

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL AND GEOCHEMICAL REPORT

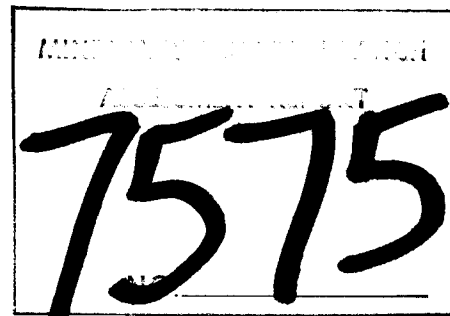
ON THE

CW AND CLEAR CLAIMS

Clearwater, B.C.; Kamloops Mining Division

51°37'N; 119°59'W

Work Period: July 3-23, 1979



REPORT BY:

P.J. WOJDAK

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
OWNERSHIP	1
REGIONAL SETTING	1
PROPERTY GEOLOGY	2
GEOCHEMISTRY	4
CONCLUSIONS	4

APPENDIX I	Affidavit
APPENDIX II	Statement of Expenditures
APPENDIX III	Statement of Qualifications
APPENDIX IV	Statistical Plots of Geochemical Data

LIST OF PLATES

PLATE 1	Location Map
PLATE 2	Geology
PLATE 3	Cu Geochemistry
PLATE 4	Pb Geochemistry
PLATE 5	Zn Geochemistry

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT
September 10, 1979

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE CW AND CLEAR CLAIMS

Clearwater, B.C.; Kamloops Mining Division

INTRODUCTION

The CW and adjoining CLEAR claims are located on the south side of the North Thompson River valley between Clearwater and Birch Island, 120 km north of Kamloops B.C. (Plate 1). Logging roads leading southeasterly from Clearwater Station (on the CNR main line) provide access to the claims. Over most of the claim area slopes are gentle to flat and only become steep in the southern margin of the claims. The area is forested and outcrop is sparse except for a canyon on lower McDougal Creek and rock cuts along the railroad tracks. The CW claims were explored by Craigmont in 1978 who conducted magnetic and VLF-EM surveys, a soil geochemical survey and 5 diamond drill holes totalling 498 m. Cominco's program during July 1979 consisted of geological mapping and a soil geochemical survey mainly southeast of the area covered by Craigmont. Mapping control was provided by air photographs and government map 82 M/12W enlarged to 1:10,000 scale. In the course of the program 35 silt and 728 soil samples were collected for analysis.

OWNERSHIP

The CW claims, listed below, are under option to Cominco Ltd. from R.J. Franks, Box 70, Vavenby, B.C. The CLEAR claims are 100% Cominco owned.

<u>CLAIM</u>	<u>RECORD NO.</u>	<u>UNITS</u>	<u>DUE DATE</u>
CW-1	1055	5	October 21, 1980
CW-2	1056	20	October 21, 1980
CW-3	1057	5	October 21, 1980
CW-5	1059	1	October 21, 1980
CLEAR 1	1735	20	March 1, 1979
CLEAR 2	1736	20	March 1, 1979
CLEAR 3	1737	20	March 1, 1979
		<u>91</u>	

REGIONAL SETTING

The claims are at the northwestern end of the Paleozoic Eagle Bay Formation, which underlies an extensive area from Sicamous to Clearwater, B.C. It consists of basalt to rhyolite volcanic rocks, granitic intrusives,

quartz grit, pelite and limestone, all of which have been subjected to regional deformation and greenschist grade metamorphism. The northern segment of Eagle Bay strata is separated from the main belt by the Cretaceous Baldy Batholith, about 12 km south of the claim block. To the west the Eagle Bay belt is bounded by pillow basalt of the Upper(?) Paleozoic Fennell Formation.

The claims are located in a mineralized area of the Eagle Bay Formation. Stratabound Zn, Pb, Ag mineralization occurs on Mt. McClennan (Snow, Red Top, Sunrise showings) 10 km east. The Harper Creek stratabound Cu deposit is located 15 km southeast. The CLEAR claims adjoin the Birch Island uranium property to the southeast, and the deposit is about 5 km from the CLEAR claims.

PROPERTY GEOLOGY (Plate 2)

Unit 1

The structurally lowest unit exposed on the property consists of well bedded black slate, phyllitic (argillaceous) grit and greywacke. Locally these are calcareous and commonly the slates contain graphite and large (diagenetic) pyrite crystals. Grit beds were examined for graded bedding. They seem to indicate a right way up sequence but no definite statement can be made. Both outcrop distribution and drilling by Craigmont indicate Unit 1 sediments are interbedded and/or interfinger with overlying Unit 2 acid volcanic rocks. The sediments are graphitic and account for the VLF conductors tested by Craigmont diamond drilling.

Unit 2

Overlying the black slates is a sequence of quartz-sericite schist interpreted to be metamorphosed acid volcanic rocks. Quartz-eyes, though not typical, occur locally in the well exposed section on McDougal Creek. Interbeds of black slate, often only a few meters thick are common. Fresh rocks are pale grey but, especially northwest of McDougal Creek, are white, hydrothermally altered and pyritic. The best exposed section of hydrothermally altered acid volcanic rocks is along the railroad tracks. There, they contain several percent disseminated pyrite and range from quartz-rich to highly sericitic varieties. In the most intensely altered zone exposed in a rock cut along the tracks, pyrite content increases to 10% resulting in a strong gossan. There are traces of chalcopyrite and a sample was determined to contain 454 ppm Cu, <4 ppm Pb, 5 ppm Zn, 0.6 ppm Ag. The rock is composed of quartz (60%), kyanite (20%), sericite (10%) and pyrite (10%) with kyanite having formed at the expense of sericite during intense hydrothermal leaching. The zone also contains irregular, undulating quartz-pyrite veins up to 2½ m wide. A few thin seams of chalcopyrite occur in a continuation of this strongly pyritic zone exposed on the logging road immediately above the railroad cut.

