

GEOPHYSICAL REPORT
Gen Nos. 1 and 2 Mineral Claims
Ingenika River Area - 220 mi. north
of Prince George; (56°, 125° NE)
A.C. Taplin M.A. (Author)
R.G. McEachern B.Sc. P.Eng.
Sept. 7 - 14, 1956 94C/11E

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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED

ELECTROMAGNETIC SURVEY OF GEN MINERAL CLAIMS 1, 2 - OMINECA
MINING DIVISION

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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED

GEOLOGICAL DIVISION

ELECTROMAGNETIC SURVEY OF GEN 1, 2 M.C., INGENIKA AREA
OMINECA MINING DIVISION

GENERAL

This report and accompanying map are submitted for the purpose of recording as assessment work the required portion of the direct field cost entailed in conducting a McPhar E.M. survey on the above claims.

Applications for certificates of work will be submitted for each of Gen claims Nos. 1, 2. The sum of \$100.00 is requested for each claim as work fulfilled by the reported survey.

PROPERTY AND OWNERSHIP

Gen No. 1 M.C.	Record No. 10087	Tag No. 212807
Gen No. 2 M.C.	Record No. 10088	Tag No. 212808

100% owned by Cominco.

LOCATION AND ACCESS

Gen 1, 2 M.C. are located on the north side of Delkluz Lake and adjoining the southern boundaries of Crown granted claims. Ingenika No. 11, 12 and Dorita No. 3 (Lot Nos. 5001, 5002, 5004 respectively). The Crown granted claim Butler, L. 5003 adjoins to the west of Gen No. 1. All of these claims are located in Omineca Mining Division.

Approximate coordinates are latitude $56^{\circ} 40'$ north, longitude $125^{\circ} 10'$ west. Delkluz Lake is some two miles south of the Ingenika River and some 20 miles westerly from the junction of this river with the Finlay River.

The area may be reached by river boats embarking at either Tudyah or McLeod Lakes on the Hart Highway and following a route via Parsnip, Finlay and Ingenika Rivers. An alternate mode of travel and transport is by charter float-equipped aircraft from either Prince George or Fort St. James. Delkluz Lake is approximately 220 air miles north of Prince George.

INTRODUCTION

Gen Nos. 1 and 2 mineral claims enclose ground that is entirely drift covered, and forested with moderately dense spruce and poplar. Gentle slopes towards Delkluz Lake are prevalent. The steep northeastern slope of Lookout Hill commences near the westerly ends of the E.M. survey grid. This prominent hill is underlain by limestone which is a sub-division of the Ingenika Group.

SURVEY PERSONNEL

The work was performed under the general supervision of R. G. McEachern (Professional Engineer, British Columbia), Assistant to the Chief Geologist. A. C. Taplin, graduate geologist (M.A. - U.B.C.) was in direct charge of the survey. Three student assistants were employed under close supervision, as chain and compass-men, linecutters, and as transmitter operators.

TYPE OF EQUIPMENT

A large coil type of McPhar electromagnetic clinometer was used for the survey. The essential equipment consists of a portable motor generator and transformer supplying high frequency (1,000 cycles/sec.) alternating current, a vertical transmitting coil and a horizontal receiving coil equipped with amplifier and earphones.

PRINCIPLES OF OPERATION

A current is induced in suitable buried conductors by the transmitting coil. The field produced in such a conductor has components that are both in and out of phase with the primary field due to the transmitting coil. The horizontal receiving coil balances the in-phase secondary field against the primary field. This balance occurs when a "null" is evident in the earphones, i.e. when the in-phase secondary field is not transecting the horizontal receiver coil to produce an audible note.

Graphite and massive sulphide bodies provide the best conductors. Sphalerite without other associated sulphides is a poor conductor. The McPhar apparatus is not sensitive to disseminated sulphides or to common bedrock formations.

FIELD PROCEDURE

The transmitting coil is suspended in a vertical plane which can be rotated to coincide with the various bearings to the receiving coil as readings are taken along predetermined grid lines. The readings are obtained by tilting the receiving coil in a vertical plane normal to the bearing between it and the transmitter. A clinometer attached to the receiver permits measurement of dip angles. The angles recorded are those where the "null" occurs.

