

84-#133 - 12066  
3

REPORT ON GEOCHEMICAL AND GEOPHYSICAL SURVEYS

CLAIMS : TOP

MINING DIVISION : GREENWOOD

N.T.S. : 82E/6E

LATITUDE : 49°18'N

LONGITUDE : 119°03'W

OWNER : MINTEK RESOURCES LTD.

AUTHOR : I.R. CORVALAN, P. Eng.  
: J.W. MORTON

DATE : FEBRUARY, 1984

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

12,066

## TABLE OF CONTENTS

	<u>Page</u>
1. Introduction	
1.1 Location and Access	1
1.2 Property	1
1.3 History	1
1.4 Description of the Workings	4
1.5 Geology	4
1.6 Mineralization	5
1.7 Summary of Work Done	5
2. Geochemical Survey and Prospecting	
2.1 Richelieu Area	6
2.2 Survey Grid	6
2.3 Soil Sampling	6
2.4 Sample Analysis	6
2.5 Sampling	7
2.6 Colby Area	7
2.7 Rock Sampling	8
3. Geophysical Survey	
3.1 Theory of S.E. 88' 'Genie' Electromagnetic System	9
3.2 Method of Interpretation	9
4. Bibliography	11
ANNEX #1 : Statement of Expenditures	
ANNEX #2 : Affidavit	
ANNEX #3 : Statement of Qualifications	
ANNEX #4 : Geochemical Results	
ANNEX #5 : Geophysical Data and Interpretation	
5. Figures and Maps	
Figure #1 : Location map	2
Figure #2 : Claim map	3
Figure #3 : Assay Results Richelieu Area	In Pocket
Figure #4 : Workings Richelieu Area	In Pocket
Figure #5 : Sample Locations Colby Area	In Pocket
Figure #6 : Assay Results Cu, Pb, Zn Colby Area	In Pocket
Figure #7 : Assay Results Ag, As, Au Colby Area	In Pocket
Figure #8 : Geological Map Colby Area	In Pocket
Figure #9 : Property Geology	In Pocket

## 1. INTRODUCTION

### 1.1 Location and Access :

The property is located approximately 35 km southeast of Princeton, B.C. and about 2 km west of Westkettle River. Geographical coordinates are Longitude 119°03'W and Latitude 49°15'N to 49°18'N on NTS 82E/6E. Access to the property is 10 km by road which joins highway No. 33 at Westbridge. The topography is moderately rugged with northwest trending ridges and easterly flowing water courses. Elevation of the property is about 1,370 m above the sea level.

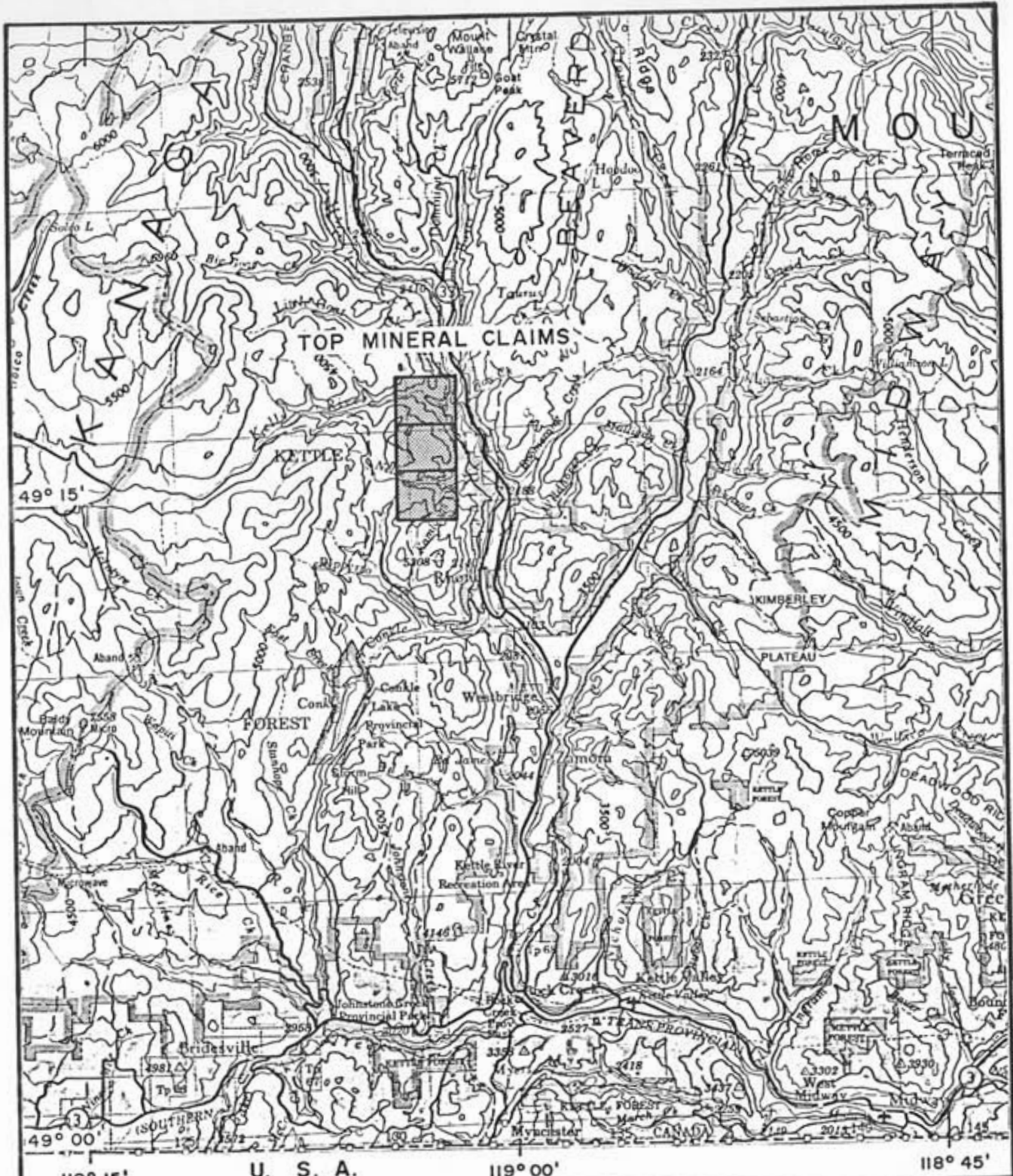
### 1.2 Property :

The property is owned by Mintek Resources Limited and consists of the following claims;

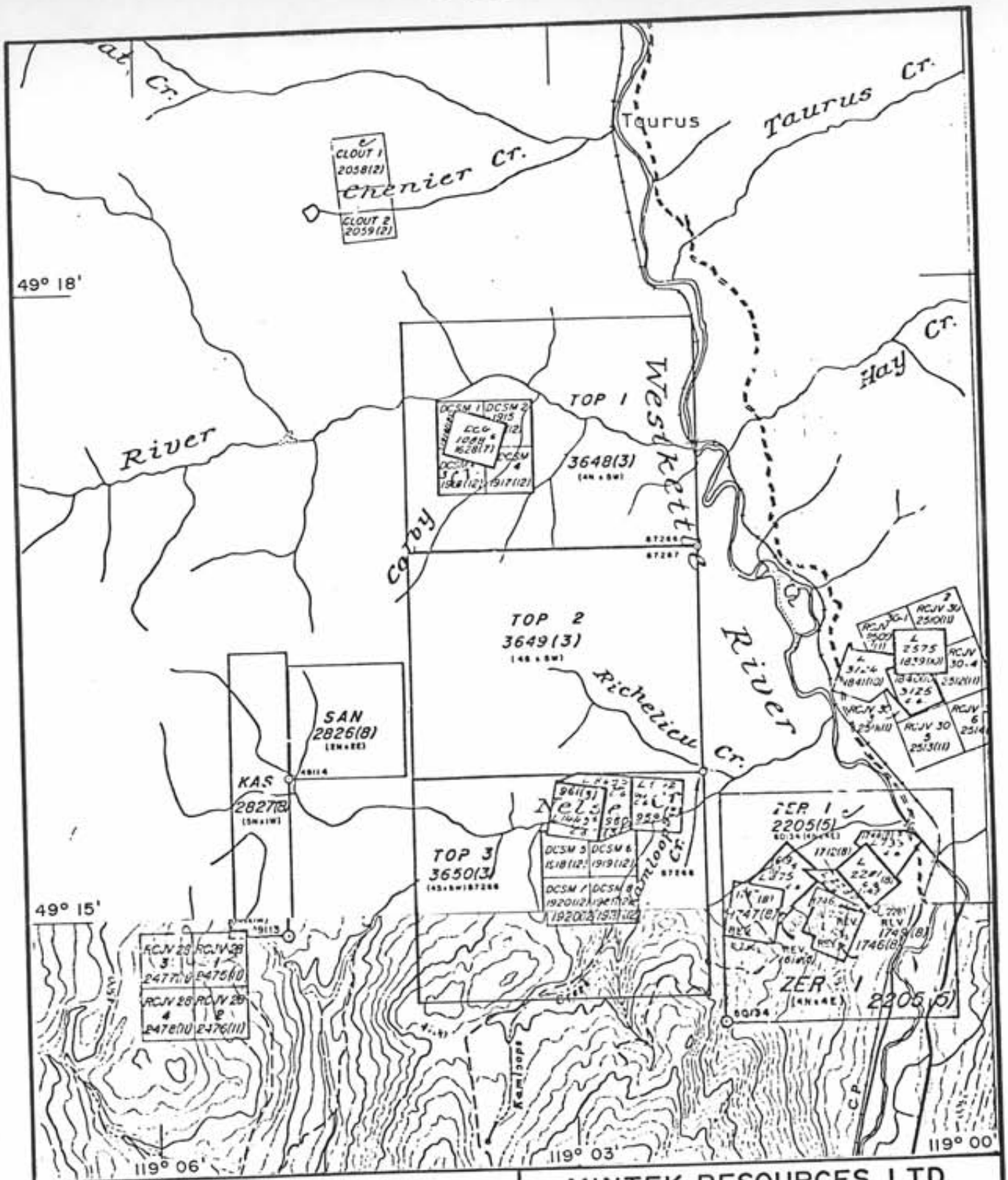
<u>Claim Name</u>	<u>Type</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Expiry Date</u>
Colby	Revert. C.G.	1628	1	1991
DCSM 1-4	Mineral Claim	1914-1917	4	1990
Richelieu	Revert. C.G.	959	1	1990
Teresa fraction	Revert. C.G.	960	1	1990
Enterprise	Revert. C.G.	961	1	1990
DCSM (5-8)	Mineral Claims	1918-1921	4	1988
Top 1-3	Mineral Claims	3648-3650	60	1984

### 1.3 History :

The Top claim group is located in the area surrounding the Colby and Richelieu crown grants. All exploration activity has been centered on these two reverted crown grants. The Richelieu group of claims were first staked in 1901. Some development was carried out during the 1901-1905 period. Regardless of several reports of work, production has been minimal from the three quartz veins discovered in this area. In 1980 Dayton Creek Silver Mines Ltd. carried out a geochemical survey detecting an extensive gold anomalous area. The author suspected sample contamination.



MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 1	N.T.S. 82E
<b>LOCATION MAP</b>	
SCALE: 1:250 000	GEOLOGIST: I.R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH



**MINTEK RESOURCES LTD.**  
**TOP MINERAL CLAIMS**  
 FIGURE 2 N.T.S. 82E/6E

## CLAIM MAP

Km 1      0      1      2 Km

SCALE: 1 : 50 000	GEOLOGIST: I. R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH

### 1.3 History cont'd :

The Colby claim was first mentioned in the 1933 report of the Minister of Mines. The vein was reportedly traced along 700 feet. A sample result reported; 0.33oz/ton gold and 5.70oz/ton silver across 24 inches. Mineralization was reported mainly as pyrite with small amounts of a dark-blue mineral in quartz gangue. Dayton Creek Silver Mines Ltd. acquired the Colby claim by application in July of 1979, and staked the DCSM group in December of the same year. A 1980 geochemical survey did not detect gold anomalous value areas.

### 1.4 Description of the Workings :

Richelieu Group; The main workings at this location consists of three adits, located on the north slope of Nelse Creek;

Adit No. 1 (See figure #4); This adit is located a few feet above the creek. It runs northeasterly for approximately 80 feet (24.4m). The mineralized shear is exposed for most of his length.

Adit No. 2; This adit is located 30m northwest of adit No. 1 (see figure #4). This adit follows a quartz vein which is reduced to a stringer at 24m from the portal, at the face of the adit, 42m from the portal, the stringer widens to form a quartz vein.

Adit No. 3; This adit is 50 feet (15.25m) long. It follows a silicified shear of negligible mineralization.

Colby Sector; The main working in this area is a 60 foot long (18.3m) adit developed along a quartz vein.

### 1.5 Geology :

Regional; The area is underlain by extensive bodies of the Nelson and Valhalla plutonic rocks of cretaceous age, with inliers of older and younger metasediments and metavolcanics.

Figure #8 shows the geology of the property. This figure also shows the location of the different workings on the property.

#### 1.6 Mineralization :

Richelieu Sector; Mineralization consists of 2 quartz fissure veins and a silicified shear zone hosted in a rhyolite porphyry. This unit is underlain by granodiorite. The veins contain gold and silver mineralization with some minor galena (see figure #3).

Colby Sector; Mineralization consists of a vein 1 to 4 feet wide hosted on quartzite. The quartzite is heavily sheared in the immediate vicinity of the vein. The vein contains fissures filled with limonite (pyrite). Gold and silver values are contained by this material. The adit was not inspected for safety reasons.

#### 1.7 Summary of Work Done :

June 21-26, 1983; Richelieu Area.

Geochemical Sampling ; A total of 3 rock samples assayed by Cu, Pb, Ag, Au. A total of 32 soil samples assayed for Pb, Ag, Au.

Samples taken from workings; Rock Samples Geochem.:8 assayed by Au,Ag  
Rock Samples Assay :11 assayed by Au,Ag

Geophysical survey ; Electromagnetic survey covering a total of 600m.

Colby Area; July 3 - July 7. Soil samples; 31 assayed for Cu, Pb, Zn, Ag, As, Au.

## 2. GEOCHEMICAL SURVEY AND PROSPECTING

### 2.1 Richelieu Area :

The objective was to check anomalous gold values obtained by G. Allen in the 1980 geochemical survey. These high values were suspected by Allen to have been the result of contamination in the laboratory. Workings were sampled to determine the extent of economic mineralization.

### 2.2 Survey Grid :

Previous linecutting done by G. Allen was used for the 1983 grid. Samples were collected on assumed anomalous areas and in areas of known mineralization. Lines were run at approximately 40m intervals. Sample stations were established at 20m intervals in the southern sector and at 25m intervals in the northern sector.

### 2.3 Soil sampling :

Soil samples collected from holes dug with a shovel to an average of 25cm (B horizon). The samples were taken by hand and placed in water resistant sample envelopes where they remained until analysis. No number was assigned to each sample but its location was recorded for identification.

### 2.4 Sample Analysis :

The samples were delivered to Acme Analytical Laboratories, Vancouver, B.C.

The samples were first dried and then crushed and sieved to minus 80 mesh. The base metal portion (0.5gm) was digested with 3ml of 3:1:3, Hl to HNO<sub>3</sub> to H<sub>2</sub>O at 90°C for 1 hour. The samples are diluted to 10ml with water. Elements analysed by Atomic absorption: Pb, Ag, Cu, As. The gold portion (10gm) was extracted with aqua regia and assayed by Atomic absorption.



#### 2.4 Interpretation and Conclusions :

The geochemical survey was done mostly in areas that showed anomalous values in the G. Allen geochemical survey. Soil cover on this area is thin. The area is underlain by a porphyritic rhyolite.

Results are indicated in figure #3. All the gold values are in the 5-10ppb range and results showed that values obtained by G. Allen were erroneous. The lack of anomalous values in the vicinity of the three mineralized veins show that geochemical sampling of the "B" horizon is not a suitable exploration tool in this area.

#### 2.5 Sampling (Richelieu Area) :

The three adits at Nelse Creek were sampled every 6m. Results are indicated in figure #4. Adit #2 showed the best results. In this adit the vein is irregular averaging 0.3oz/ton along the first 18m then the vein pinched out to a small stained fracture for 24m to widen up to 0.60m at the adit face.

Adit #1 has been stoped in several sectors. The vein may be considered similar to that of adit #2. Adit #3 gave no significant gold values.

#### 2.6 Colby Area :

Geochemical Survey; The objective of this survey was to verify anomalous values detected by G. Allen and to determine if some enrichment will occur on the contact of intrusive with the quartzite unit in which the Colby vein is located.

Survey Grid; The survey covered areas of assumed quartzite-granodiorite contact. Lines were located at 30m intervals with sampling stations located every 15m along the lines. All the survey lines were established by Silva compass, a topline belt chain and marked with coloured flagging tape. A total of 31 soil samples were taken to be assayed by Cu, Pb, Zn, Ag, As, Au.

Soil Sampling; Samples were collected at 15m intervals, along lines. The soil sample holes were dug with a shovel to an average of 25cm (B horizon) talus. Areas of rock outcrop were not sampled. The samples were taken by hand and placed in water resistant envelopes where they remained until analysis.

Interpretation; The geochemical survey was done mostly along the potential southwestern extension of the Colby vein. Assay results are fairly low and none of them can be considered anomalous. The survey area is covered by three different formations, a granodiorite stock, rhyolite porphyry and quartzite. Sample number is too small to define separate populations.

Conclusions; This geochemical survey attempting to locate potential anomalous areas in the vicinity of contact between quartzite and intrusive proved to be negative. There are no anomalous values and from figure #8 can be observed that outcrop mapping indicates that the quartzite formation is a roof pendant within the rhyolite porphyry unit.

#### 2.7 Rock Sampling :

2 rock samples were taken from mineralized float found on the access road to the property. Results were;

<u>Sample #</u>	<u>Location</u>	<u>Cu</u> <u>ppm</u>	<u>Pb</u> <u>ppm</u>	<u>Zn</u> <u>ppm</u>	<u>Ag</u> <u>ppm</u>	<u>As</u> <u>ppm</u>	<u>Au</u> <u>ppm</u>
58957	6N-1E	13	1,801	64	91.1	171	14.2
58958	8N-4E	43	481	33	19.1	16	3.85

### 3. GEOPHYSICAL SURVEY (Richelieu Area)

#### 3.1 Theory of the S.E. 88 'Genie' Electromagnetic System :

Scintrex Geophysical Instrumentation has recently developed the new S.E. 88 Genie electromagnetic system. 'Genie' is an acronym for geometry normalized inphase electromagnetic system. The Genie system was designed for rapid two person operation. The system minimizes geometrically derived errors that are a major problem with other in-and-out of phase, tilt angle or amplitude measurement systems commonly used. The measurement is based on the simultaneous transmission of two pre-selected, well-separated frequencies and the comparison of amplitudes of the two signals at the receiver. The two transmitted frequencies are picked up by a single receiving coil, amplified and noise filtered. A proportional D.C. voltage (V signal for the higher frequency, V reference for the lower frequency) is obtained from each signal, averaged over a selectable time period, and the then computed result  $(V \text{ signal}/V \text{ reference} - 1) \times 100$  is displayed in percent and is recorded. Resolutions of 0.1% are possible, depending on atmospheric noise, and amplitude ratio changes of 0.5% can be significantly differentiated.

#### 3.2 Method of Interpretation :

Scintrex has completed an interpretation manual for the S.E. 88 Genie System. The manual consists of tables of theoretical response profiles for variations on conductor geometry. To use the manual, a comparison of field results to theoretically derived profiles is employed.

Traditional interpretations of electromagnetic conductors have acknowledged a common observation that the relative positiveness or negativeness of the EM signal received often change direction over a conductor. This 'change in sign' is termed the crossover point, in trying to follow a vein system utilizing EM responses, it is hoped that sufficient shearing and clay alteration will have occurred to create a clay envelope around the vein. If water is present in this clay zone an EM response often can be detected. In the case of the

### 3.2 Method of Interpretation : cont'd

Richelieu showing there are crossover points that maybe interpreted to indicate a vein contact. A trenching or drilling program will be required to test the validity of these crossover points. If the crossover points are proven to correspond to vein contacts then the GENIE system will enable the location of the vein contact along strike.

<u>Crossover Points</u>	<u>Comments</u>
1+00N      0+85W	Positive crossover point at 25m and 50m separations
1+00N      1+45W	Positive crossover point at 25m and 50m separations
1+40N      1+12W	Positive crossover point at 25m and 50m separations
1+80N      0+37W	Positive crossover point at 25m and 50m separations
1+80N      1+37W	Positive crossover point at 25m and 50m separations

BILIOGRAPHY

- Allen G.P. Geological-Geochemical Report on the Colby property of Dayton Creek Silver Mines, (1980).
- Allen G.P. Geological and Geochemical Report on the Richelieu property of Dayton Creek Silver Mines (1980).
- Little H.W. Kettle River (Westhalf, B.C. G.S.C. Map 15-1961, (1961).
- Reinecke L. Ore Deposits of the Beaverdell map-area; G.S.C., Memoir 79 (1915).