Unit 3

On McDougal Creek acid volcanic rocks of Unit 2 grade upward into intermediate volcanic strata, light to medium green chlorite-sericite schist. This unit has not been recognized elsewhere, even on upper Caterpillar Creek where the outcrop gap between Units 2 and 4 is narrow. Therefore these dacitic rocks may not be extensive.

Unit 4

These are dark green basic volcanic rocks, commonly with abundant feldspar phenocrysts (20%). Typically they are not as highly schistose as the underlying rocks. Fragmental textures are common but difficult to recognize and probably represent vent breccias and agglomerates. Epidote alteration occurs locally. Characteristics of this unit are sufficiently distinctive to correlate it with a major greenstone unit of the Eagle Bay Formation south of the Baldy batholith.

Units 5 and 6

Unit 6 consists of massive, fine to medium grained rocks of gabbroic composition. Some are fine grained extrusives but the majority are intrusive and likely represent sills and dykes related to the lavas. The preponderance of intrusive rocks distinguishes Unit 6 from Unit 4. In addition, the predominant mafic mineral of Unit 6 is hornblende rather than chlorite. Sedimentary strata of Unit 5 are intercalated with the mafic rocks. These are thin bedded chert to siltstone with argillaceous partings.

Because Units 5 and 6 are less deformed than Units 1 to 4 and because of the structural discontinuity between them (see below) Units 5 and 6 are considered part of the Fennell Formation. This is a sequence of pillow basalt, coarse greenstone and sediments described in G.S.C. Memoir 363.

Units 7 and 8

These are mafic dykes of little consequence on the CW claims. Two vertical lamprophyre dykes, 5-10 m wide, cut black slates in the northwestern part of the claims. A 3 m wide Pleistocene(?) basalt dyke intrudes acid volcanic rocks along the CNR tracks.

Structure

Regional work suggested the CW area to be near the axis of an open, southeasterly plunging synform in Eagle Bay strata. Although strata near the northwestern corner of the mapped area dip southeast and contain well developed southeasterly plunging lineation, elsewhere attitudes are sub-horizontal with direction of dip varying in an unsystematic manner. Two minor fold axes were measured, one plunged south at 23°, the other east at 7°. Thus, the supposed synform is not clearly confirmed and distribution of units

is controlled by topography. Isoclinal folds are known elsewhere in the Eagle Bay but have not been recognized north of the Baldy Batholith.

Although outcrop near the Eagle Bay/Fennell contact is sparse, Fennell strata appear to have a significantly different attitude and truncate Eagle Bay structures. The contact between them is suspected to be a fault.

GEOCHEMISTRY (Plates 3, 4 and 5)


Three soil grids were established. In the vicinity of the Cu showing soil samples were collected at 30 m intervals on lines spaced 100 m apart along a 1.0 km baseline bearing 135°. This overlaps the area surveyed by Craigmont but is a more detailed survey. A second grid extends southeasterly from Craigmont's survey area. The baseline is at 140°, lines at 100 m intervals and samples at either 30 m or 50 m intervals (as shown). Further southeast a reconnaissance style of sampling was used. An old but very well cut east-west grid was located and samples were collected at 50 m intervals on lines spaced about 350 m apart. B-horizon material was collected at all sites and the -80 mesh fraction of dried samples was analysed at Cominco's Exploration Research Laboratory in Vancouver. Cu, Pb and Zn determinations were by atomic absorption following digestion in hot nitric acid. A significant unknown factor in the geochemical survey is the thickness of glacial drift and hence effectiveness of this technique.

Cumulative probability plots were prepared and threshold values of 90 ppm Cu, 50 ppm Pb and 110 ppm Zn selected. Because of the low threshold, the zinc map was also contoured at 250 ppm. Modest copper anomalies were found in a few samples in the vicinity of the pyrite zone and chalcopyrite occurrence. An adjoining, but larger, southeasterly trending area is weakly anomalous in zinc, with values up to 480 ppm. Otherwise the geochemical results for copper, lead and zinc consists of weak, scattered, single sample anomalies.

CONCLUSIONS

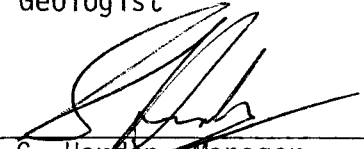
The CW and CLEAR claims are at the northwestern end of Eagle Bay Formation, adjacent the Fennell Formation. Eagle Bay strata include hydrothermally altered acid volcanic rocks, a favourable host for base metal mineralization. Although pyrite is extensive and there is chalcopyrite, a soil geochemical survey failed to extend the area of interest from the vicinity of the known showing. A Craigmont drill hole in this area found only traces of copper-zinc mineralization. Therefore the area underlain by the CW and CLEAR claims has little potential for significant mineralization.

Report by:


P.J. Wojdak
Geologist

PJW/pc1

Endorsed for
Release by:


G. Harden, Manager
Exploration
Western District

APPENDIX I

IN THE MATTER OF THE B.C. MINERAL ACT AND
IN THE MATTER OF A GEOCHEMICAL AND GEOLOGICAL
PROGRAM CARRIED OUT ON THE
CW 1, 2, 3 and 5 AND CLEAR 1, 2 and 3 MINERAL CLAIMS
LOCATED IN THE KAMLOOPS MINING DIVISION
OF THE PROVINCE OF BRITISH COLUMBIA
MORE PARTICULARLY N.T.S. 82 M/12

A F F I D A V I T

I, PAUL J. WOJDAK OF THE MUNICIPALITY OF DELTA IN THE PROVINCE OF
BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I am employed as a Geologist by Cominco Ltd., and as such
have a personal knowledge of the facts to which I hereinafter
depose;
2. THAT annexed hereto and marked as Appendix II to this my affidavit
is a true copy of expenditures on a geochemical and geological
program carried out on the CW and CLEAR Mineral Claims;
3. THAT the said expenditures were incurred between the third day
of July and the twenty-third day of July, 1979 for the purpose
of mineral exploration on the above noted claims.