If the position or trend of a conducting body is known or inferred from geological information, a base line is laid out along this bearing and readings taken along cross lines spaced at intervals of 400 feet. This spacing may be decreased to 200 or 100 feet if it is desired to outline an indicated conductor in detail. Similarly, the distances between preliminary readings on the cross lines is often 100 feet but may be increased to 200 feet or decreased to 50 feet depending on the type of coverage required.

Readings are recorded as the degrees of tilt and the direction (right or left), as well as sharpness of the null point and intensity of the signal. By convention left readings are considered as positive and right readings as negative. By plotting profiles of each traverse made from the one location of the transmitter, the presence or absence of conductors can be indicated. Variations of three or more degrees are generally considered as indicating a conductor and the shape of the profile can be used to give some indications of depth, dip and width.

Linear trend is determined from study of successive profiles.

In an area where nothing is known of the attitude or possible location of sub-surface conductors, a preliminary coverage is normally made on a grid pattern. Additional grid lines are laid out to test conductors indicated by the preliminary survey. The most satisfactory results are obtained when the transmitter is directly over a sub-surface conductor. An affective range of 2,000 feet on either side of the transmitter is possible. Dip readings measured on traverses across a base line trending 180° relative to the previous base line will be measured with opposite directions of dip which are transposed on plotting.

Under ideal conditions the receiver coil operator is in view of the transmitter operator and the transmitting coil can be oriented by direct sighting. This is not generally the case and the transmitting coil is oriented for successive locations of the receiver coil by means of an orienting device. Traverses are conducted by maintaining a rigid time schedule kept by both operators, unless communication can be established between them during coverage of the closer grid lines.

SURVEY OF GEN NOS. 1, 2 MINERAL CLAIMS

On this survey a base line was laid out along N 45° E from the witness posts on the lake shore. This trend was chosen because of the prominent lineament evident along the northeastern edge of outcrop on Lookout Hill. The base line was slashed out and chained with numbered stakes placed at 400-foot intervals. Traverse lines were blazed for 1,200 feet to the northwest of and normal to the base line and for variable distances up to 1,200 feet southeasterly, depending on the distance to the shore of Delkluz Lake. Accurate chaining was performed on all grid lines with corrections made for slope distances.

As the preliminary traverses indicated one or more conductors with a trend parallel to the base line, intermediate traverse lines were laid out to outline the linear extent. Transmitter set-up Nos. 2, 3, 4 were occupied successively to check on the extent of individual conductors.

SURVEY RESULTS

The preliminary traverses showed high readings along the western edge of the grid, and prominent "cross-overs" along the profiles indicating one or more strong conductors. Detailed surveys with the transmitter located directly over the axis of the inferred conductors produced more subdued profiles, which still indicated a generally uniform trending but weaker conductor parallel to the prominent lineament along the southeastern edge of Lookout Hill. This lineament is considered to be along a fault-line scarp. The conductor is located some 500 feet to the southeast of the toe of the scarp. The fault is probably a zone along which conductive material, such as graphite, is developed only where carbonaceous beds are intersected down the dip. The possibility of a sulphide conductor is also considered. Graphitic beds and graphitic shear zones are known to occur locally along the Swannell River some three miles to the south. Presence of similar beds in this generally drift covered area is purely speculative.

EXPENDITURES

Direct field costs of the survey crew only are considered. The students were hired on the basis of a monthly wage, plus board and lodging in the field. Our cost per man day is therefore salary plus cost of board and lodging at Ingenika Mine camp, plus cost of transportation for personnel and supplies, plus the cost of personnel services.

A breakdown on cost/man day exclusive of salaries is as follows:

Board	\$ 4.87	
Lodging	1.30	
Transportation	6.00	
Personnel Services	1.85	(Average - includes medical plans, holiday pay, overhead, etc.)
	<hr/>	
Total	\$ 14.02	

The survey was conducted during the period September 7 - 14 inclusive, comprising a total of seven working days. Five of these days were actually spent on the Gen 1, 2 claims.

