

4302

G E O C H E M I C A L R E P O R T

on the -

B O T A N I E M T N . P R O P E R T Y

- for -

CANADIAN JOHNS - MANVILLE

CO. LTD.

Mines and Petroleum Resources

P. O. Box 1500,

ASSESSMENT REPORT

ASBESTOS, P.Q.

NO.

4302

MAP

COVERING: B + B 5 - 10, 29 - 34 & 57 - 62
 & Folly 1 - 8 Mineral Claims

LOCATED: (1). 10 miles N. of Lytton, B. C.
 (2). NTS 92I/5E.
 (3). 50° 20' N; 121° 38'

PREPARED BY:

John R. Kerr, P. Eng.,
KERR, DAWSON & ASSOC. LTD.,
#9 - 219 Victoria St.,
KAMLOOPS, B. C.

April, 1973.



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S U M M A R Y & C O N C L U S I O N S

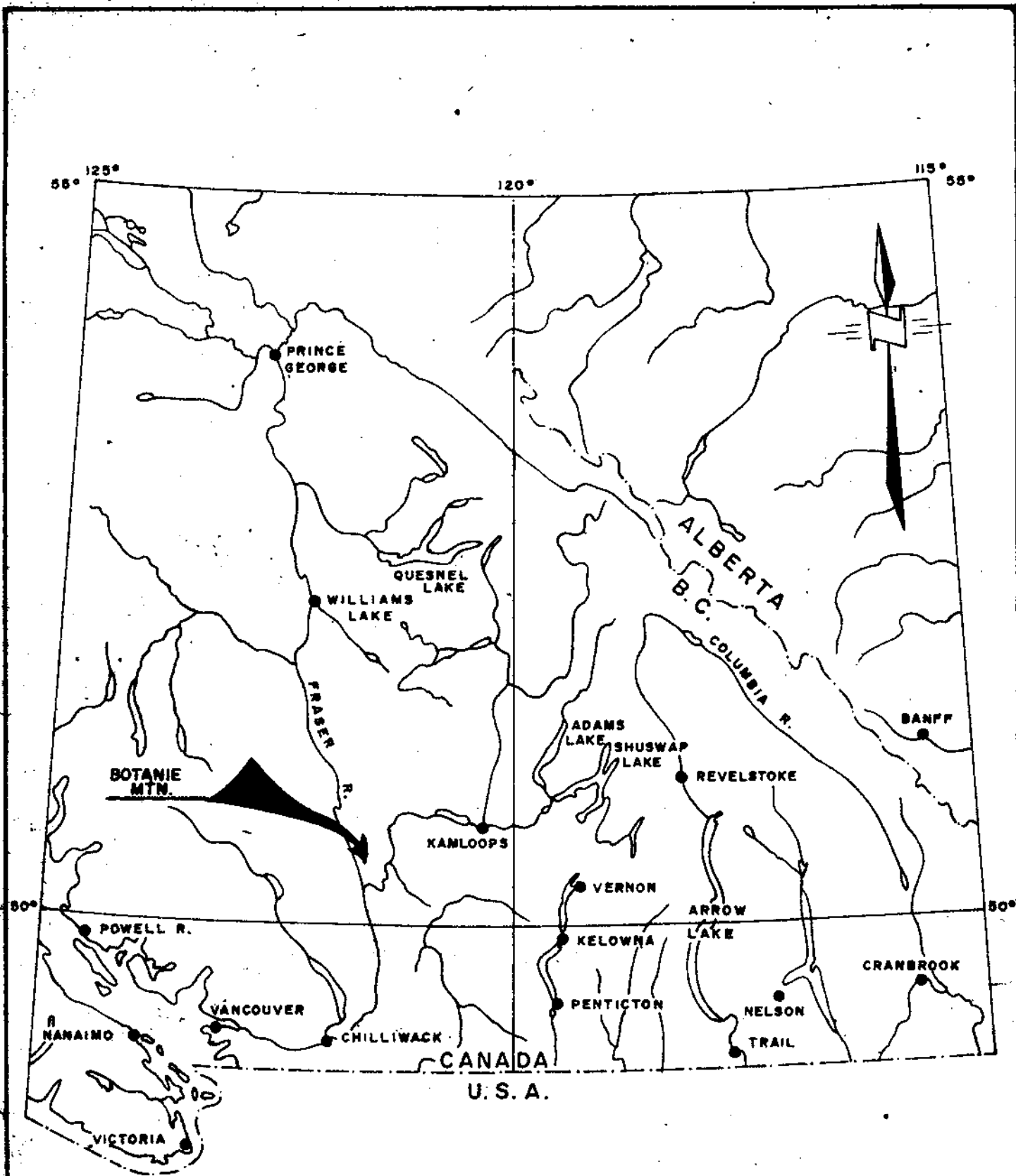
During April, 1973, one crew of Canadian Johns - Manville Co. Ltd. completed detailed talus fine sampling procedures over an existing copper geochemical anomaly on the B+B and Folly claims. The claims are located on the western slopes of Botanie Mtn., approximately 10 miles north of Lytton, B. C. A total of 286 samples were collected during the 1973 programme. An additional 59 samples had been collected during earlier programmes from the same area in 1969 and 1970. These sample values were included in the evaluation of the 1973 results.