P.J. Wojdak, Geologist

APPENDIX II

STATEMENT OF EXPENDITURES ON CW AND CLEAR CLAIMS

Geological mapping:	P.J. Wojdak - July 3-6, 10, 13, 16, 17 8 days @ \$140/day	\$1,120.00
	R. Ellis-Toddington - July 3-6, 10, 13, 16, 17 8 days @ \$80/day	640.00
Soil geochemical survey:	James Bell - July 9-13, 15-20, 22, 23 13 days @ \$70/day	910.00
	David Saunders - July 9-13, 15-20, 22, 23 13 days @ \$70/day	910.00
Soil and silt analyses:	763 samples for Cu Pb Zn @ \$3.05	2,327.15
Equipment and supplies:	(flagging, hip chain thread, compass, etc.)	167.98
Accommodation:	2 units at Jasper Way Motel, totalling 23 days @ \$34/day	782.00
Groceries:		447.58
Truck rental:		575.00
Expense Accounts:	(travel costs, meals, gas)	266.15
Report preparation:	P.J. Wojdak 2 days @ \$100/day	200.00
	Drafting	<u>150.00</u>
	TOTAL	\$8,495.86



P.J. Wojdak
Geologist

APPENDIX III

STATEMENT OF QUALIFICATIONS

I, PAUL J. WOJDAK, OF THE MUNICIPALITY OF DELTA, PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY:

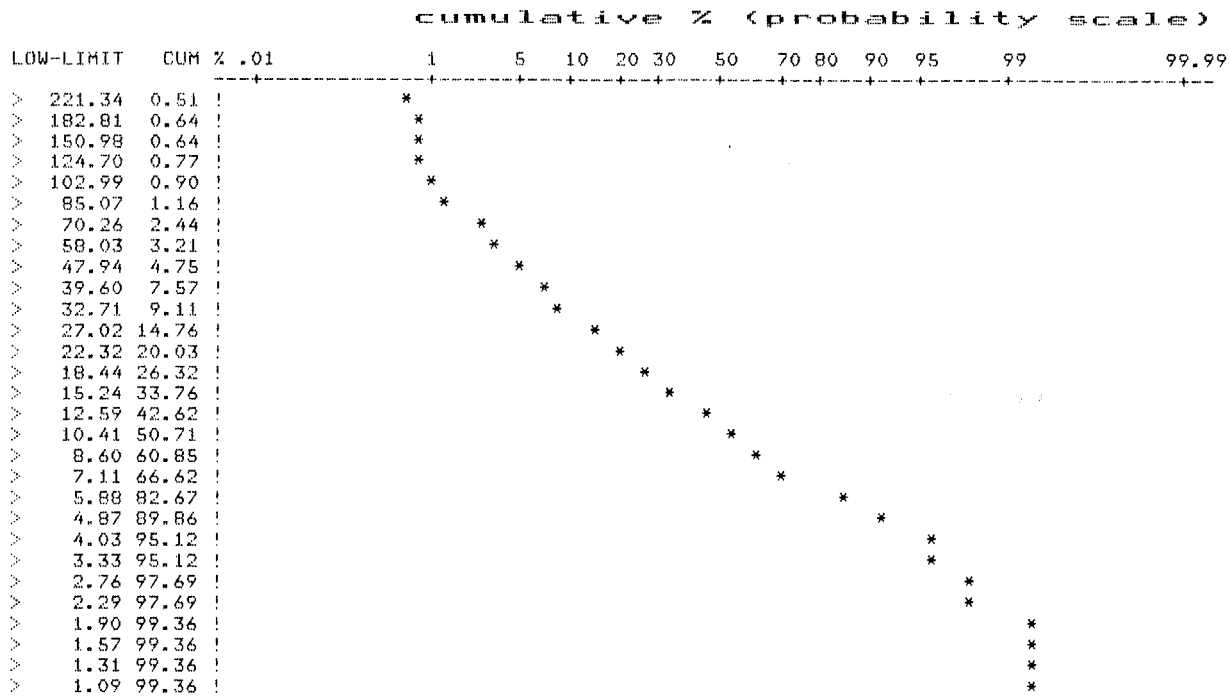
1. THAT I am a Geologist residing at 11405-85th Avenue, Delta, British Columbia with a business address at 2200-200 Granville Street, Vancouver, British Columbia;
2. THAT I graduated with a B.Sc. in Geology and Chemistry from McMaster University, Hamilton, Ontario in 1971 and with a M.Sc. in geology from the University of British Columbia in 1974;
3. THAT I have practised geology with Cominco Ltd. from 1974 to 1979.

DATED THIS 28 DAY OF SEPTEMBER, 1979 AT VANCOUVER, BRITISH COLUMBIA.

Signed: P. J. Wojdak.
P.J. WOJDAK, M.Sc.