Details on the crew and relative costs are as follows:

	<u>Daily</u> <u>Wage</u>	<u>Board &</u> <u>Expenses</u>	<u>Total</u>
R. F. Snowball - student assistant (two previous seasons' experience with McPhar E.M. surveys)	\$ 9.50	\$ 14.02	\$ 23.52
L. S. Redivo - student assistant	8.50	14.02	22.52
D. J. Hughes - student assistant	8.50	14.02	22.52
A. C. Taplin - graduate geologist in charge. (two previous seasons' experience with McPhar E.M. surveys)	15.00	14.02	29.02
R. G. McEachern- graduate geologist, P.E.) General Supervisor)			no time charged

Recorded cost of the survey is as follows:

Snowball	5 working days	@\$23.52	-	\$ 117.60
Redivo	5 " "	@\$22.52	-	112.60
Hughes	5 " "	@\$22.52	-	112.60
Taplin	5 " "	@\$29.02	-	145.10
McPhar Equipment Rental Charge		@\$12.00 per day	-	<hr/> 60.00
Total direct field expenditures				\$ 547.90

QUALIFICATIONS

This report was prepared by A. C. Taplin, geologist in charge of exploration at Ingenika Properties during the 1956 field season. During the period 1951-55, he has spent two seasons conducting electromagnetic surveys at Anyox and in the Kimberley area.

Cost figures were supplied by E. H. Caldwell, Exploration Superintendent Western District, and certified by Cominco accountants. R. G. McEachern has checked the report and map and acted in a supervisory capacity throughout the course of this work.

ATTACHMENTS - 200-scale plan of E.M. Survey, Gen
Mineral Claims Nos. 1, 2
Plate IN-8

Submitted by

A. C. Taplin
A. C. Taplin, Geologist,
The C. M. & S. Co. Ltd.

Endorsed by

R. G. McEachern, P. Eng.
R. G. McEachern, Assistant
to the Chief Geologist,
The C. M. & S. Co. Ltd.

ACT:gmc
Western District Exploration Office
December 3, 1956

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Geological Division (1)
Mines Division (2)
Western Exploration Office (2)

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED

ELECTROMAGNETIC SURVEY OF GEN MINERAL CLAIMS NOS. 1 AND 2

EXPENDITURE STATEMENT
(PERIOD - 5 DAYS)

(Jan. 1 - Oct. 31, 1956)

The Ingenika Camp was constructed and operated to accommodate general roll employees, geological staff employees and engineering staff employees for the purpose of geological mapping, geophysical surveying, geochemical soil sampling, trenching and constructing trails on the Ingenika, Indian, Dell, Gen and Swannell claims. To arrive at a reasonable and accurate expenditure for each of the above types of work, the following expenditure categories were used and computed as a cost per man-day:

- (1) Board) Unit cost is obtained by dividing
- (2) Lodging or Camp Construction and Maintenance) each total cost by
- (3) Transportation for personnel, supplies and equipment to and from the nearest supply base at Prince George) the number of man-days spent on the property by all personnel.
- (4) Overhead - includes purchasing, personnel and accounting services) Unit cost obtained by dividing total overhead by total man-days employed.
- (5) Payroll Loading - includes charges for vacation, medical plans, pension plans, unemployment insurance, etc.) Unit cost obtained by dividing total geological payroll loading by total geological man-days employed.

Unit Cost Calculations (Excluding Salaries)

	<u>Total Cost</u>	<u>Man-Days</u>	<u>Cost/man-day</u>
Board	\$ 4,251.70	872	\$ 4.87
Lodging	1,133.05	872	1.30
Transportation	5,229.90	872	6.00
Overhead	1,000.68	974	1.03
Payroll Loading	520.94	637	0.82
	<u>\$ 12,136.27</u>		<u>\$ 14.02</u>

Direct Cost of Geophysical Survey (5 days)

