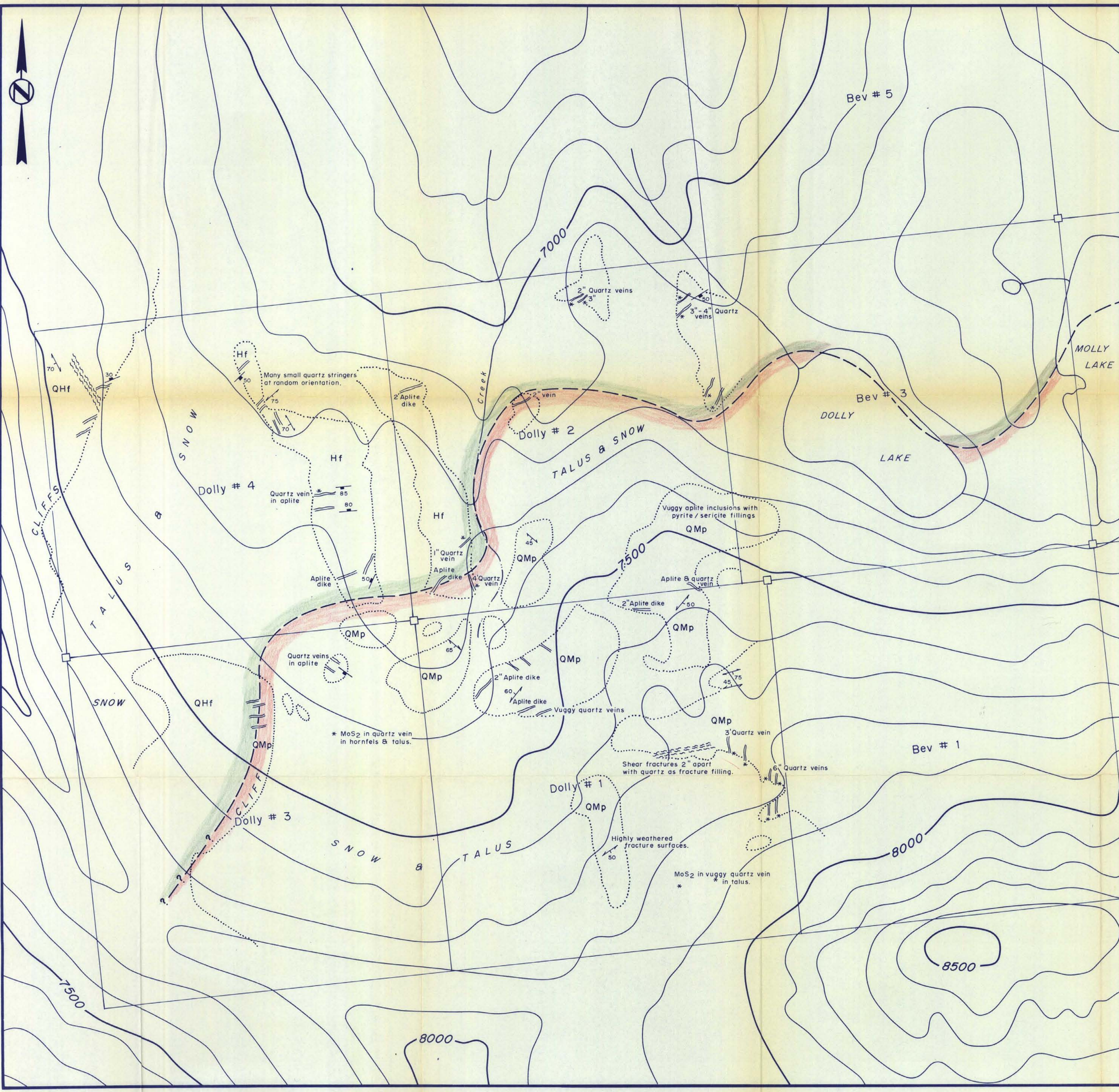
CONTACT OF HORSETHIEF STOCK WITH METASCHISTS
INTERNAL CONTACTS IN HORSETHIEF STOCK
LIMIT OF CONTACT-METAMORPHIC AUREOLE
FYCAMP LOCATION (with name)