CW

CUMULATIVE PROBABILITY PLOT FOR COPPER



↑
PPM

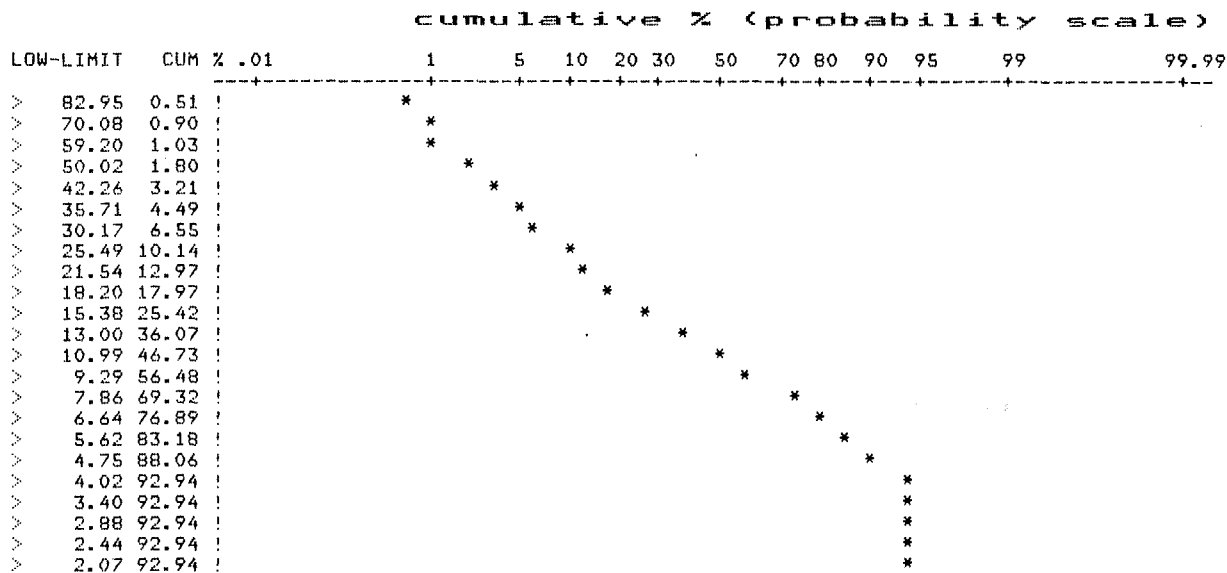
NOTE: CONCENTRATION SCALE IS LOGARITHMIC (INTERVAL=.083), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
COPPER	779	1 TO 710	PPM 17.8 (89)	11.4 (16)

CW

CUMULATIVE PROBABILITY PLOT FOR LEAD



↑
PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC (INTERVAL=.073), VALUES ARE CLASS LOWER LIMITS

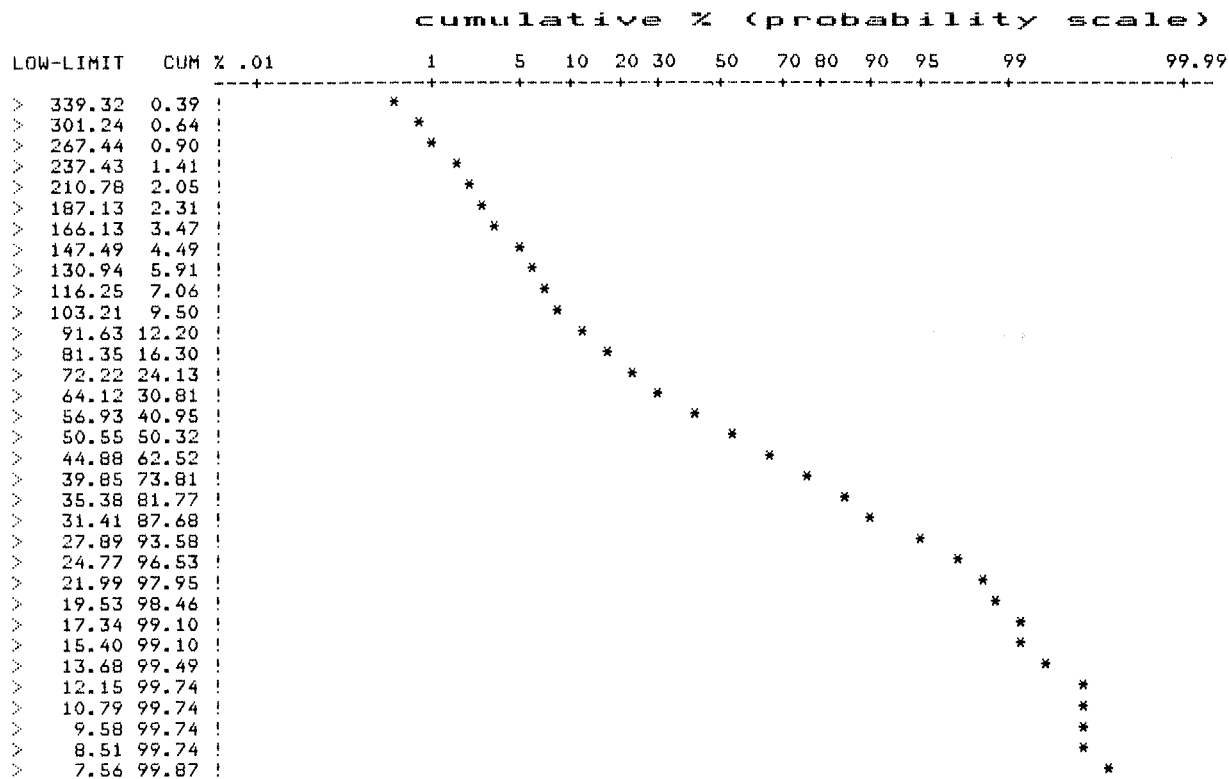
SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	779	<4 TO 95 PPM	13.2 (36)	10.0 (14)