## ANNEX #1

STATEMENT OF EXPENDITURES TOP MINERAL CLAIM GROUP

June 21-26, 1983 Richelieu Area.

Wages and Salaries

I.R. Corvalan, rock samp. & surv.	(6 days @ \$200/day)	\$ 1,200.00
Bill Morton, rock samp. & surv.	(6 days @ \$200/day)	1,200.00
Jeff Agar, helper	(6 days @ \$80/day)	<u>480.00</u>
	TOTAL	\$ 2,880.00

Geochemical and Sample Analysis

Rock samples;

23 samples, Au, Pb, Ag, Au	(@ \$9.30 each)	\$ 213.90
6 samples, Au, Pb, Ag	(@ \$11.60 each)	69.60
17 samples, Au, Ag	(@ \$7.30 each)	124.10
36 soil samples	(@ \$6.70 each)	<u>241.20</u>
	TOTAL	\$ 648.80

Equipment Rental

G.E. 'Genie' Electromagnetic System	\$ 660.00
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Transportation

Truck rental	(6 days @ \$40 ea.)	\$ 240.00
Gas		<u>80.00</u>
	TOTAL	\$ 320.00

Room and Board

Meals	(6 days @ \$20/day x3)	\$ 360.00
Hotel	(2 rooms @ \$30/day x 6 days)	<u>360.00</u>
	TOTAL	\$ 720.00

TOTAL RICHELIEU AREA :	<u><u>\$ 5,228.80</u></u>
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## ANNEX #1

STATEMENT OF EXPENDITURES TOP MINERAL CLAIM GROUP

July 4-6, 1983 Colby Area.

Wages and Salaries

I.R. Corvalan, rock samp. & surv. (Geol.mapping, soil sampl.)	(3 days @ \$200/day)	\$	600.00
Jeff Agar, helper	(3 days @ \$80/day)		<u>240.00</u>
	TOTAL	\$	840.00

Geochemical and Sample Analysis

Soil geochem.	(31 samples @ \$8.25)	\$	255.75
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Transportation

Truck rental	(4 days @ \$40/day)	\$	160.00
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Room and Board

Meals	(6 days @ \$20/day x2)	\$	120.00
Hotel	(3 rooms @ \$25/day)		<u>75.00</u>
	TOTAL	\$	195.00

Report Preparation

\$ 600.00

TOTAL COLBY AREA : \$ 2,050.75TOTAL EXPENSES \$ 7,279.55

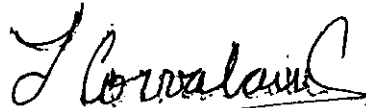
MINTEK RESOURCES LIMITED  
STATEMENT OF QUALIFICATIONS

I, I. RUBEN CORVALAN, P. ENG. OF THE CITY OF NORTH VANCOUVER, BRITISH COLUMBIA, HEREBY CERTIFY;

1. THAT I AM PROFESSIONAL ENGINEER RESIDING AT #117 - 908 BERKLEY ROAD, NORTH VANCOUVER, BRITISH COLUMBIA;
2. THAT I GRADUATED WITH A MINING ENGINEERING DEGREE FROM THE UNIVERSITY OF CHILE, CHILE, IN 1969;
3. THAT I HAVE PRACTICED GEOLOGY AND GEOCHEMISTRY WITH EMPRESA NACIONAL DE MINERIA, SANTIAGO, CHILE FROM 1966 TO 1970, WITH CIMA RESOURCES LIMITED FROM 1980 TO SEPTEMBER 1982, AND WITH IMPERIAL METALS CORPORATION FROM APRIL 1983 TO PRESENT.

DATED THIS 15 DAY OF MARCH, 1984  
AT VANCOUVER, BRITISH COLUMBIA.

SIGNED



I. R. CORVALAN, P. ENG.



ANNEX #2

IN MATTER OF THE  
B.C. MINERAL ACT

AND

IN MATTER OF A GEOCHEMICAL AND TRENCHING  
PROGRAM CARRIED OUT ON THE

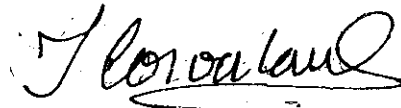
TOP CLAIM GROUP

LOCATED ON THE GREENWOOD MINING DIVISION  
OF THE PROVINCE OF BRITISH COLUMBIA  
MORE PARTICULARLY N.T.S. 82E/6E

A F F I D A V I T

I, I. RUBEN CORVALAN, P. ENG., OF THE CITY DISTRICT OF  
NORTH VANCOUVER IN THE PROVINCE OF BRITISH COLUMBIA,  
MAKE OATH AND SAY:

1. THAT I AM AN EMPLOYEE OF MINTEK RESOURCES LIMITED  
AND AS SUCH HAVE A PERSONAL KNOWLEDGE OF THE FACTS TO  
WHICH I HEREINAFTER DISPOSE;
2. THAT ANNEXED HERETO AND MARKED AS "ANNEX #1" IS A  
TRUE COPY OF EXPENDITURES ON A GEOCHEMICAL AND TRENCHING  
PROGRAM CARRIED OUT ON THE TOP MINERAL CLAIM GROUP:
3. THAT THE SAID EXPENDITURES WERE INCURRED WITHIN THE  
PERIOD JUNE 21 - JUNE 26, AND JULY 3 - 7 FOR THE PURPOSE OF  
MINERAL EXPLORATION ON THE ABOVE CLAIMS.



I.R. CORVALAN, P.ENG.

AUTHOR'S QUALIFICATIONS

I, JAMES W. MORTON, CERTIFY THE FOLLOWING;

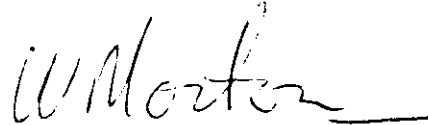
I graduated from Carleton University in 1971 with a Bachelor of Science in Geology.

I graduated from the University of British Columbia in 1976 with a Master of Science in Soil Science.

I have worked for various mining and exploration companies since 1968.

I am presently a permanent staff geologist with Mintek Resources Ltd. and Imperial Metals Corporation, both of Vancouver, B.C.

I supervised the electromagnetic survey described in this report.



---

J.W. Morton,  
Geologist

**ANNEX #4**  
**GEOCHEMICAL RESULTS**

ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.  
 THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.  
 THIS LEACH IS PARTIAL FOR: -Ca, P, Mg, Al, Ti, La, Na, K, W, Ba, Si, Sr, Cr AND B. Au DETECTION 3 ppb.  
 AU# ANALYSIS BY AA FROM 10 GRAM SAMPLE.  
 SAMPLE TYPE - P1-3 SOIL PA-ROCK

ASSAYER *D. J. Coy* DEAN TOYE, CERTIFIED B.C. ASSAYER

IMPERIAL METALS FILE # 83-1551 PAGE# 1

SAMPLE	CU ppm	FE ppm	ZN ppm	AG ppm	AS ppm	Au# ppb
COLBY CREEK-1	13	28	93	.2	7	5
COLBY CREEK-2	7	14	50	.1	11	5
COLBY CREEK-3	9	9	144	.1	8	5
COLBY CREEK-4	11	11	124	.1	7	10
COLBY CREEK-5	14	14	55	.3	9	5
COLBY CREEK-6	8	12	70	.1	9	5
COLBY CREEK-7	9	11	150	.1	8	5
COLBY CREEK-8	11	12	58	.1	7	5
COLBY CREEK-9	8	9	76	.1	6	5
COLBY CREEK-10	6	10	56	.1	5	5
COLBY CREEK-11	15	20	66	.1	7	5
COLBY CREEK-12	18	19	91	.1	12	5
COLBY CREEK-13	13	9	60	.1	9	5
COLBY CREEK-14	22	17	86	.1	8	5
COLBY CREEK-15	10	12	48	.1	11	5
COLBY CREEK-16	12	5	85	.1	9	5
COLBY CREEK-17	17	14	114	.1	6	5
COLBY CREEK-18	5	5	70	.1	6	10
COLBY CREEK-19	15	23	88	.1	14	5
COLBY CREEK-20	6	6	81	.1	4	5
COLBY CREEK-21	7	7	118	.1	4	5
COLBY CREEK-22	9	7	82	.1	9	5
COLBY CREEK-23	7	9	88	.1	6	5
COLBY CREEK-24	9	8	84	.1	4	5
COLBY CREEK-25	12	10	148	.1	7	5
COLBY CREEK-26	18	14	95	.2	9	5
COLBY CREEK-27	20	12	93	.2	7	5
COLBY CREEK-28	13	14	75	.1	6	5
COLBY CREEK-29	12	14	43	.1	7	5
COLBY CREEK-30	36	18	58	.1	18	5
COLBY CREEK-31	12	11	66	.1	14	10
JERSEY-Y-1	10	14	47	.1	7	5
JERSEY-Y-2	11	7	44	.1	5	5
JERSEY-Y-3	15	11	52	.1	9	5
JERSEY-Y-4	11	11	46	.1	5	5
JERSEY-Y-5	17	10	37	.1	4	5
JERSEY-Y-6	9	8	40	.1	7	5
STD A-1/AU 0.5	30	40	178	.3	9	485

*Colby, Au#*  
 31 x 4.00  
 + 3.75  
 .50

ACME ANALYTICAL LABORATORIES LTD.  
852 E. HASTINGS, VANCOUVER B.C.  
PH:253-3158 TELEX:04-53124

DATE RECEIVED JUNE 27 1983

DATE REPORTS MAILED July 2/83

### GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.  
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : PB, AG.  
SAMPLE TYPE : P1-SOIL P2-ROCK  
AU\* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIXK EXTRACTION, AA ANALYSIS.  
TL - .50 GM 1:1 HNO3 DIGESTION - GRAPHITE AA ANALYSIS.