A statistical analysis was completed on all samples, treating the samples as two populations; (1). samples overlying sedimentary rocks, and (2). samples overlying intrusive rocks. Anomalous limits were calculated for each sample population, and copper anomalies were interpreted on a plan of the survey area.

The original anomaly was well defined by the detailed survey, and can be attributed to low grade copper enrichment in thermally altered sediments of a roof pendant of the Cache Creek Group of rocks. The geochemical values obtained from the talus fines should approximate copper content of rock, and as no value exceeded 590 ppm Cu, it is anticipated that values in bedrock would not exceed 0.1% Cu. It is therefore very doubtful if economic mineralization would be encountered. Further recommendations would be oriented at a detailed search for skarn - type pods of mineralization in the roof pendant; however, would be given a very low order of priority.

R E C O M M E N D A T I O N S

The area of the survey can almost be written off; however, some low priority consideration should be given to detailed prospecting in the sedimentary rocks for skarn - type mineralization. Further work would consist of careful prospecting of the sedimentary rocks with special sampling procedures applied to gossan, and oxidized zones. Sampling procedures should consist of either rock chip sampling or detailed talus fine sampling at the base of outcrop cliffs.



Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 No. **4302** MAP **#1**

CANADIAN JOHNS MANVILLE CO. LTD.

LOCATION MAP
 BOTANIE MTN PROJ. 405
 B+B & FOLLY CLAIMS

Date: APRIL 24, 1973

Scale: 1" = 64 Miles

Dwn by: J.K.

Dwg no. 405-1

I N T R O D U C T I O N

This report is a supplement to previous reports entitled "Geochemical Report on the B + B Claims" by F. D. Forgeron, February, 1970, and "Geological Report on the B + B Claims, Botanie Mtn. Area" by C. P. Lin, C. I. Choi and H. K. Conn, June, 1971. Normal introductory remarks regarding location, access, topography, etc., are well documented in the earlier reports, and are summarized below. Interpretation of results of the previous reconnaissance geochemical surveys, outlined three anomalous zones, referred to as Anomaly I, II, and III. These anomalies are discussed in the previous reports. During the period April 2nd. to 14th., 1973, a two man crew completed detailed soil and talus sampling over the area of Anomaly II. This report summarizes the results of the 1973 programme.

Botanie Mtn. is located on the east side of the Fraser River, 10 miles north of Lytton, B. C. The B+B and Folly claims are located on the western slopes of Botanie Mtn. Topography on the claims is extremely precipitous, with total relief ranging from 2,000 ft. a.s.l. along the western boundary to over 6,000 ft. along the eastern boundary. Access into the B + B claims is possible by road and foot via one of two ways:

- (1). North of Lytton along Highway #12 approximately 10 miles, and thence a $\frac{1}{2}$ mile hike up hill to the western property boundary.

- (2). Northeast of Lytton along the Botanie Creek road, approximately 12 miles, and thence northwest along a fire tower access road an additional 5 miles to the 6,000 ft. elevation, and the eastern boundary of the claims. This road is open during the snow free months from June - October, and could not be used for the April, 1973 programme.