○ OBSERVED BEDROCK (with numbered notebook reference)
○ OBSERVED TRAILS (with numbered notebook reference)
○ MINERALIZATION IN BEDROCK (with numbered notebook reference)
○ IMPORTANT MINERALIZATION AND THERMAL SHOWINGS

Department of
Mines and Petroleum Resources
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4613-172

SCALE 1 INCH = 1/2 MILE
PRELIMINARY GEOLOGICAL MAP
HORSETHIEF STOCK
by
K. Schryver, 1971



- LEGEND -

- HORSETHIEF STOCK CONTACT
- OUTCROP LIMIT
- QUARTZ VEINS & APLITE DIKES
- FRACTURE CLEAVAGE
- STRIKE / DIP OF VEINS
- MOLYBDENITE OCCURRENCE
- CLAIM POST
- FAULT

ROCK CLASSIFICATION

- QMp Quartz Monzonite of Horsethief Stock very coarse grained - large K - feldspar phenocrysts.
- QHf Quartzite; Cordierite Hornfels; some green chert - localized recrystallized dolomitic limestone.
- Hf Spotted Hornfels; very rusty near contact with stock.

4613-M3

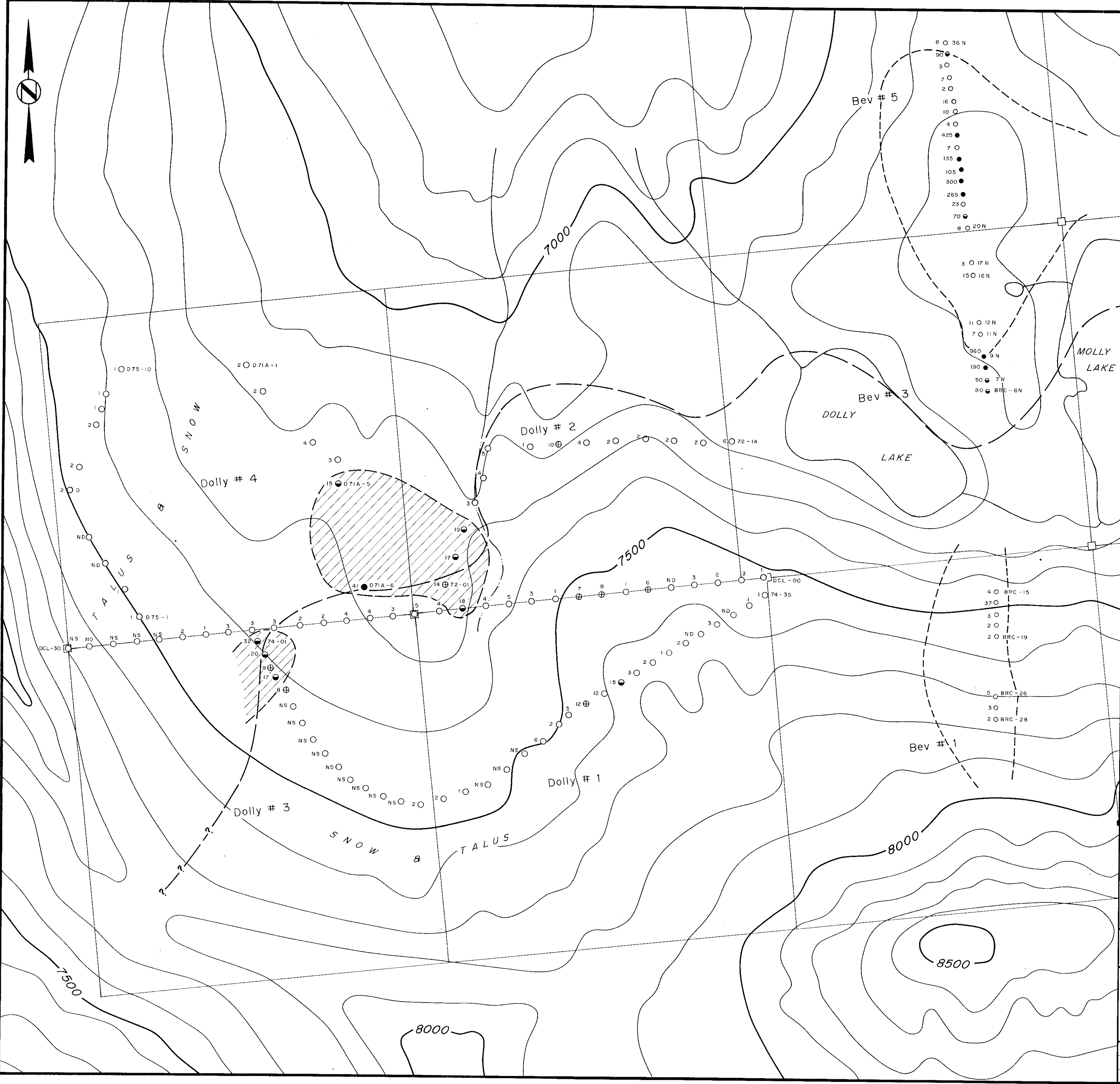
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4613 MAP #3