ASSAYER D. J. Toy DEAN TOYE, CERTIFIED B.C. ASSAYER

MINTEK RESOURCES FILE # 83-0955 PAGE# 1

SAMPLE	PB PPM	AG PPM	AU* PPB
2+20N 2W <sub>+</sub> 10	13	.1	5
2+20N 1+75W ✓	32	.1	5
2+20N 1+50W	14	.1	5
2+20N 1+25W ✓	15	.1	5
2+20N 1W <sub>+</sub> 10	12	.1	5
2+20N 0+75W ✓	19	.2	5
2+20N 0+50W	17	.1	5
2+20N 0+25W	13	.2	5
2+20N 0W	22	.2	5
BL 0	13	.1	5
2S 3W	9	.2	5
2S 2W	5	.1	5
2S 1W	40	.1	5
2S 0E	22	.2	5
2S 1E	5	.1	5
2S 2E	16	.3	15
2S 3E	15	.1	5
4S 3W	12	.1	5
4S 2W	18	.1	5
4S 1W	15	.1	5
4S 0E	10	.1	5
4S 1E	9	.1	10
4S 2E	12	.2	5
4S 3E	30	.3	5
6S 3W	15	.1	5
6S 2W	7	.1	5
6S 1W	13	.1	5
6S 0E	16	.1	5
6S 1E	12	.1	5
6S 2E	25	.1	5
6S 3E	19	.1	5
8S 2W	15	.1	5
8S 1W	12	.1	5
8S 0E	18	.1	5
8S 1E	17	.1	5
8S 2E	19	.1	5

*Soil*

ACME ANALYTICAL LABORATORIES LTD.  
852 E. HASTINGS, VANCOUVER B.C.  
PH: 253-3158 TELEX: 04-53124

DATE RECEIVED AUG 25 1983

DATE REPORTS MAILED Aug 30/83

### ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.  
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.  
THIS LEACH IS PARTIAL FOR: Ca, P, Mg, Al, Ti, La, Na, K, W, Ba, Si, Sr, Cr AND B. Au DETECTION 3 ppm.  
AU\* ANALYSIS BY AA FROM 10 GRAM SAMPLE.  
SAMPLE TYPE - ROCK CHIPS

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

IMPERIAL METALS PROJECT # MINTEX COLBY-RICHILIEU FILE # 83-1838 PAGE# 1

SAMPLE	CU ppm	PB ppm	AG ppm	Au* ppb
0+80N OW	165	8	.3	5
0+60N OW	56	3	.2	5
0+40N OW	82	9	.2	5
0+02N OW	18	6	.1	5
1N 0+75W	25	8	.1	5
1N 0+50W	46	7	.1	5
1N 0+25W	31	13	.1	5
R-1 1N 0+85W	2457	4	2.6	5
R-2 1N 1W	34	43	.1	5
R-3 1N 1+20W	41	6	.2	5
R-4 1N 1+50W	9	8	.2	5
R-5 1N 1+75W	27	6	.1	5
R-6 1N 2W	36	6	.1	5
S-7	35	14	.1	5
S-8 1N 2+25W	55	6	.1	5
R-10 1+40N0+20W	28	7	.1	5
R-11 1+40N0+75W	99	2	.1	5
R-12 1+40N1W	12	4	.1	5
R-12 1+40N1+25W	21	4	.1	5
R-13 1+40N1+50W	29	10	.1	5
R-14 1+40N1+75W	25	30	.1	5
R-15 1+40N2W	28	23	.1	5
1N OW SOIL	17	10	.2	5
STD A-1/AU 0.5	30	38	.3	520

# ACME ANALYTICAL LABORATORIES LTD.

PHONE: 253-3158

852 East Hastings St., Vancouver, B.C. V6A 1R6

File: 83-1838

Date: Aug. 30, 1983

Imperial Metals Corporation  
1300 - 409 Granville St.,  
Vancouver, B.C.  
V6C 1X0 1T2

*MINTEK*

TERMS:  
NET TWO WEEKS  
2% PER MONTH CHARGED ON  
OVERDUE ACCOUNTS.

NUMBER	ASSAY	PRICE	AMOUNT
	Project : Mintex Colby-Richilieu		
23	Geochem Cu Pb and Ag assays @	\$3.05	\$ 70.15
23	Geochem Au assays @	3.75	86.25
23	Rock sample preparations @	2.50	57.50
			<hr/>
			\$213.90

PAID  
OCT 25 1983  
PAID

*Shenau*

PLEASE PAY LAST AMOUNT →

MINTEK RESOURCES

FILE # 83-0955

PAGE# 2

SAMPLE	AG PPM	AU* PPB	TL <sup>2</sup> PPM
1+85N 0+85W	.1	5	.3
1+85N 1+50W	.2	10	.4
1+85N 1#00W	.3	5	.2
1+85N 0+75W	.1	5	.1
1+85N 0+50W	.1	5	.2
1+85N 0W	.1	5	.1

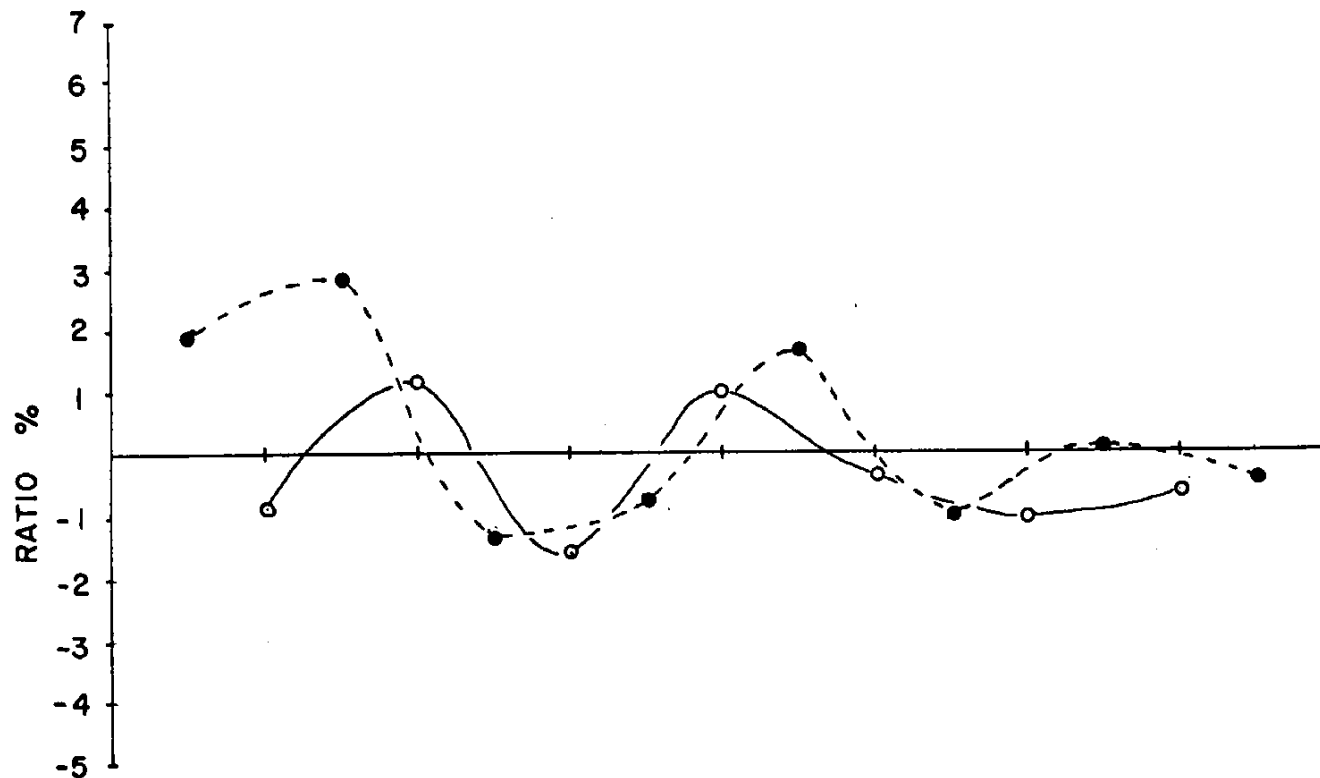
*[Handwritten scribbles and marks]*



SAMPLE	CU ppm	PB ppm	ZN ppm	AG ppm	AS ppm	Au* ppb
58957	13	1801	64	91.1	171	<u>14200</u>
58958	43	481	33	19.1	16	<u>385</u>
58959	123	44	106	.8	10	10
58960	60	80	<u>15695</u>	1.3% 2.2	15	5
58961	2	10	360	.5	27	5

**ANNEX #5**  
**GEOPHYSICAL DATA AND INTERPRETATION**

2+00 W 1+75 W 1+50 W 1+25 W 1+00 W 0+75 W 0+50 W 0+25 W 0+00 W STATION



RICHELIEU SHOWING  
MINTEK RESOURCES LTD.

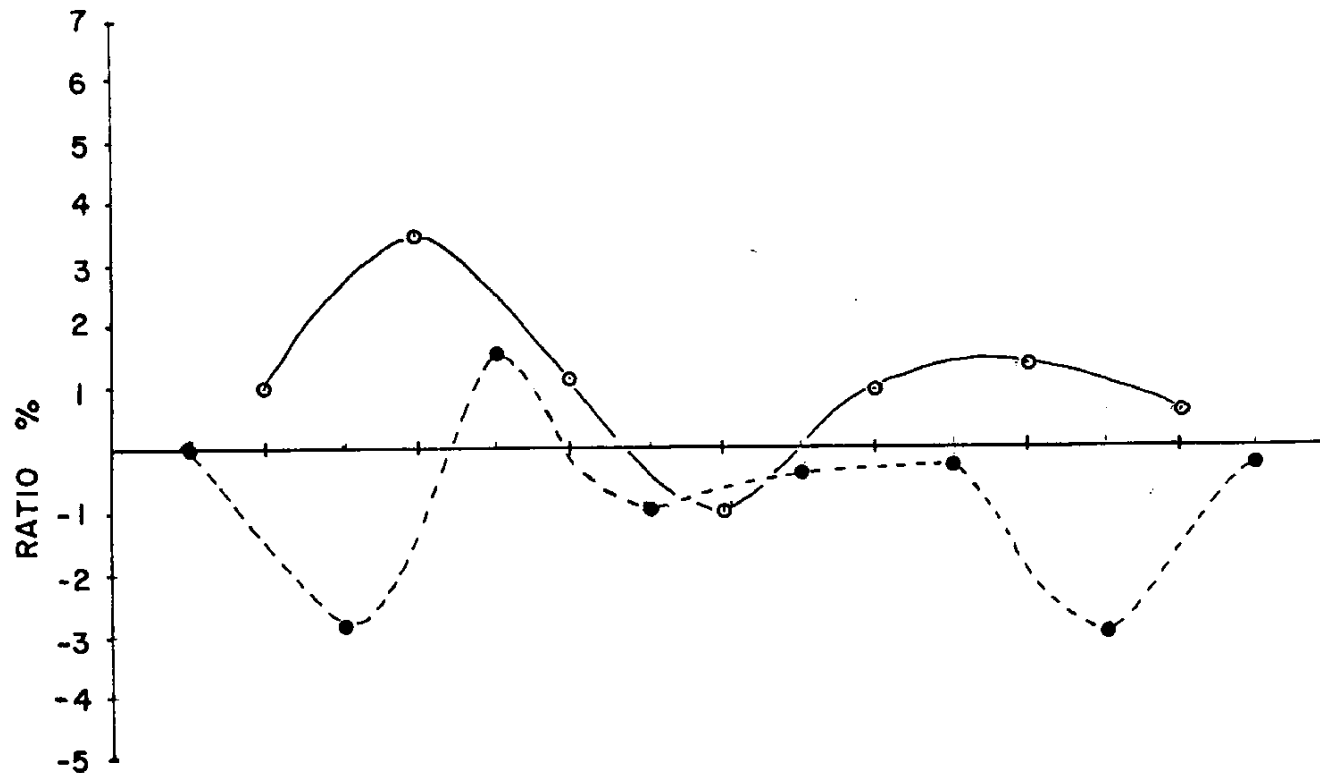
SE 88  
ELECTROMAGNETIC RESPONSE  
3037.5 / 112.5 FREQUENCY RATIO  
●-----● 25 M. SEPARATION  
○-----○ 50 M SEPARATION

SCALE: 1:1250

J. W. MORTON  
JAN. 1984

drawn by: M. G. FERGUSON

2+00 W   1+75 W   1+50 W   1+25 W   1+00 W   0+75 W   0+50 W   0+25 W   0+00 W   STATION



RICHELIEU SHOWING  
MINTEK RESOURCES LTD.