G E O L O G Y

The regional geology of the Botanie Mountain area is documented by the G. S. C. Map Sheet 1010A, Geology of the Ashcroft Map Area, by S. Duffel, and K. C. McTaggart. The B + B and Folly claims are shown to be mainly underlain by intrusive rocks of the Mt. Lytton Batholith. Previous work by Choi, has indicated the batholith to be concentrically zoned, with a basic phase at the center, possibly a gabbro, grading into a granodiorite at the periphery. The batholith intrudes Permian sedimentary rocks, believed to be of the Cache Creek Group. Roof pendants of these sediments exist on the claim block as thermally altered calcareous argillites and schists. To the east, andesite and basalt of the Spences Bridge Group overlay all older rocks. Remnant pods of these volcanic rocks are found on the northern slopes of Botanie Mtn.

The area of the geochemical survey has not been geologically mapped in detail. I have traversed portions of the area, recognizing the various rock - types. During the course of sampling, the geochemical crew identified various rock - types and generally prospected the survey area.

Rocks underlying the survey area are mainly diorite and granodiorite of the Mt. Lytton Batholith. A narrow roof - pendant of the older sediments traverses the eastern portion of the area as shown on Figure 405-3. The sediments in general are a schistose, thermally altered grey-green calcareous argillite, in part very rusty and oxidized, possibly due to leached sulphides.

Mineralization of economic significance has not been found to date associated with the geochemical anomaly. The only copper mineralization located to date has been small specks of chalcocite found in quartz - vein material as float on a talus slope. The cause of copper anomalies is unknown at the present time; however, is believed to be due to low content copper enrichment in thermally altered sediments of the roof - pendant.

G E O C H E M I S T R Y

FIELD TECHNIQUES

During the period April 2nd. - 14th., 1973, a total of 286 talus samples were collected from Anomaly II of the B + B and Folly claims. All samples were collected along preselected 200 ft. contours, samples collected at 100 ft. intervals along each contour. Samples collected were identified by FS - to distinguish the project, 26 - to distinguish the contour (2,600 ft. contour), and numbered in sequence of collection along each contour.

The samples collected were all talus fines, and generally were collected from the surface or near surface of talus slopes. It was found impossible to collect samples at approximately 20 sample stations due to the unavailability of fines from large blocky talus slopes. It was intended to sample the 3,600 ft. and possibly 3,800 ft. contours during the course of this survey. Very steep rock bluffs at these elevations made footing treacherous, and thereby impossible to sample. It may be possible to sample the contour above these bluffs (4,000 ft.?); however, access is best gained to this area from the fire tower access road.

In addition to noting sample locations and proper coding of samples, notes were recorded regarding colour, texture, depth of sample, and general remarks e. g. terraine, rock - types, and noted mineralization. All samples were collected by Mr. J. Binnie, a capable and well - experienced field technician.

ANALYTICAL TECHNIQUES

All samples were packaged and submitted to the Vancouver laboratories of Bondar - Clegg & Co. Ltd. The samples were dried at 40^o - 50^o 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 copper, and the metal content of each sample was determined by atomic absorption methods at a detection limit of 1 ppm.

CLASSIFICATION OF DATA

Although only 286 samples were collected during the course of the 1973 survey, and are included in the costs of this report, an additional 59 samples had previously been collected from the same area during the 1969 and 1970 field season. These 59 samples are included in the interpretation and discussion of this survey; however, the costs of collection are not included with the costs.

A statistical analysis was completed on the sample results, initially treating all results as one population. The cumulative frequency diagram showed two distinct population groups, which are directly related to the two various types of rocks underlying the survey area. Although the area was not geologically mapped in detail, there was sufficient information to interpret the contacts of the two main rock - types. Maps and data sheets provided by the sampling crews indicated basic rock types found on talus slides. Also, in

areas of mixed talus, an estimate of the ratio of sediments/ granodiorite was expressed. From this information rock - type contacts were interpreted. In classifying the two types of soil, consideration was given to the downhill movement of talus.