PREPARED FOR
CANADIAN JOHNS - MANVILLE LTD.
KAMLOOPS BRITISH COLUMBIA

FORSTER CR. PROJECT 407
GEOLOGICAL PLAN
DOLLY CLAIMS

Technical Work By: C. J. M.	Scale: 1" = 200'
Drawn By: T. V.	Date: SEPTEMBER 1973
Approved By: J. KERR	Drawing No. 407C - 73 - 3



- LEGEND -

- ZONES OF MoS₂ MINERALIZATION
- ROCK CONTACT - HORNFELS - DUTCH CK. FM / QUARTZ MONZONITE - HORSETHIEF STOCK.
- Mo GEOCHEMICALLY ANOMALY.
- TALUS GEOCHEMICAL STATION Mo CONTENT PPM
- ROCK GEOCHEMICAL STATION Mo CONTENT PPM
- NO SAMPLE
- NOT DETECTED

ANOMALY CLASSIFICATION
TALUS FINE SAMPLES

- 0 - 5 ppm NEGATIVE
- 6 - 14 ppm POSSIBLY ANOMALOUS
- 15 - 36 ppm PROBABLY ANOMALOUS
- > 36 ppm DEFINITELY ANOMALOUS

ROCK CHIP SAMPLES

- 0 - 49 ppm NEGATIVE
- 50 - 100 ppm PROBABLY ANOMALOUS