Appendix IV

CW

CUMULATIVE PROBABILITY PLOT FOR ZINC



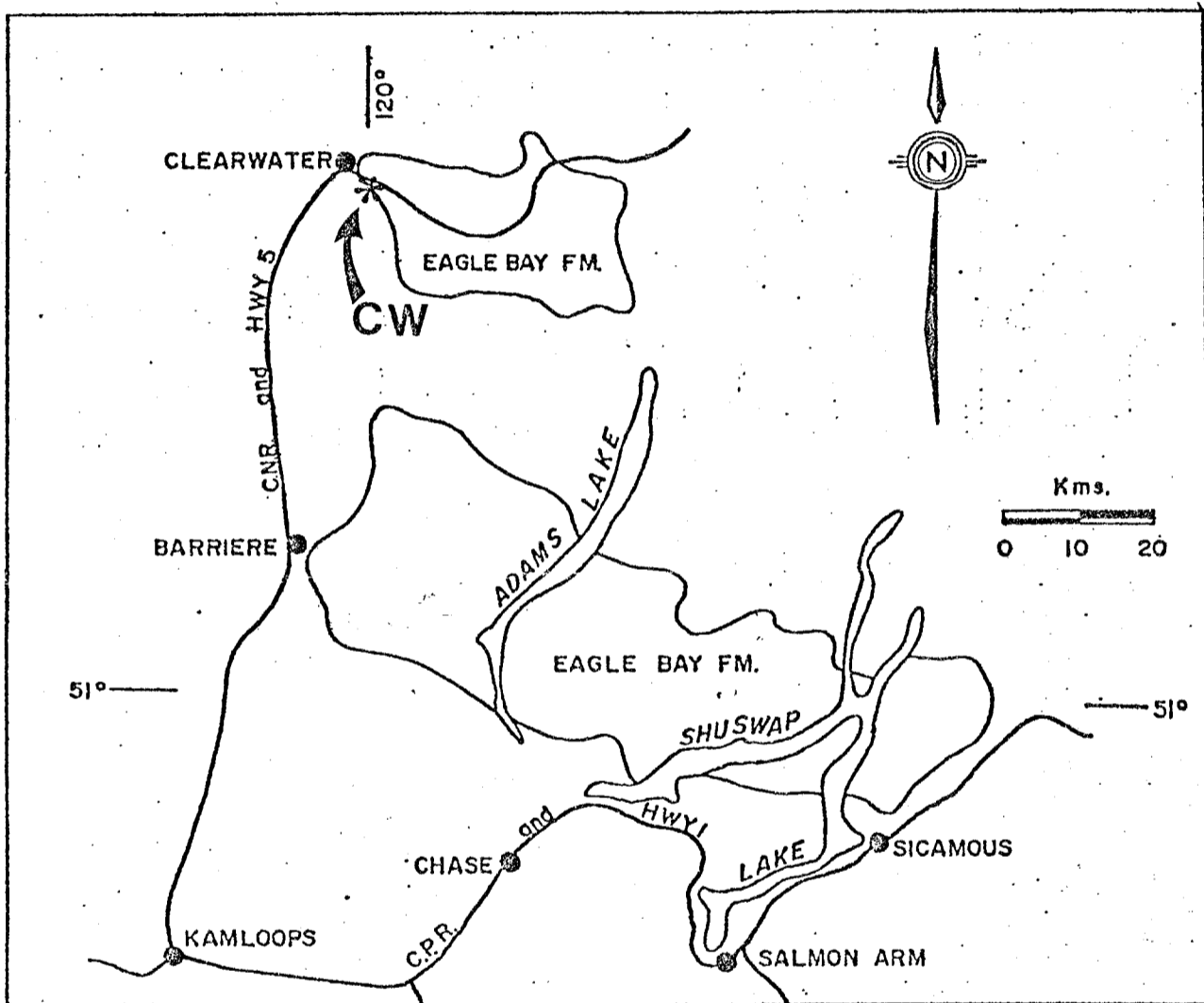
↑
PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC (INTERVAL=.051), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	779	7 TO 480	62.7 (154)	53.5 (56)