Statistical analyses were completed on all results, treating each class of talus, dominantly sedimentary or dominantly granodiorite, as separate populations. Cumulative frequency diagrams were plotted on probability log paper, and the best fit straight lines were drawn. The resulting straight lines show deviation from the actual plot of sample points, the deviation strongest for results over granodiorite. This deviation is probably due to intermixing of talus material, and the rather arbitrary method of classifying the talus data. It can be noted that on the 2,000', 2,200', 2,400', 2,600', and 2,800' contours in the area of Middle Creek, results indicate all anomalous values. Although these samples are all classified as granodiorite talus samples, it is very likely that intermixing and widespread dispersion down the creek valley has taken place. Causes such as this would give rise to deviation on the cumulative frequency diagrams.

The sample data were thereby classified into the following anomalous categories, as separate populations:

		Sedimentary Talus	Granodiorite Talus
		Cu	Cu
Negative	o - b	0 - 152 ppm	0 - 28 ppm
Possibly Anomalous	b - (b+s)	153 - 271 ppm	29 - 51 ppm
Probably Anomalous	(b+s) - t	272 - 475 ppm	52 - 92 ppm
Definitely Anomalous	> t	> 475 ppm	> 92 ppm

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

PRESENTATION OF DATA

Location of sample points with sample numbers is shown on Figure 405-3. This map also shows the geological interpretation, with contacts of main rock types, and located zones of sulphide mineralization. Figure 405-4 shows the individual sample results with the following coding of anomalous categories for each population:

0 - Negative
 ● - Possibly Anomalous
 ● - Probably Anomalous
 ● - Definitely Anomalous

Anomalous zones are represented by interpreted contours of anomalous limits.

D I S C U S S I O N O F R E S U L T S

Anomaly II as delineated in previous surveys has been detailed and adequately explained by the 1973 survey. The general anomaly is caused by a high background content of copper in thermally altered sediments of a roof pendant of the Cache Creek Group of rocks. As all geochemical samples are talus, and as talus is formed by downhill mechanical dispersion, it is to be expected that geochemical

analysis will reflect the approximate copper content in bedrock. Therefore, in addition to considering the statistical interpretation of anomalies, emphasis must be placed on the absolute value of copper in the sample.

Two anomalous areas have been interpreted by statistical methods, and are shown on the accompanying diagram:


(1). A large anomaly, 2,600 ft. long by 800 ft. wide, covers the full length of Middle Creek across the surveyed area. The anomaly is underlain by both sedimentary and intrusive rocks. Values within the sedimentary rocks range 150 - 590 ppm Cu, and within the intrusive rocks range 30 - 152 ppm Cu. On an absolute scale, the copper content indicated is 0.06% Cu maximum, and probably will reflect a content of no more than 0.1% Cu in bedrock. The coincidence of the anomaly with Middle Creek is most logically explained by downhill accumulation of copper values in the creek valley. The source of the values would therefore be the copper enriched meta sediments. A more improbable explanation would be an east - west trending fault or other structural feature, causing the creek escarpment.

(2). A small anomaly, 600 ft. by 300 ft. is located on the 2,000, 2,200, and 2,400 ft. contours in the northwest corner of the surveyed area. Values within this anomaly range up to 132 ppm Cu, which on an absolute scale reflects less than 0.02% Cu. Talus in this area consists of some pyritiferous sedimentary rocks, which is the likely cause of the interpreted anomaly. The source of the sediments is unknown; however, probably derives from the main sedimentary roof pendant to the east.

In summary, the two interpreted geochemical anomalies delineated from the detailed survey are probably caused by low grade concentrations of copper, not exceeding 0.1% Cu, in metasediments. The only possibility of economic mineralization being found in this area is high grade skarn type pods of mineralization found near the

intrusive contacts associated with the copper enriched metasediments. The probability of finding such a deposit is very remote, and further exploration in this area of the claims is considered a low order of priority.