- > 100 ppm DEFINITELY ANOMALOUS

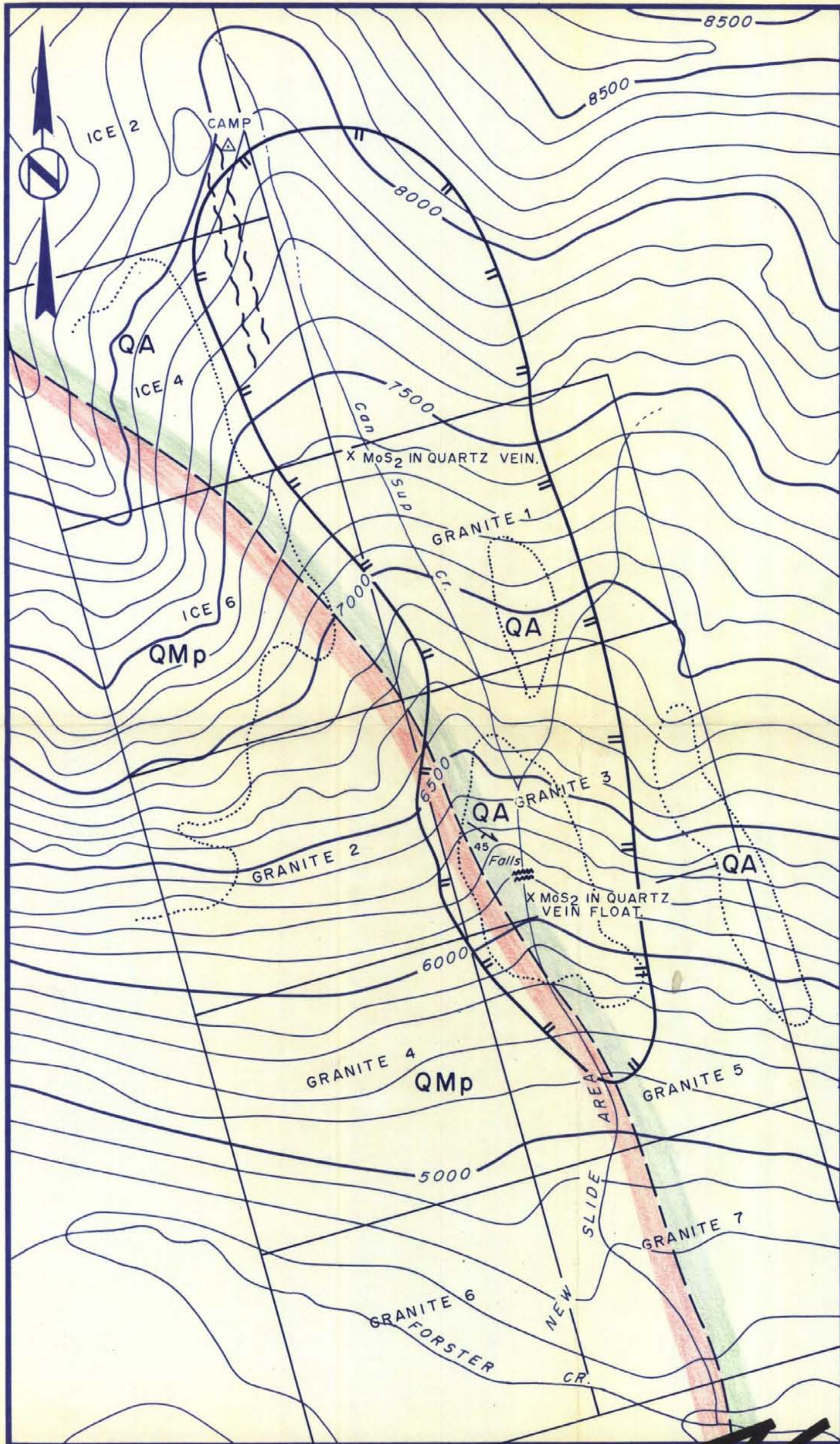
4613

Department of
Mines and Petroleum
ASSESSMENT REPORT
NO. **4613** MAP #4

PREPARED FOR:
CANADIAN JOHNS - MANVILLE LTD.
KAMLOOPS BRITISH COLUMBIA

FORSTER CR. PROJECT 407
GEOCHEMICAL PLAN DOLLY CLAIMS
Mo Distribution In
Talus Fines & Rock Chips

Technical Work By: C. J. M.	Scale: 1" = 200'
Drawn By: T. V.	Date: SEPTEMBER 1973
Approved By: J. KERR	Drawing No. 407C-73-4



- LEGEND -

- LIMIT OF INTRUSIVE
- SHEAR ZONE
- LIMIT OF OUTCROP
- MAIN GOSSAN ZONE
- CLEAVAGE

ROCK CLASSIFICATION

- QMp** Quartz Monzonite Porphyry Of The Horsetheif Stock.
- QA** Metasediments Of The Mount Nelson Formation: Quartzite And Argillite-- Tremolite Very Prominent; Hornsfel Near Contact.