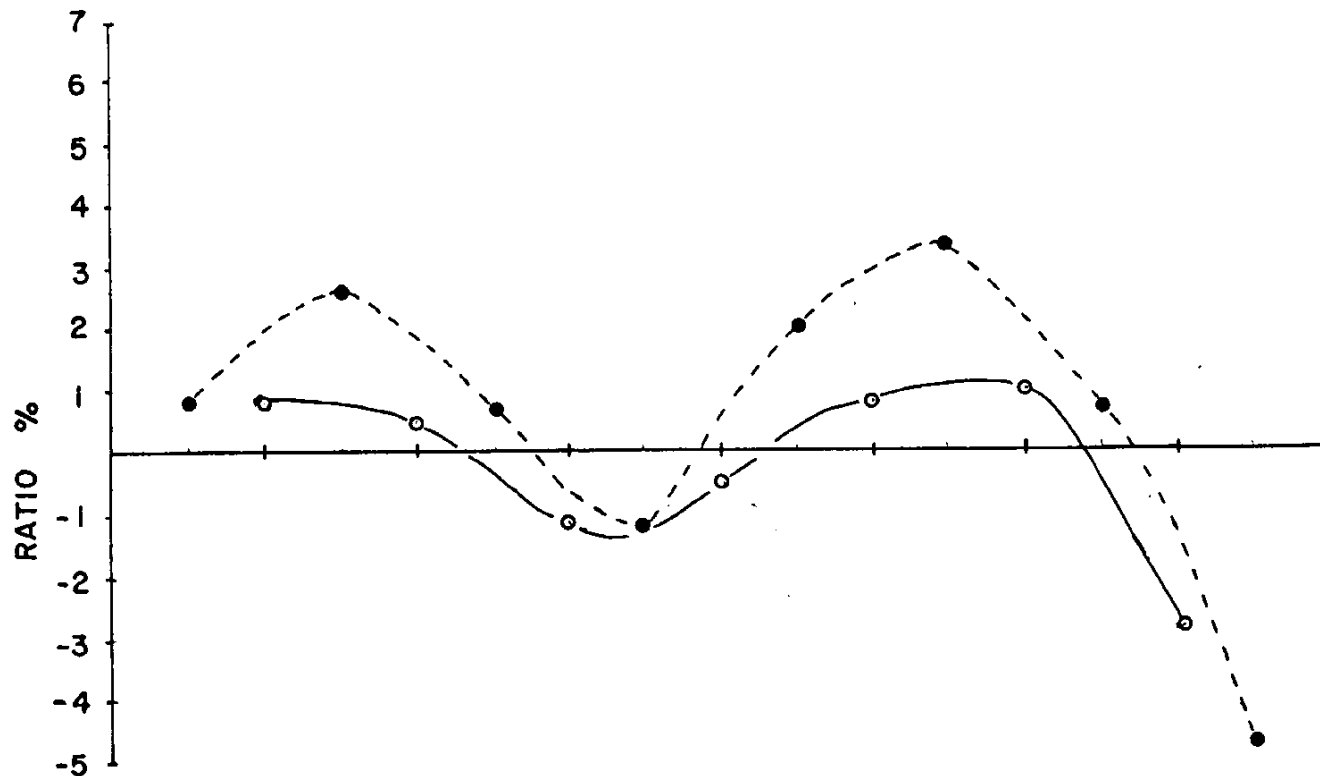
SE 88  
ELECTROMAGNETIC RESPONSE  
3037.5 / 112.5 FREQUENCY RATIO  
●-----● 25 M. SEPARATION  
○-----○ 50 M SEPARATION

SCALE: 1:1250

J.W. MORTON  
JAN. 1984

drawn by: M.G. FERGUSON

2+00 W   1+75 W   1+50 W   1+25 W   1+00 W   0+75 W   0+50 W   0+25 W   0+00 W   STATION



RICHELIEU SHOWING  
MINTEK RESOURCES LTD.

SE 88  
ELECTROMAGNETIC RESPONSE  
3037.5 / 112.5 FREQUENCY RATIO  
●-----● 25 M. SEPARATION  
○-----○ 50 M SEPARATION

SCALE: 1:1250

J. W. MORTON  
JAN. 1984

drawn by: M. G. FERGUSON

Receiver Station	Separation Meters	Reading #1	Reading #2	Reading #3	Reading Avg.	Notes
1+00N 0+25W	25	-0.7	-0.6	-0.3	-0.5	-direction-west
1+00N 0+25W	25	0.0	0.1	0.1	+0.1	receiver west of
1+00N 0+50W	50	-0.6	-0.8	-0.5	-0.6	transmitter
1+00N 0+75W	25	-1.1	-0.9	-1.0	-1.0	
1+00N 0+75W	50		-0.9	-1.3	-1.1	
1+00N 1+00W	25	1.8	1.6	1.6	+1.7	
1+00N 1+00W	50	-0.2	-0.1	-0.2	-0.3	
1+00N 1+25W	25	-1.0	-0.4	-1.0	-0.8	
1+00N 1+25W	50	1.0	1.1	1.0	+1.0	
1+00N 1+50W	25	-0.5	-0.1	-0.8	-1.4	
1+00N 1+50W	50	-1.7	-1.1	-1.4	-1.4	
1+00N 1+75W	25	2.3	2.8	3.5	+2.9	
1+00N 1+75W	50	1.2	1.1	1.3	+1.2	
1+00N 2+00W	25	2.2	1.8	1.8	+1.7	
1+00N 2+00W	50	-0.8	-1.0	-1.0	-0.9	
1+40N 0+25W	25	-0.2	-0.3	-0.3	-0.3	receiver west
1+40N 0+50W	25	-2.9	-2.9	-3.3	-3.0	of transmitter
1+40N 0+50W	50	0.4	1.0	0.7	+0.6	
1+40N 0+75W	25	-0.2	-0.4	-0.1	-0.3	
1+40N 0+75W	50	1.1	1.5	1.6	+1.4	
1+40N 1+00W	25	-0.4	-0.3	-0.4	-0.4	
1+40N 1+00W	50	1.0	0.8	1.0	0.9	
1+40N 1+25W	25	-0.9	-0.9	-1.1	-1.0	
1+40N 1+25W	50	-1.2	-0.7	-1.0	-1.0	
1+40N 1+50W	25	1.9	1.2	1.6	+1.6	
1+40N 1+50W	50	1.2	1.1	1.4	+1.2	
1+40N 1+75W	25	-3.4	-2.9	-2.5	-2.9	
1+40N 1+75W	50	3.6	3.3	3.7	+3.5	
1+40N 2+00W	25	0.1	0.0	0.1	0.0	
1+40N 2+00W	50	1.0	0.8	1.3	+1.0	



# Rossbacher Laboratory Ltd.

2225 S. SPRINGER AVE.,  
BURNABY, B. C.,  
CANADA  
TELEPHONE: 299-6910

GEOCHEMICAL ANALYSTS & ASSAYERS

## CERTIFICATE OF ANALYSIS

TO: IMPERIAL METALS LTD.  
United Kingdom Bld.  
Vancouver, B.C.

CERTIFICATE NO. 83243.4  
INVOICE NO. 3216  
DATE ANALYSED 83/07/25  
PROJECT CIMA RESOURCES

No.	Sample	pH	Mo	Cu	Pb	Zn	Ag	PPB Au	Cr		No.
01	78452				28	34	0.2	20			01
02	78453				290	14	0.4	10			02
03	58951						2.2	80		Richilieu	03
04	58952						81.0	13,000	-	"	04
05	58953						42.0	7,000	→	"	05
06	58954						0.6	10		"	06
07	58955						0.2	10		"	07
08	58956						20.0	3,300		"	08
09	59251							201,400			09
10	59252							40,680			10
11	59253							1027,000			11
12	59254							102,680		Tulameen Property	12
13	59255							10,210			13
14	59256							10,920			14
15	59257							101,940			15
16	59260						0.8	70			16
17	59268						65.0	7000	→		17
18	59271						0.4	20			18
19	59272				12		0.4	10			19
20	59273				60	14	0.2	10			20
21	59274						0.2	10		Deep Road.	21
22	59275					66	0.2			Onyx Cr.	22
23	59276			230	360	112	1.0	10			23
24	59277					58	0.2				24
25	59278					16	0.2	10		Qz Vain Onix Cr.	25
26	59279			84		74	0.2	10		Colby	26
27	59280			2.1	20	54	0.2	10		Colby	27
28	59281			72	94	90	0.2	10		Vancouver Qz-vein.	28
29											29
30											30
31											31
32											32
33											33
34											34
35											35
36											36
37											37
38											38
39											39
40											40

VALUES IN PPM UNLESS NOTED OTHERWISE.

Certified by

*A. Rossbacher*



# Rossbacher Laboratory Ltd.

GEOCHEMICAL ANALYSTS & ASSAYERS

2226 S. SPRINGER AVE.,  
BURNABY, B. C.  
CANADA  
TELEPHONE: 299-6910  
AREA CODE: 604

## CERTIFICATE OF ANALYSIS

TO: IMPERIAL METALS LTD.  
United Kingdom Bld.  
Vancouver, B.C.