RESPECTFULLY SUBMITTED BY:

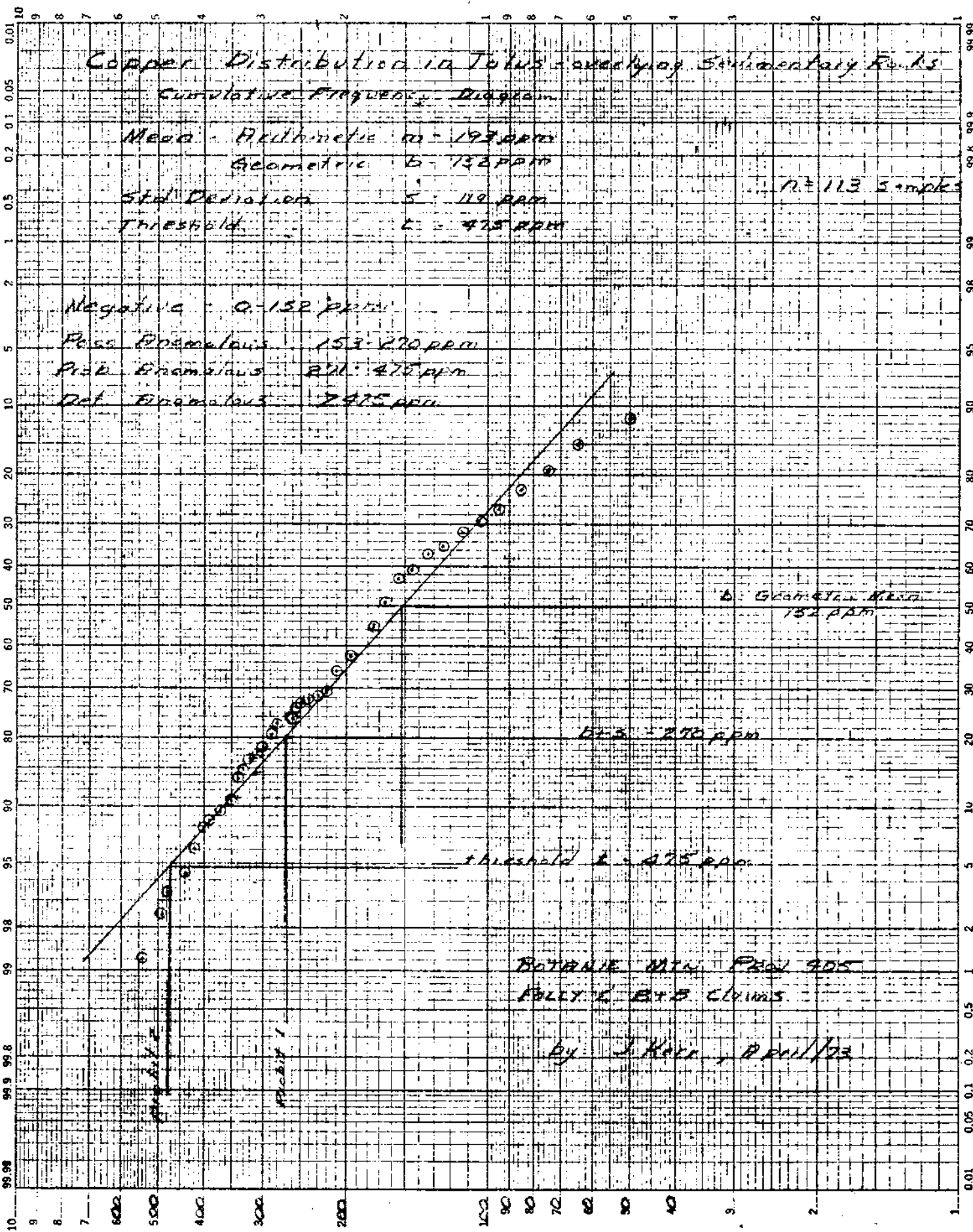


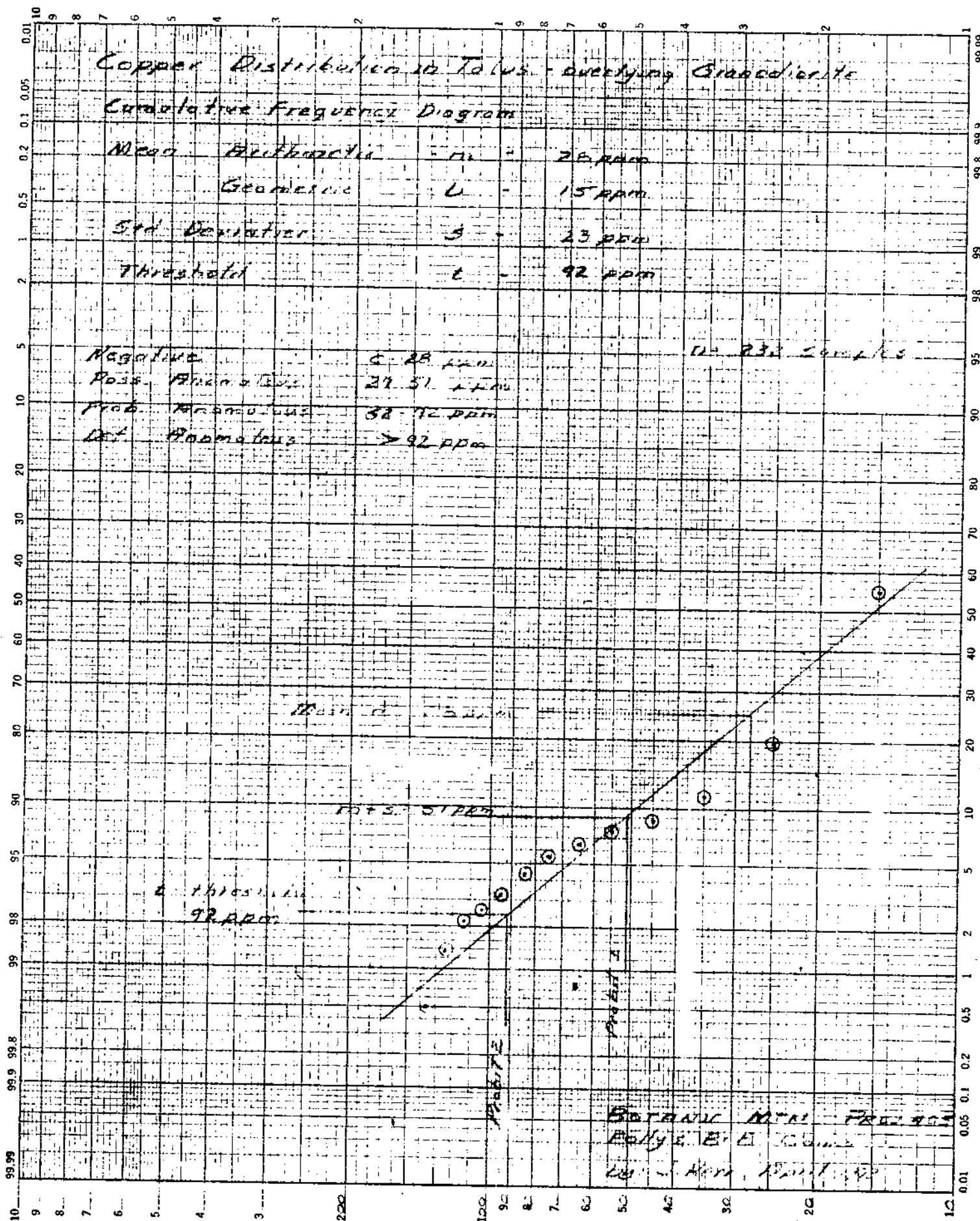
John R. Kerr, P. Eng.,
GEOLOGIST

April, 1973,
KAMLOOPS, B. C.

A P P E N D I X A

CUMULATIVE FREQUENCY DIAGRAMS





A P P E N D I X B

C O S T S T A T E M E N T

C O S T S T A T E M E N T

GEOCHEMICAL SURVEY - B + B AND FOLLY MINERAL CLAIMS:

(1). LABOUR - April 2nd. - 14th., 1973.