Appendix IV



7575

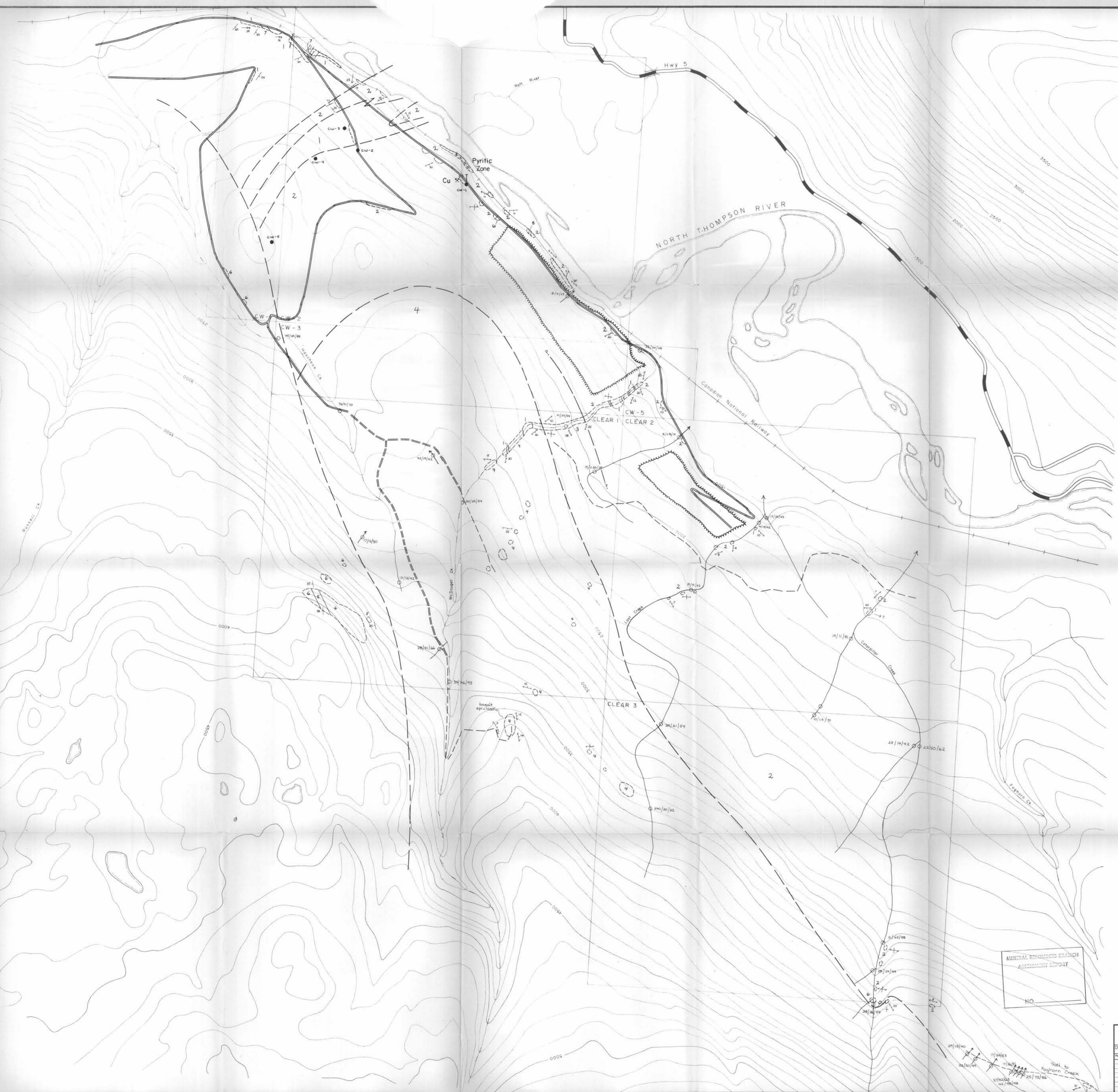
PDW



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

CW LOCATION MAP

Scale: 1:1,000,000 Date: SEPT. 1979 Plate: 1



- LEGEND**
- Pleistocene**
- 8 Basalt dike
- Tertiary?**
- 7 Lamprophyre dike
- Paleozoic**
- Fennell Formation
 - 6 Gabbro, massive basalt
 - 5 Chert, grey argillite, thin bedded
 - Eagle Bay Formation
 - 4 Basalt, greenstone, fragmental, feldspathic
 - 3 Dacite (chlorite - sericite schist)
 - 2 Rhyolite (quartz - sericite schist)
 - 1 Black slate, grit, possibly part of Sicamous Formation
- Symbols**
- Foliation, inclined, horizontal
 - Bedding
 - Cleavage
 - Minor fold
 - Mineral lineation
 - Fault
 - Soil sample; ppm Cu, ppm Pb, ppm Zn
 - Adit
 - Craigmont drill hole (1978)
 - Dirt road
 - 4-wheel drive road
 - Overgrown road
 - Logged area



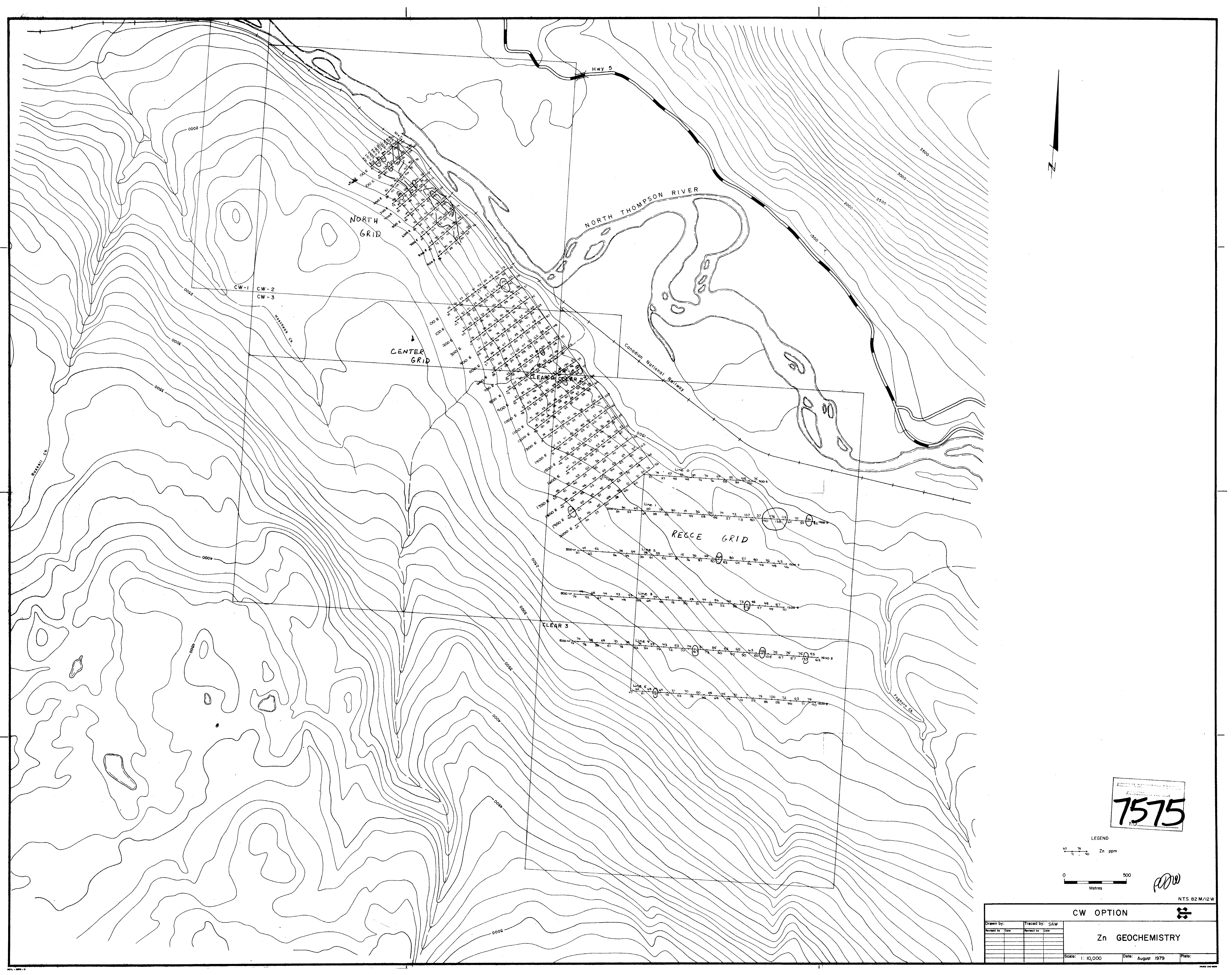
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7575

