

# **GEOSEARCH CONSULTANTS LIMITED**

**TURAM ELECTROMAGNETIC SURVEY**  
for **5549**  
**IMPERIAL OIL LIMITED, MINERALS SECTION**  
on portions of the  
**KUTCHO CREEK PROPERTY**  
**Liard Mining Division, B. C.**  
**(To Accompany Maps 75-240, 75-241)**

**August 27, 1975.**

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5599 AMP

INTRODUCTION

A Turam electromagnetic survey was carried out for Imperial Oil Limited, Minerals Section, on a portion of the Kutcho Creek Property, B. C. in July, 1975.

The property is located approximately 120 miles south of Watson Lake and 65 miles west of Dease Lake. Access was made by aircraft from Watson Lake, Yukon.

This survey was carried out in an attempt to locate sub-surface geo-electrical conductors which might prove to be base metal orebodies. Several conductors were located. The accompanying maps show the areas surveyed and the results obtained.

## METHOD AND INTERPRETATION OF RESULTS

### Turam Electromagnetic Survey

The model 2S Turam equipment was used for this survey. It was manufactured and developed in Sweden by the ABEM Instrument Group of the Craelius Company.

In common with other electromagnetic inductive systems the Turam method is based on the fact that a secondary current is induced in an electrical conductor when the conductor is subjected to an electromagnetic field. This secondary current creates its own electromagnetic field which, together with the primary applied field, produces a resultant electromagnetic field. This resultant field, which can be detected and measured, differs both in phase and amplitude from the calculated primary field; these differences may indicate the presence of a conductor.

The primary alternating field is created by the use of a large horizontal rectangular loop, energized by a current at 660 Hz or 220 Hz. The receiving system consists of two coils 100 feet apart, connected to a compensator-amplifier which measures the complex field-strength ratios and phase-differences between successive points on traverses outside and perpendicular to a long side of the primary loop. Both the phase-difference readings and the reduced field-strength ratios are plotted as curves at points mid-way between the coil positions. The reduced ratios are the measured ratios divided by the normal ratios. The normal ratios may be calculated from the geometry of the primary loop and from the location of the points at which the readings were taken in relationship to the loop.

The conductivity of steeply dipping conductors may be estimated from the following chart:

Ratio Anomaly > 1.00	Negative Phase-difference	Conductivity
Very small or nil	Small to medium	Very poor
Small	Medium to large	Poor
Large	Medium	Good
Large	Small	Very good

In areas of conductive overburden, the amplitudes of anomalous readings, both the phase and the ratio, increase as their distance from the primary loop increases.

## RESULTS

A broad conductive zone containing several generally poorly-defined conductors was located between 31N and 36+50N, Line 140W and 25+50N, Line 84W on Map 75-240. The strongest conductor is on Line 140W at 31N where the amplitudes are high -- indicative of a shallow depth.

A conductor, which appears to be quite shallow, was located from Line 140W at 16+50N (Map 75-240) to Line 96W at 6+50N (Map 75-241). The portion of the conductor on Lines 104W and 112W has large amplitudes and high conductivity.

An anomalous area has been indicated on Map 75-241 from 15S to 23S on Line 76W to 22+50S on Line 48W. The conductivity is low and the conductors are poorly defined. This may indicate a conductive rock type rather than several individual conductors.

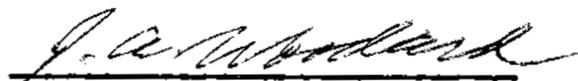
RECOMMENDATIONS

The conductors in the following locations stand out as having the highest amplitudes and the best conductivities:

Line 140W	31N	Map 75-240
Line 116W	9N	Map 75-241
Line 112W	8N	Map 75-241
Line 108W	7+75N	Map 75-241

The results of this survey indicate that initial exploration should be directed to the above conductors on Lines 140W and 108W.

Respectfully submitted,  
GEOSEARCH CONSULTANTS LTD.

  
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