J. Binnie - Sr. Field Technician		
12 days at \$40.00 per day	\$ 480.00	
 B. Dykeman - Jr. Assistant		
12 days at \$30.00 per day	360.00	
 J. Kerr - P. Eng., and Proj. Supervisor . .		
2 days at \$100.00 per day	200.00	\$ 1,040.00

(2). ROOM AND BOARD

24 man days at \$12.00 per man/day	288.00
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(3). TRANSPORTATION

4 x 4 Truck Rental - 12 days @ \$20.00/day	240.00
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(4). SAMPLE ANALYSIS - Cu only

286 samples at \$1.20 per sample	333.20
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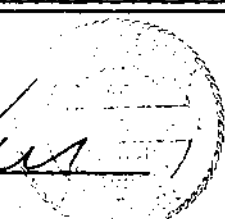
(5). REPORT

J. Kerr, P. Eng.	\$ 400.00	
Photocopying and Reproduction	30.00	
Drafting	80.00	
Secretarial	30.00	540.00

TOTAL COST \$2,441.20

CERTIFIED CORRECT:

John R. Kerr
John R. Kerr, P. Eng.,
April, 1973.



A P P E N D I X C

WRITER'S CERTIFICATE

JOHN R. KERR, P.ENG.

GEOLOGICAL ENGINEER

9-219 VICTORIA STREET

KAMLOOPS, B.C.

PHONE (604) 374-6427

WRITER'S CERTIFICATE

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

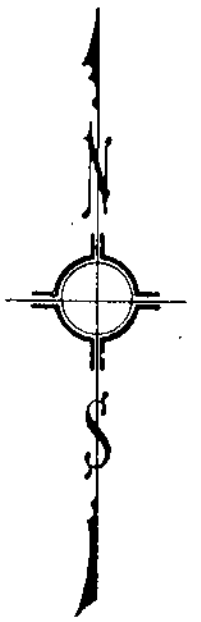
- (1). I am a member of the Association of Professional Engineers in the Province of British Columbia, and a Fellow of the Geological Association of Canada.
- (2). I am employed by Kerr, Dawson & Associates Ltd., with my office at #9 - 219 Victoria Street, KAMLOOPS, B. C.
- (3). I have practiced as a geologist for 9 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 B + B and Folly Claims described in this report.
- (5). The work described in this report was completed from April 1st. - April 18th., 1973, and was supervised directly by myself.
- (6). The costs, as shown in Appendix B 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

April, 1973

KERR, DAWSON AND ASSOCIATES LTD.
CONSULTING GEOLOGISTS AND ENGINEERS



ROCK CLASSIFICATION

INTERMEDIATE INTRUSIVE ROCKS
 MT. LYTTON BATHOLITH
 -Diorite
 -Qtz. diorite
 -Granodiorite
 -Gabbro

INTERMEDIATE - ACIDIC VOLCANIC ROCKS
 CACHE CK. GROUP ? or
 SPENCES BRIDGE GROUP ?

LEGEND

OS: Soil or Stream Sediment Sample Location
 with Sample Reference Number.

Claim Post Location that is tied into
 Road Survey or Established Altimeter Station.

Trench through Mineral Showing.