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. _____

ppw

NTS 82 M/12 W

CW OPTION			
Drawn by:	Traced by: SAW	GEOLOGY	
Revised by:	Revised by:		
Scale: 1:10,000		Date: August 1979	Plate:



7575

LEGEND
Zn ppm

0 500
Metres

aw

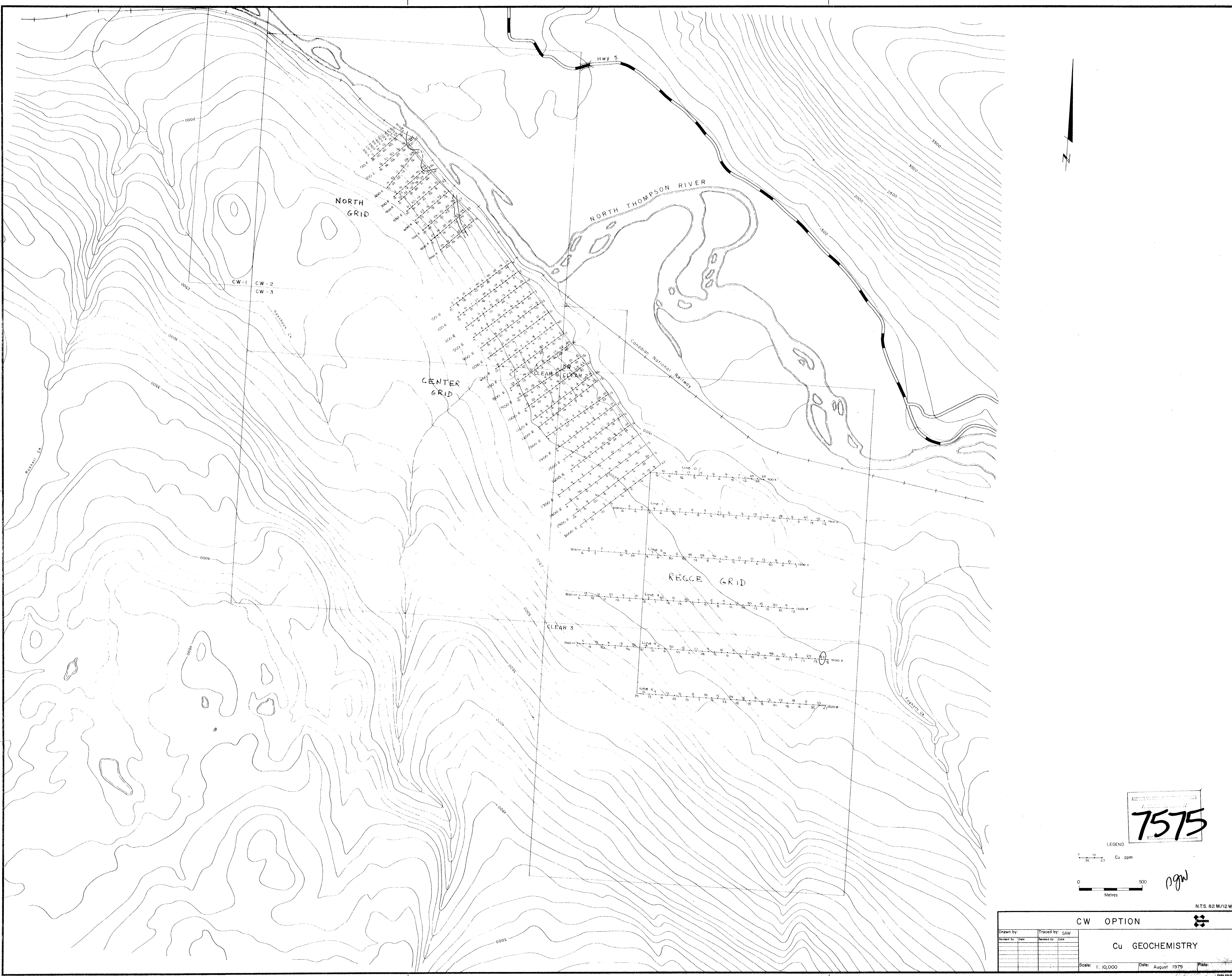
NTS 82M/12W

CW OPTION

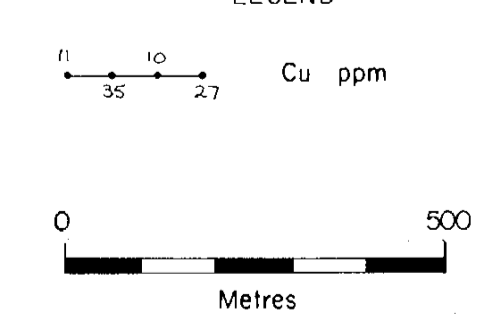
Drawn by:	Traced by: SAW
Revised by: (Date)	Revised by: (Date)