CERTIFICATE NO. 83243-5

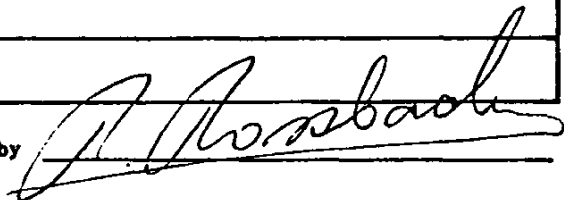
INVOICE NO. 3216

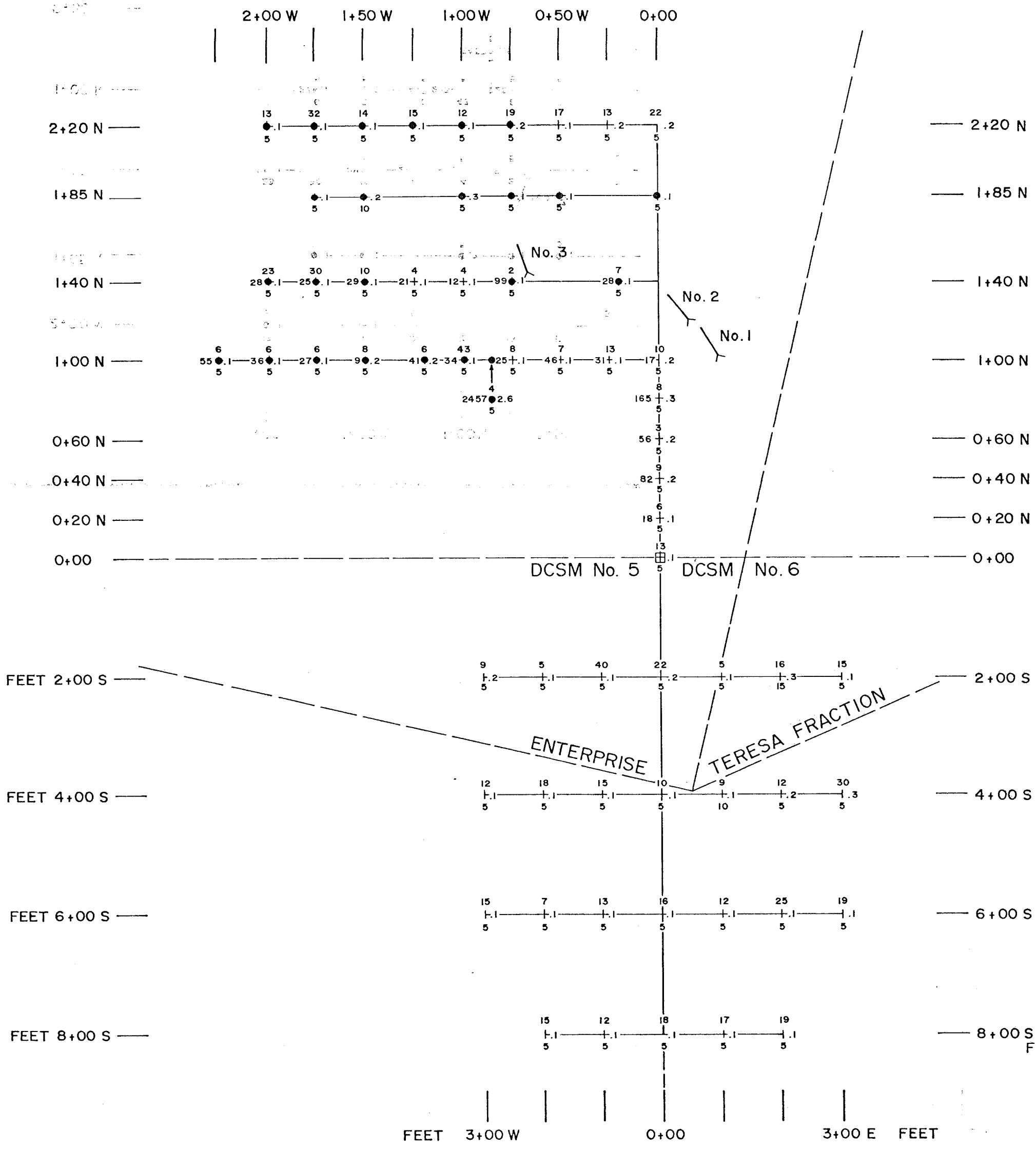
DATE RECEIVED

DATE ANALYSED Aug 6, 1983

ATTN: Cima Resources

SAMPLE NO.:	oz/T Au	oz/T Ag	
59258	0.080 ✓	0.74	<i>Richilieu</i>
59259	0.082 ✓	1.14	"
59261	0.002 ✓	0.18	"
59262	0.070 ✓	0.92	"
59263	0.400 ✓	2.12	"
59264	0.008 ✓	0.18	"
59265	0.010 ✓	0.22	"
59266	0.400 ✓	2.76	"
59267	0.010 ✓	0.16	"
59269	0.148 ✓	0.82	<i>Richilieu</i>
59270	0.330 ✓	2.26	"
59268	0.204	1.89	"

Certified by 



2+20 N  
1+85 N GENIE LINE  
1+40 N GENIE LINE  
1+00 N GENIE LINE  
0+60 N  
0+40 N  
0+20 N  
0+00

- LEGEND**
- Claim Post
  - Claim Boundary
  - Adit
  - Pb  
-Cu+Ag  
Au Sample Location & Assay Results - Soil
  - Pb  
-Cu+Ag  
Au Sample Location & Assay Results - Rock

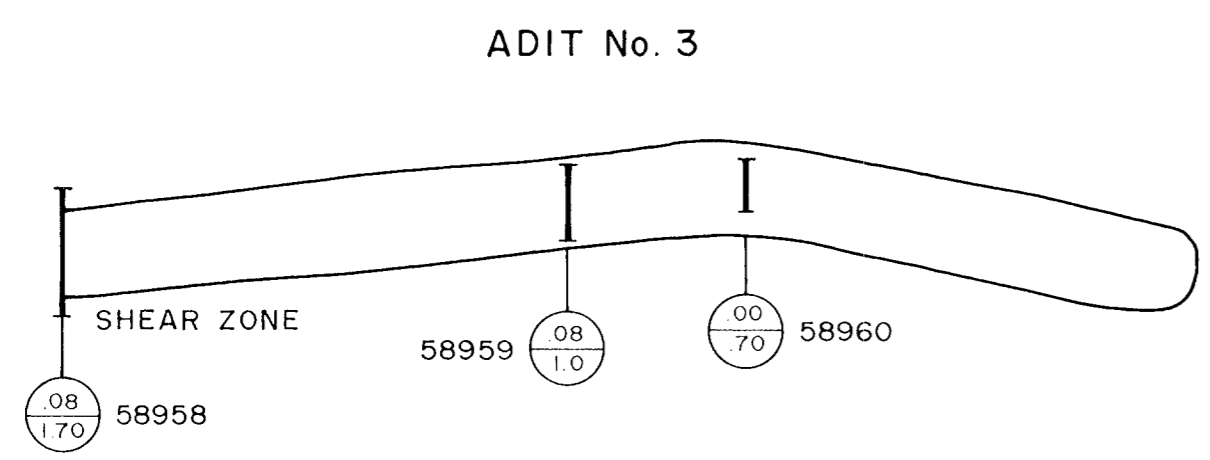
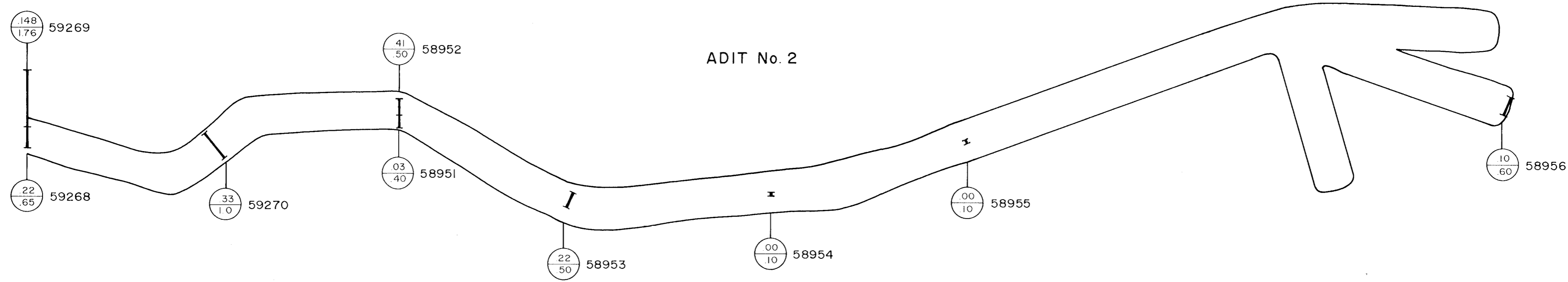
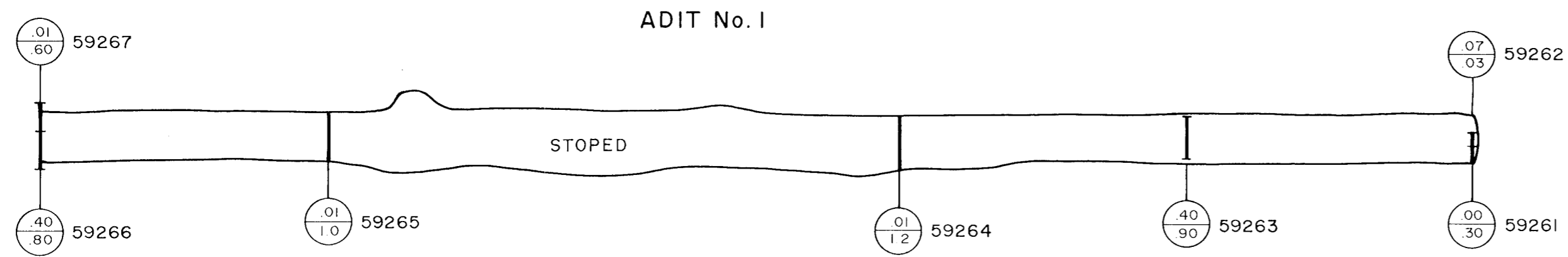
Cu - ppm  
Pb - ppm  
Ag - ppm

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,066**

MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 3	N.T.S. 82E/6E
<b>ASSAY RESULTS</b>	
RICHELIEU AREA	
Metres 25 0 25 50 75 Metres	
SCALE: 1:2000	GEOLOGIST: I.R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH

NORTHEAST →



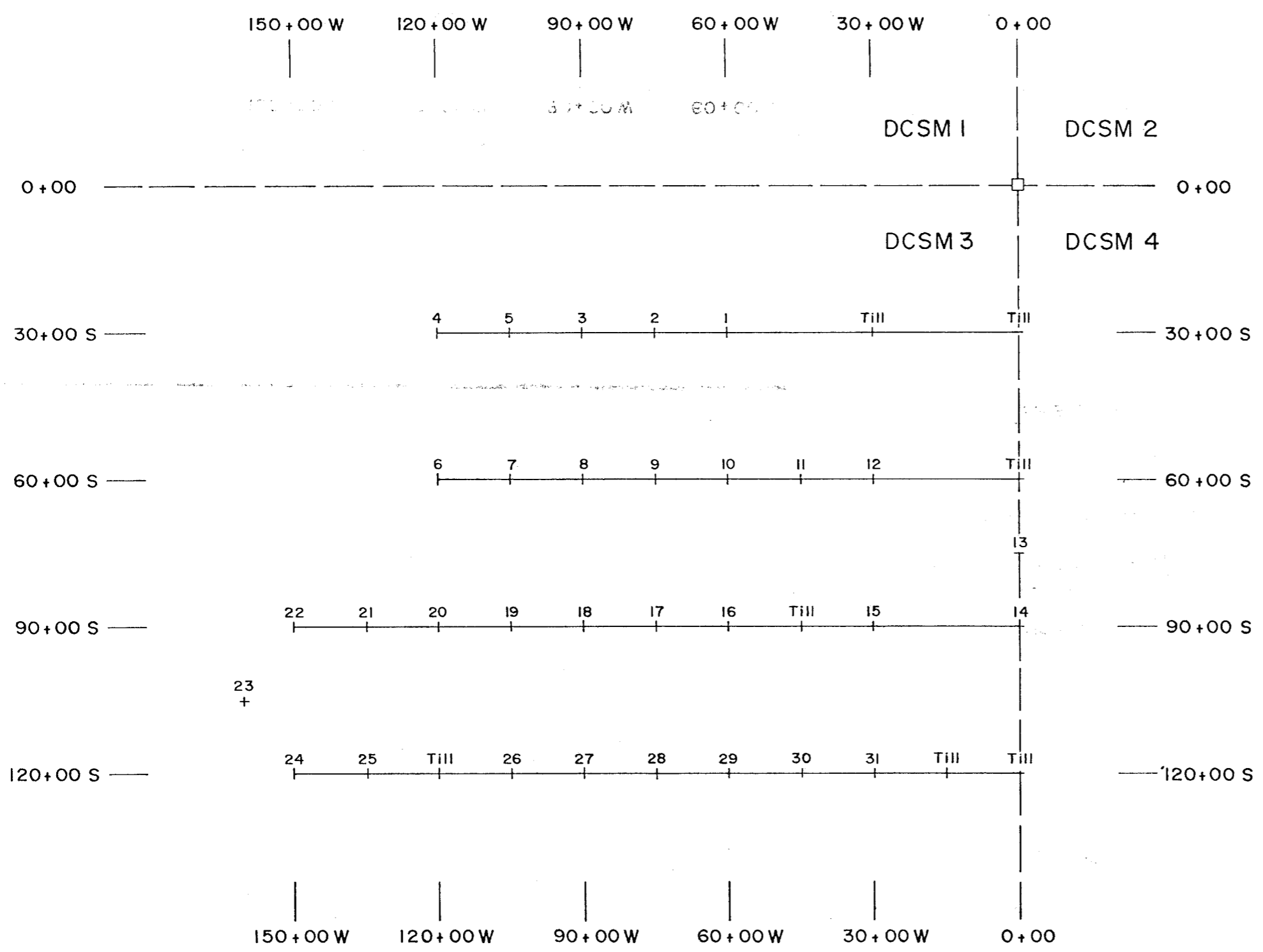
- LEGEND**
- Approximate Tunnel Wall
  - I Sample Location
  - $\frac{Au}{Width}$  Sample Results (oz/ton), Sample Width (metres), & Sample Number

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,066**

MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 4	N.T.S. 82E/6E
<b>WORKINGS PLAN</b>	
RICHELIEU AREA	
Metres 0 1 2 3 4 5	
SCALE: 1:100	GEOLOGIST: I. R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH




21-00 S

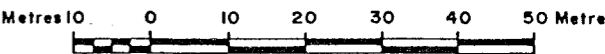


**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

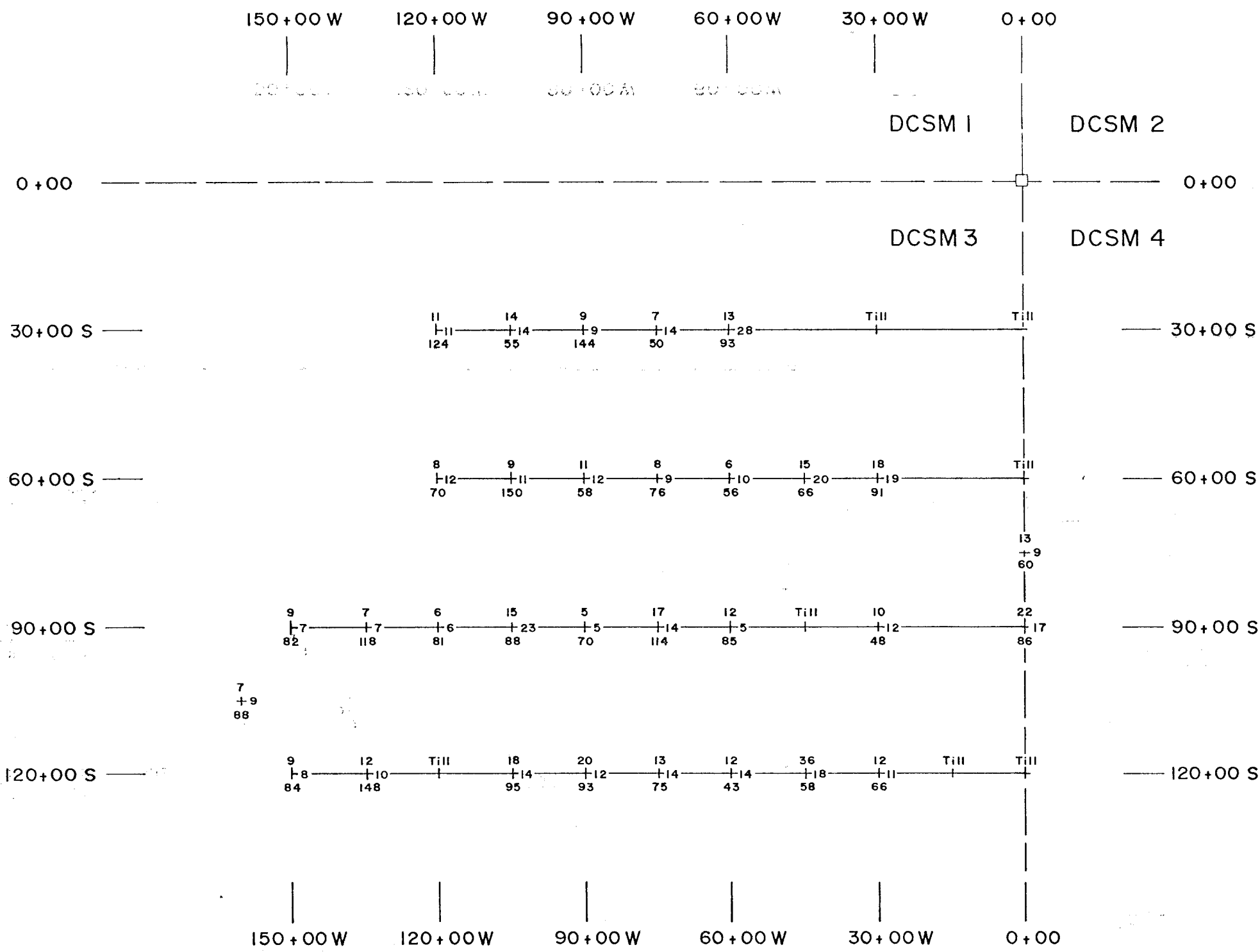
**12,066**

**LEGEND**

-  Claim Post
-  Claim Boundary
-  Grid Line, Sample Location & Sample Number

MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 5	N.T.S. 82E/6E
<b>SAMPLE LOCATIONS</b>	
COLBY AREA	
	
SCALE: 1:1000	GEOLOGIST: I.R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH

20100 3



# GEOLOGICAL BRANCH ASSESSMENT REPORT

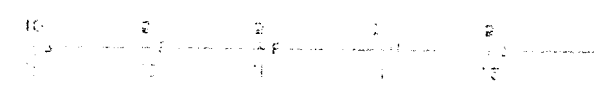
# 12,066

### LEGEND

- Claim Post
- Claim Boundary
- Grid Line & Assay Results  
  - Cu - ppm
  - Pb - ppm
  - Zn - ppm

MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 6	N.T.S. 82E/6E
<b>ASSAY RESULTS - Cu, Pb, Zn</b>	
COLBY AREA	
Metres 10 0 10 20 30 40 50 Metres	
SCALE: 1:1000	GEOLOGIST: I.R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH

30+00 S



0+00

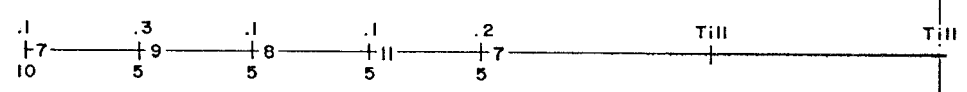
150+00 W 120+00 W 90+00 W 60+00 W 30+00 W 0+00

DCSM 1 DCSM 2

0+00

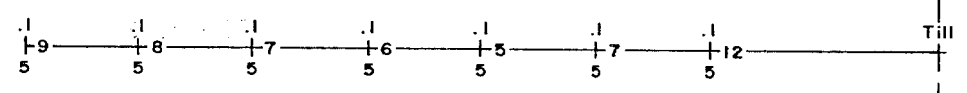
DCSM 3 DCSM 4

30+00 S



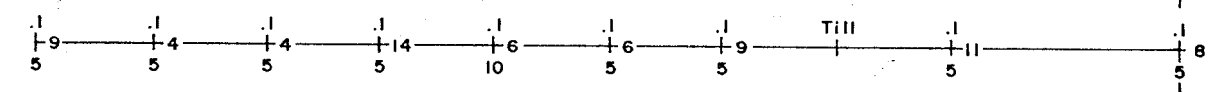
30+00 S

60+00 S



60+00 S

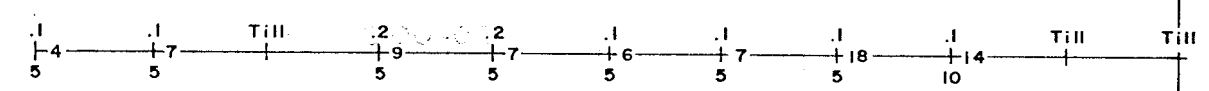
90+00 S



90+00 S

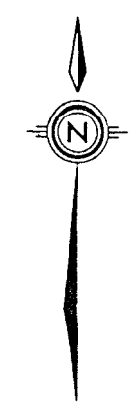
.1  
+6  
5

120+00 S



120+00 S

150+00 W 120+00 W 90+00 W 60+00 W 30+00 W 0+00



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

12,066

LEGEND

- Claim Post
- Claim Boundary
- Ag  
— As  
— Au — Grid Line & Assay Results
  - Ag - ppm
  - As - ppm
  - Au - ppb