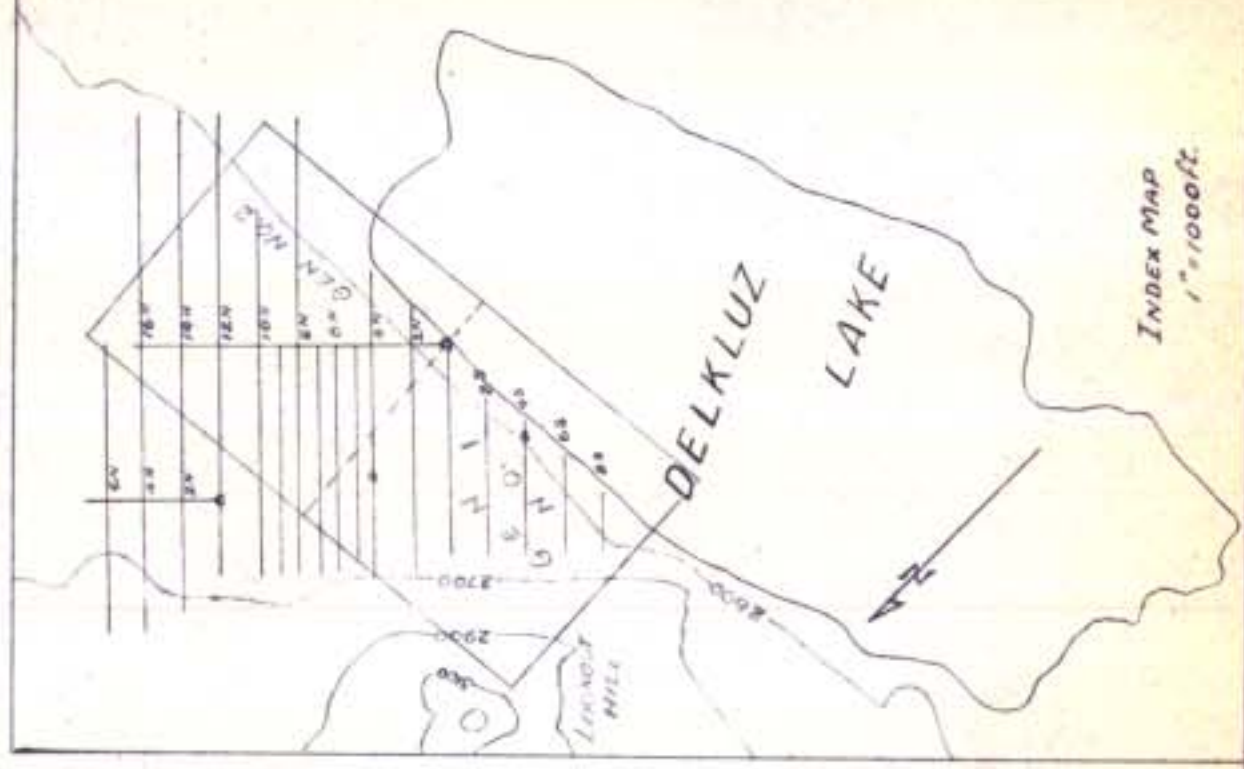
Salaries

R. F. Snowball	- 5 days at \$9.50/day	- \$ 47.50	
L. S. Redivo	- 5 " " 8.50/day	- 42.50	
D. J. Hughes	- 5 " " 8.50/day	- 42.50	
A. C. Taplin	- 5 " " 15.00/day	- 75.00	207.50
Board	- 20 man-days at \$4.87/man-day		97.40
Lodging	- 20 " " " 1.30/man-day		26.00
Transportation	- 20 " " " 6.00/man-day		120.00
Overhead	- 20 " " " 1.03/man-day		20.60
Payroll Loading	- 20 " " " 0.82/man-day		16.40
McPhar Equipment Rental	- 5 days at \$12.00/day		60.00
Total Direct Field Expenditures			<u>\$ 547.90</u>

CERTIFIED BY: [Signature]
Branch Accountant

[Signature]
E. H. Caldwell
Western District Exploration
Superintendent

INDEX MAP
1"=1000ft.