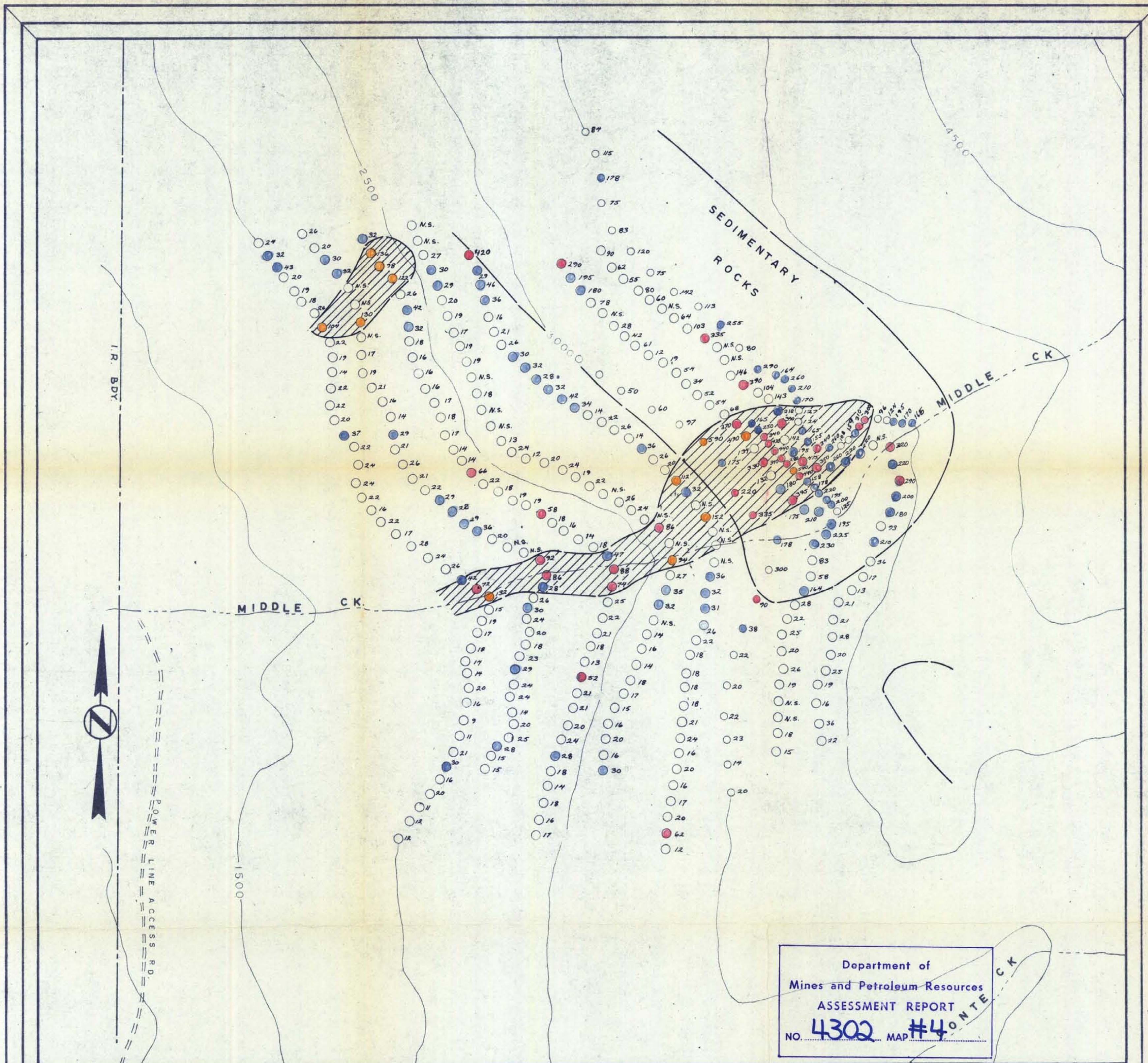
X Mineral Showing

Department of
Mineral and Petroleum Resources

ASSESSMENT REPORT

NO. **4302** MAP. #2

REVISIONS	
Date By	
	CANADIAN JOHNS-MANVILLE CO. LTD. ASBESTOS P.Q.
	BOTANIE MT'N. C.J.M. PROJ. 405 WITH LOCATION OF : Access Road Claims Soil and Stream Sediment Samples Mineral Showings and Trenches
Technical Work By V.M.S.L. & C.J.M.	Scale 1" = 1000'
Drawn By J. KERR	Date DECEMBER 1971
Approved By	Drawing Number 405 - 2



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4302 MAP # 405

SOIL CLASSIFICATION

		SEDIMENTARY ROCKS	GRANITIC ROCKS
○	NEGATIVE	0 - 152 ppm CU	0 - 28 ppm CU
●	POSSIBLY ANOMALOUS	153 - 270 ppm	29 - 51 ppm CU
●	PROBABLY ANOMALOUS	271 - 475 ppm	52 - 92 ppm CU
●	DEFINITELY ANOMALOUS	> 475 ppm	> 92 ppm CU

N.S. - NO SAMPLE COLLECTED



ANOMALOUS ZONE

REVISIONS

Date By

PREPARED FOR

CANADIAN JOHNS MANVILLE CO. LTD.

BOTANIE MTN. PROJ. 405 ANOMALY #2 AREA

COPPER DISTRIBUTION IN TALUS FINES

Technical Work By
J. KERR

Drawn By
R.W.F.

Approved By

Scale
1" = 400'

Date
APRIL 19, 1973

Drawing Number
405 - 4