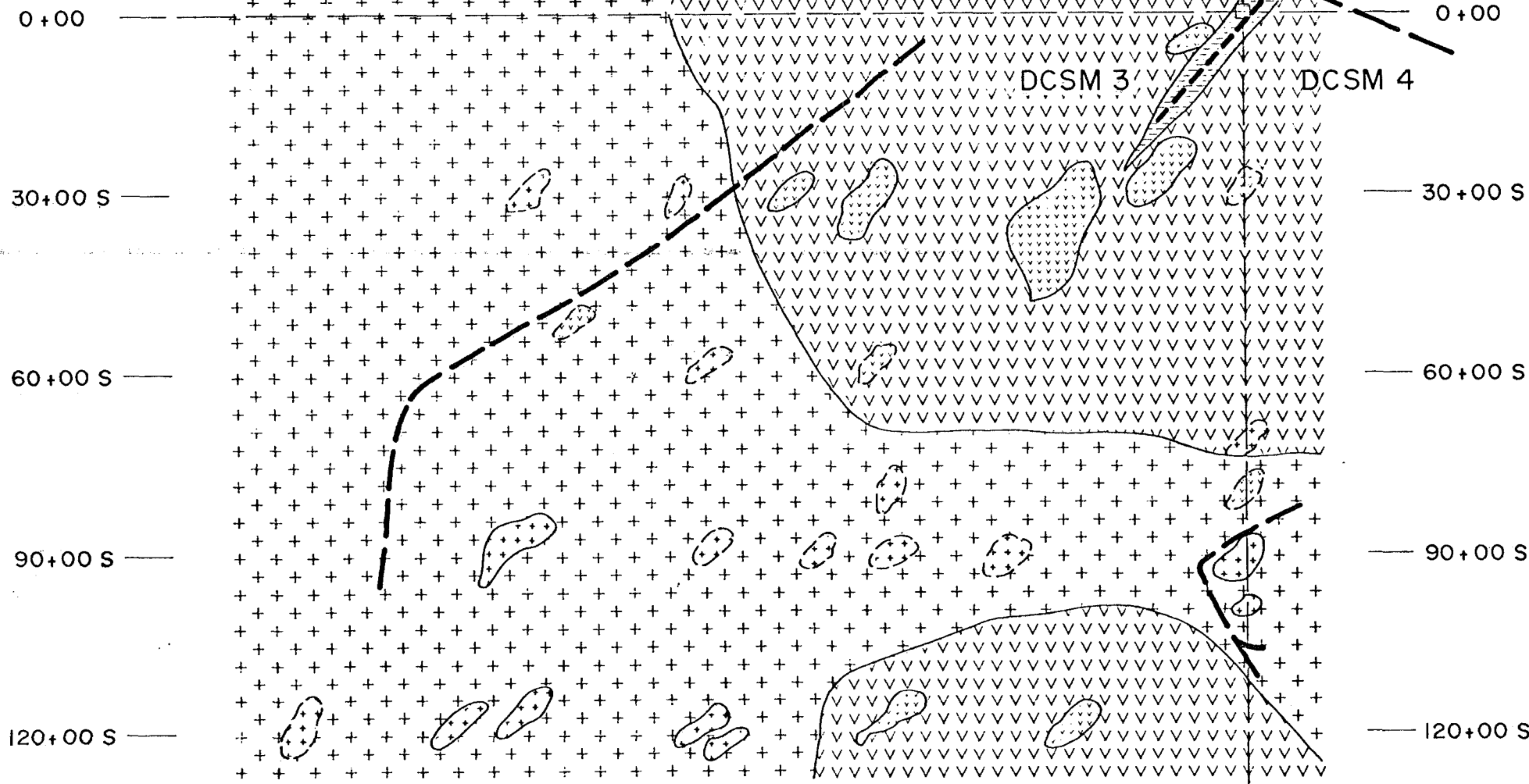
MINTEK RESOURCES LTD.  
 TOP MINERAL CLAIMS  
 FIGURE 7 N.T.S. 82E/6E  
**ASSAY RESULTS - Ag, As, Au**  
 COLBY AREA

Metres 10 0 10 20 30 40 50 Metres

SCALE: 1:1000  
 DATE: FEBRUARY 1984  
 GEOLOGIST: I.R. CORVALAN  
 DRAWN BY: S. HAWORTH

50+00 S

150+00 W 120+00 W 90+00 W 60+00 W 30+00 W 0+00



150+00 W 120+00 W 90+00 W 60+00 W 30+00 W 0+00



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

12,066

LEGEND

- Claim Post
- Claim Boundary
- Road
- Float
- Outcrop
- vvvv Porphyry Rhyolite
- ++ Diorite
- ▨ Quartzite
- - - Vein

MINTEK RESOURCES LTD.

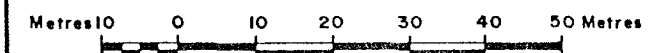
TOP MINERAL CLAIMS

FIGURE 8

N.T.S. 82E/6E

GEOLOGICAL MAP

COLBY AREA

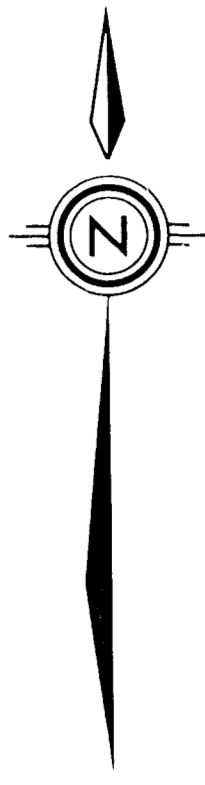
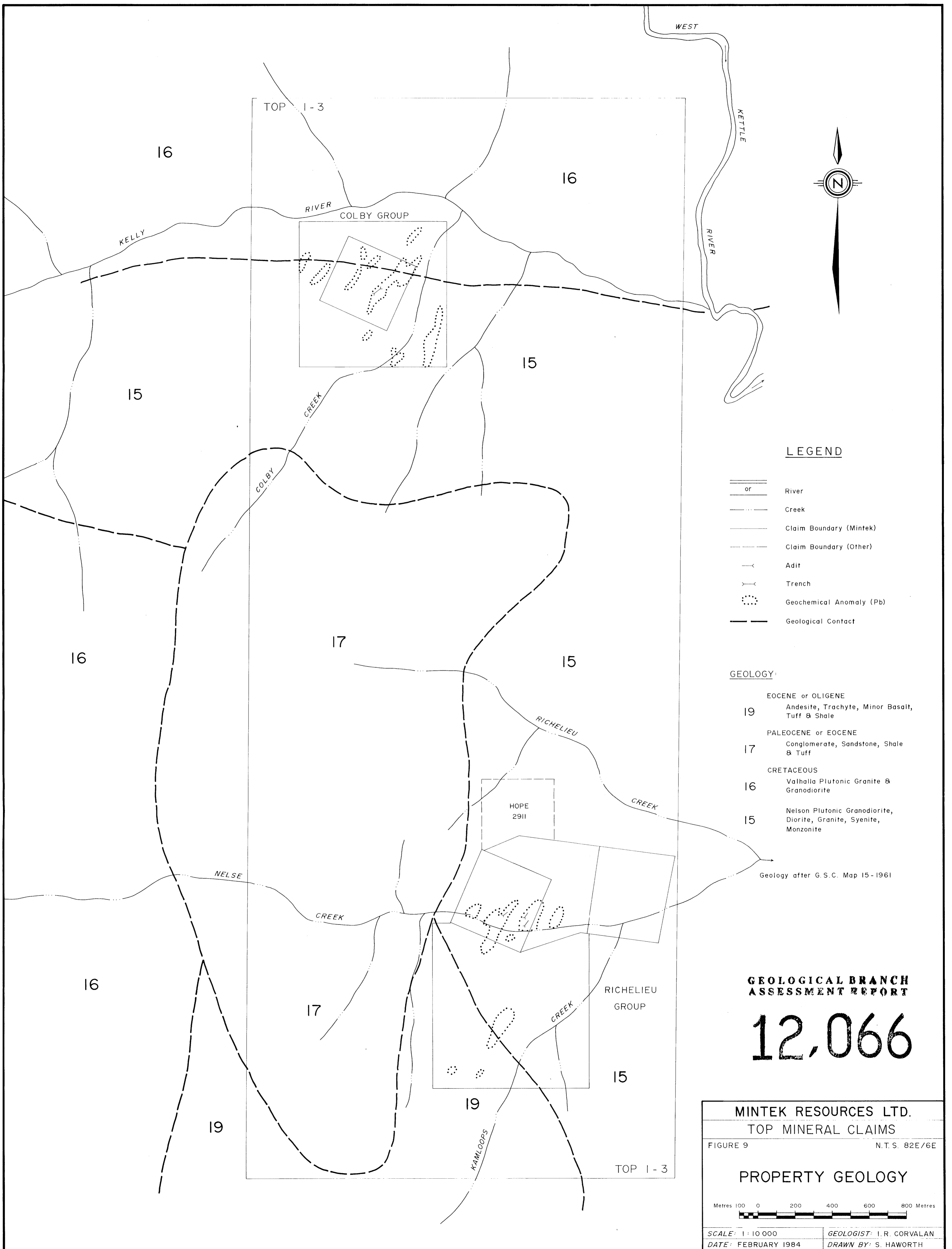


SCALE: 1:1000

GEOLOGIST: I.R. CORVALAN

DATE: FEBRUARY 1984

DRAWN BY: S. HAWORTH



**LEGEND**

- or River
- Creek
- Claim Boundary (Mintek)
- Claim Boundary (Other)
- Adit
- Trench
- Geochemical Anomaly (Pb)
- Geological Contact

**GEOLOGY:**

- EOCENE or OLIGENE**
- 19 Andesite, Trachyte, Minor Basalt, Tuff & Shale
- PALEOCENE or EOCENE**
- 17 Conglomerate, Sandstone, Shale & Tuff
- CRETACEOUS**
- 16 Valhalla Plutonic Granite & Granodiorite
- 15 Nelson Plutonic Granodiorite, Diorite, Granite, Syenite, Monzonite

Geology after G. S. C. Map 15-1961

**GEOLOGICAL BRANCH ASSESSMENT REPORT**

**12,066**

MINTEK RESOURCES LTD.	
TOP MINERAL CLAIMS	
FIGURE 9	N.T.S. 82E/6E
<b>PROPERTY GEOLOGY</b>	
SCALE: 1:10 000	GEOLOGIST: I. R. CORVALAN
DATE: FEBRUARY 1984	DRAWN BY: S. HAWORTH