LEGEND

▲ Transmitter station

■ Claim post

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **154** MAP # **1**

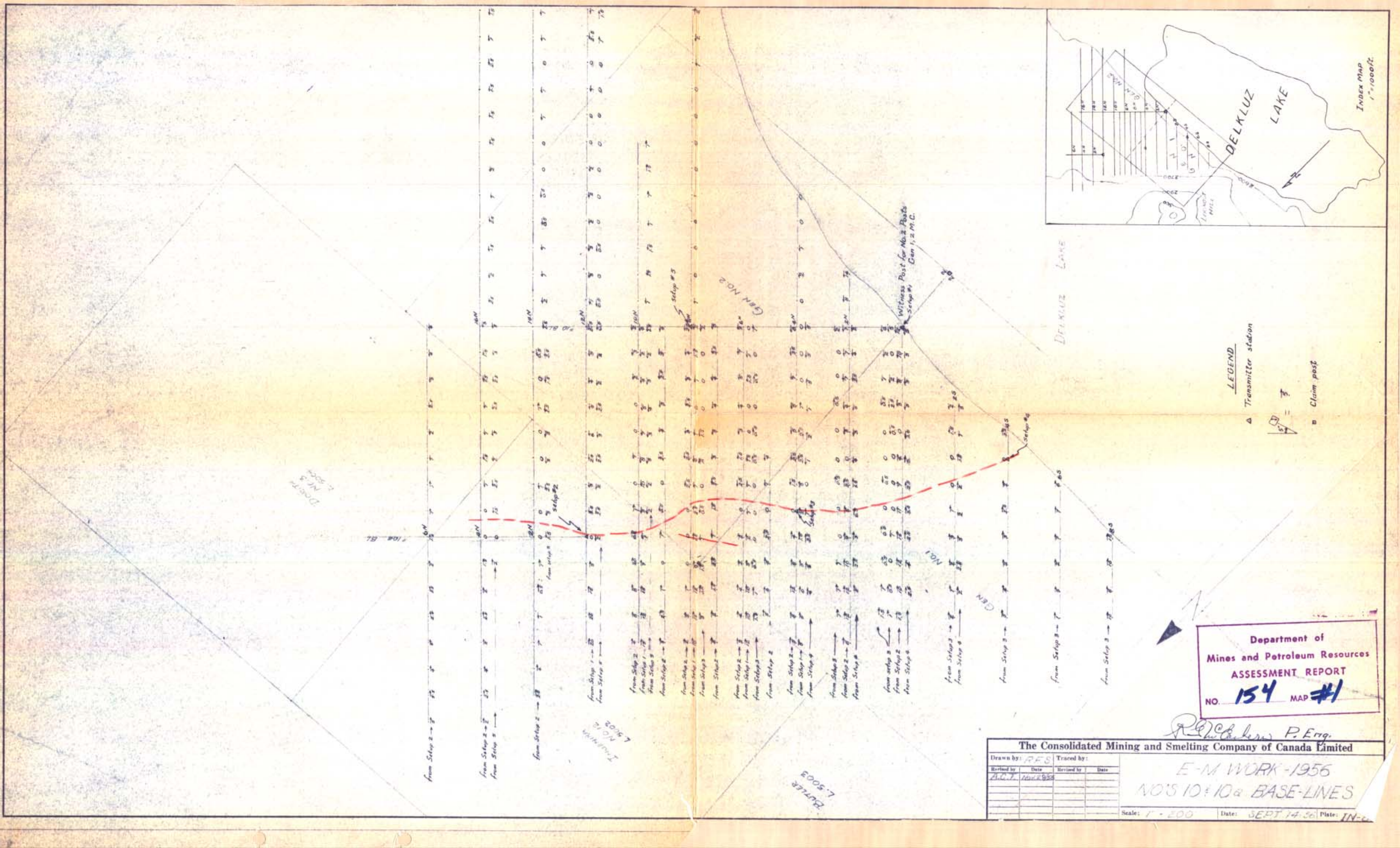
R.C. [Signature] P. Eng.

The Consolidated Mining and Smelting Company of Canada Limited

Drawn by:	RES	Traced by:	
Revised by:	ADT	Revised by:	
Date:	16/2/55	Date:	

E-M WORK-1956
NO'S 10 & 10A BASE-LINES

Scale: 1" = 200' Date: SEPT 14, 56 Plate: IN-6



*DEPT
NO. 5
12-2000*

*ENGINEER
NO. 12
L. 5003*

*BUTLER
L. 5003*