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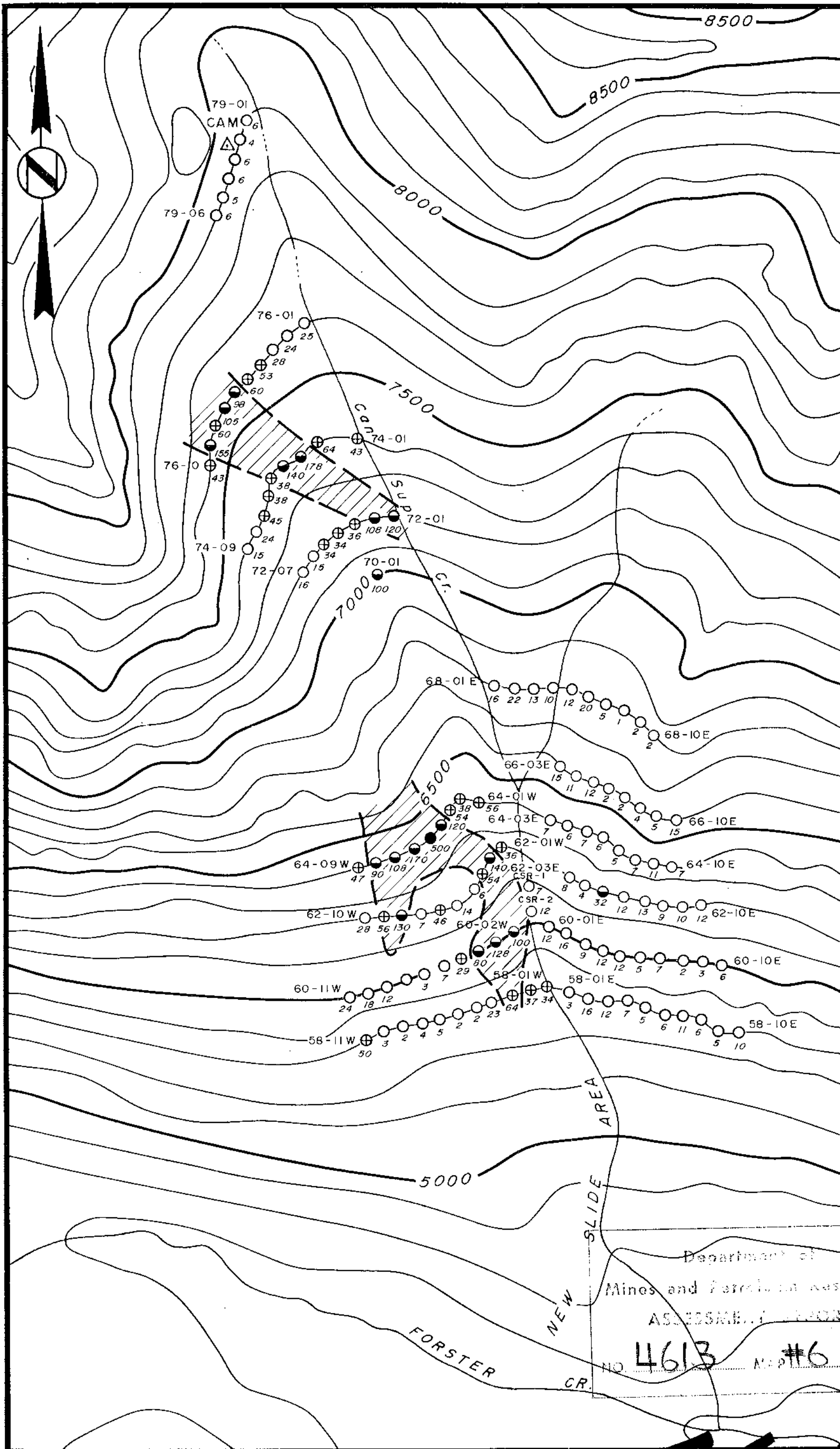


PREPARED FOR:
CANADIAN JOHNS - MANVILLE
KAMLOOPS B.C.


FORSTER CR - PROJECT 407
GEOLOGICAL PLAN
CAN SUP CREEK

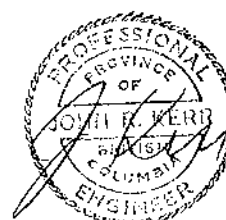
Tech. Work By: R. Willis	Scale: 1" = 500'
Drawn By: T.V.	Date: SEPTEMBER 1973
Approved By:	Dwg. No. 7C-

4613-M5



- LEGEND -

- SAMPLE LOCATION
- 28 p.p.m. Mo
- N.D. NOT DETECTED
- N.S. NO SAMPLE
-  ANOMALOUS ZONE



ANOMALY CLASSIFICATION

- 0 - 28 p.p.m. NEGATIVE
- ⊕ 29 - 72 p.p.m. POSSIBLY ANOMALOUS
- 73 - 189 p.p.m. PROBABLY ANOMALOUS
- > 189 DEFINITELY ANOMALOUS

Department of

Mines and Petroleum Resources

ASSESSMENT

NO. 4613 MAP #6

PREPARED FOR:
CANADIAN JOHNS - MANVILLE
KAMLOOPS B.C.

FORSTER CR - PROJECT 407
Location - Talus Fines Samples
Can Sup Creek
Molybdenum Distribution In Soil

Tech. Work By: R. Willis Scale: 1" = 500'
Drawn By: T.V. Date: SEPTEMBER 1973
Approved By: J. Kerr Dwg. No. 407C-3-6

4613-M6