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LOGISTICAL REPORT

CRONE SURFACE
INLOOP PEM SURVEY

SENECA PROJECT 092H/05
AGASSIZ AREA, BRITISH COLUMBIA

on behalf of

METALL MINING CORP.
3rd Floor, 311 Water St.
Vancouver, B.C. V6B 1B8

Field work completed
August 24 to November 9, 1993

by

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November 24, 1993

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1. INTRODUCTION

A surface Inloop Pulse EM survey was performed on several grids of the Seneca Project, near Agassiz, B.C., by Scott Geophysics Ltd. on behalf of Metall Mining Corp. The field work was done at various times over the period of August 24 to November 9, 1993.

The surface Inloop surveys consisted of ten double turn loops approximately 1 km x 1 km in size on six grids of the Seneca Project, namely the Vent (two loops), West Vent, Vaughan (two loops), Seneca, Statlu West (two loops), and Statlu East (two loops). The dBz/dt and dBx/dt components of the secondary magnetic field were measured at all stations.

This report presents the results of the survey, describes the instrumentation and procedures, and gives the approximate location of selected conductors detected on the survey.

2. PERSONNEL

Jim Hawkins, Geophysicist, was the party chief on the survey and acted as primary operator of the PEM receiver. Steve McMenemy of Crone Geophysics replaced him from September 30th to November 9th. The two or three Scott Geophysics assistants were made up from the following personnel; Scott Benson, Pat Mullan, Gord Stewart, John Reaume, Jim Laird, Trevor Shephard, Eric Hards, and Mitch Davies. Colin Burge, Geologist, was the Metall representative for the survey.

3. INSTRUMENTATION AND PROCEDURES

A Crone 20 channel digital PEM receiver and a Crone 2000 watt PEM transmitter were used on the surface Inloop PEM surveys.

A double turn of 10 or 12 gauge wire approximately 1 km x 1 km was laid around the areas of interest and lines surveyed within the transmitter loop, to get the optimum coupling with flat lying conducters. The dBz/dt and dBx/dt components were recorded every 50 metres, with closer readings taken to detail any anomalies.

Time reference between the receiver and transmitter was maintained by radio link for the first five loops (Vent, West Vent, and Vaughan grids), but the rough terrain and poor access resulted in some gaps in the radio sync. The last five loops (Seneca, Statlu West, and Statlu East grids) were surveyed using crystal clocks as the time reference.

The receiver/transmitter settings were constant for the entire survey, namely; Ramp - 1.5 ms, Time Base - 16.6 ms, Current - either 11 or 12 amps (peak to peak), and Stacking - 512.

The survey data was archived, processed, and plotted using a Texas Instrument TI3000 microcomputer running Crone PEM and proprietary software.

4. SURFACE INLOOP PEM SUMMARY

Vent Grid - Loop #1

Surveyed August 25th to 27th.
Loop corners - 9000E 450N, 9000E 350S, 8000E 300S, 8000E 450N.
Survey lines - L8100E,250S-600N; L8300E,250S-600N; L8500E,300S-550N;
L8700E,325S-700N; L8900E,300S-700N.
Loop current - 11 amps.

Vent Grid - Loop #2

Surveyed August 30th to 31st.
Loop corners - 8100E 800N, 8100E 125S, 7150E 125S, 7150E 800N.
Survey lines - L7200E,250S-750N; L7400E,300S-750N; L7600E,0-750N;
L7800E,150S-750N; L8000E,200S-750N.
Loop current - 11 amps (6.5 amps for L8000E AND L7800E).

West Vent Grid - Loop #3

Surveyed September 12th to 14th.
Loop corners - 7100E 800N, 7100E 300S, 6350E 300S, 6350E 800N.
Survey lines - L6400E,275S-775N; L6600E,275S-775N; L6800E,275S-750N;
L7000E,275S-775N.
Loop current - 11 amps.

Vaughan Grid - Loop #4

Surveyed September 18th to 19th.
Loop corners - 5950E 600N, 5950E 325S, 5000E 325S, 5000E 600N.
Survey lines - L5100E,350S-575N; L5300E,400S-575N; L5500E,500S-575N;
L5700E,300S-525N; L5900E,500S-500N.
Loop current - 11 amps.

Vaughan Grid - Loop #5

Surveyed September 22nd to 24th.
Loop corners - 5000E 650N, 5000E 375S, 4000E 375S, 4000E 650N.
Survey lines - L4100E,150S-800N; L4300E,300S-850N; L4500E,450S-850N;
L4700E,450S-750N; L4900E,325S-700N.
Loop current - 11 amps.

Seneca Grid - Seneca Loop

Surveyed October 2nd to 5th (25 m station interval).
Loop corners - 400W 450S, 400W 600N, 600E 600N, 600E 450S.
Survey lines - L500E,375S-150N; L300E,375S-575N; L100E,375S-575N;
L0, 100S-125N; L100W,375S-575N; L300W,375S-575N.
Loop current - 10 amps.

Statlu West Grid - Loop #6

Surveyed October 9th to 10th.
Loop corners - 6200E 1800S, 6200E 800S, 5200E 800S, 5200E 1800S.
Survey lines - L5500E,1750S-850S; L5700E,1750S-850S; L5900E,1750S-850S;
L6100E,1775S-850S.
Loop current - 12 amps.

Statlu West Grid - Loop #7

Surveyed October 11th to 13th.
Loop corners - 7200E 1800S, 7200E 800S, 6200E 800S, 6200E 1800S.
Survey lines - L6300E,1750S-850S; L6500E,1750S-850S; L6700E,1750S-850S;
L6900E,1750S-850S; L7100E,1750S-850S.
Loop current - 11 amps.

Statlu East Grid - Loop #8

Surveyed October 24th to 25th.
Loop corners - 7000E 1500S, 7000E 500S, 8000E 500S, 8000E 1500S.
Survey lines - L7100E,1450S-550S; L7300E,1450S-550S; L7500E,1450S-550S;
L7700E,1450S-550S; L7900E,1450S-550S.
Loop current - 12 amps.

Statlu East Grid - Loop #9

Surveyed November 2nd, 3rd and 8th.
Loop corners - 8000E 1500S, 8000E 500S, 9000E 500S, 9000E 1500S.
Survey lines - L8100E,1450S-550S; L8300E,1450S-550S; L8500E,1450S-550S; L8700E,1450S-550S; L8900E,1450S-550S.
Loop current - 12 amps.

5. RECOMMENDATIONS

A preliminary examination of the results of the Inloop PEM survey on the various grids of the Seneca Project show numerous high-frequency, single station anomalies that would appear to be shallow cultural responses. This would most likely be caused by buried logging cables, which are quite numerous in the survey area.

The very high background response found on the Statlu East grid data is probably due to the thick clays found in the area. Some sharp cultural responses are also evident.

The X component data from the Seneca grid indicates a deep conductor on the northern part of the lines. There is little corresponding Z component response, but this anomaly should be checked further.

A detailed interpretation of these results, and correlation to geological and geochemical data, is required before any specific recommendations could be made.

Respectfully submitted,

James P Hawkins

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