Zn GEOCHEMISTRY

Scale: 1:10,000 Date: August 1979 Plate:



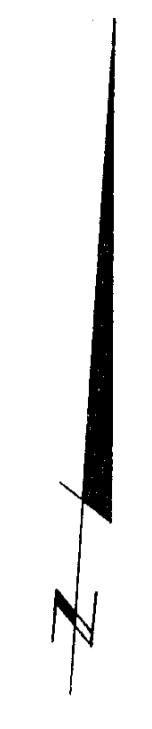
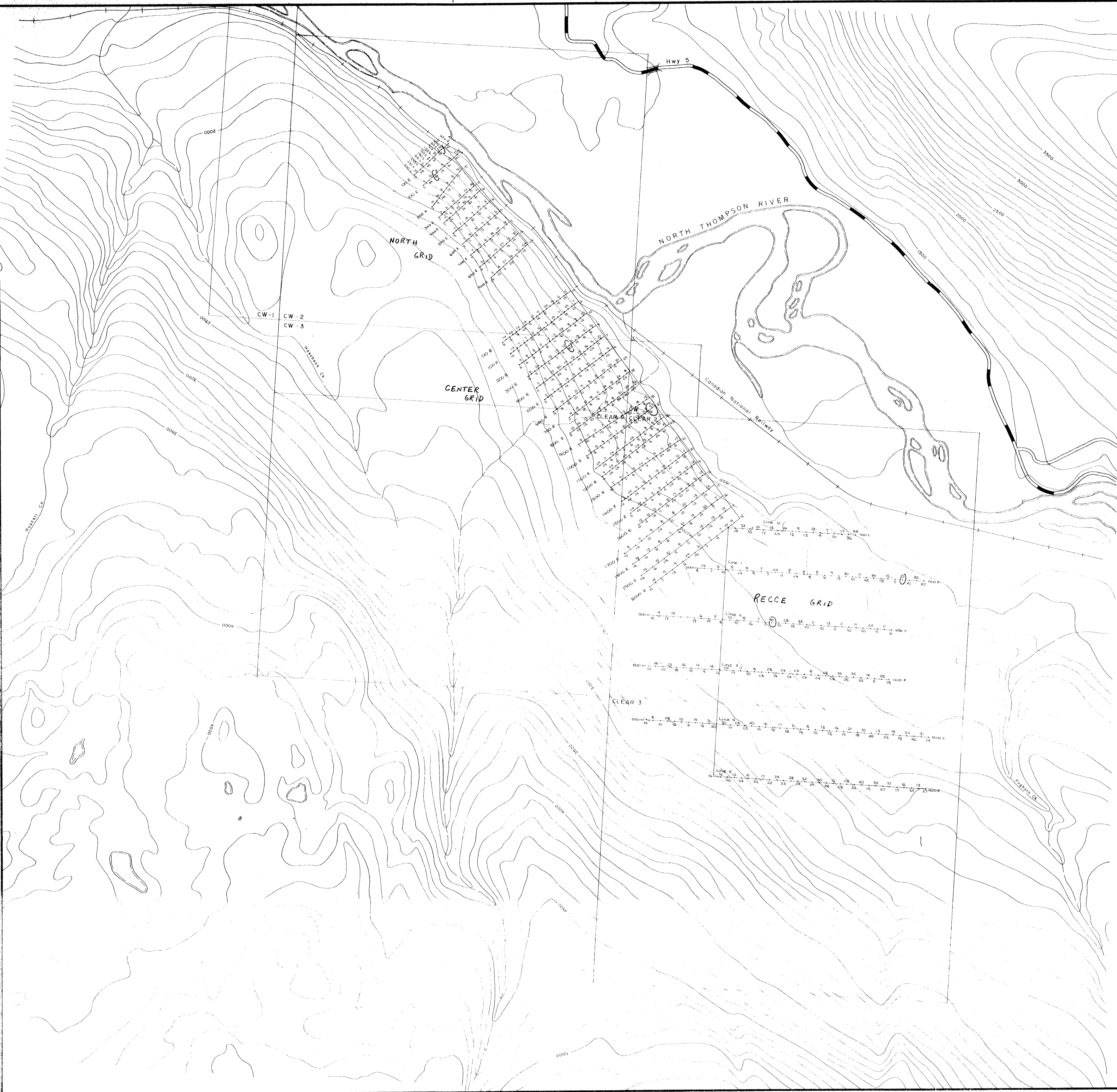
AMERICAN RESEARCH SERVICES
7575
 LEGEND



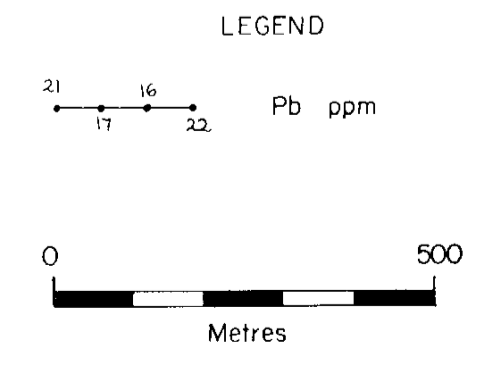
pgw

NTS: 92 M/2W

CW OPTION		Cu GEOCHEMISTRY	
Drawn by:	Traced by: SAW	Scale: 1:10,000	Date: August 1979
Revised by:	Revised by:		Plate:



MINERAL REVENUE BRANCH
 GEOCHEMISTRY SECTION
7575
 11-1-79



AW

NTS 82 M/12 W

CW OPTION			
Drawn by:	Traced by: SAW	Pb GEOCHEMISTRY	
Checked by: Cde	Revised by: Cde		
Scale: 1:10,000	Date: August 1979	Plate:	