

The Maps: 98-1A and 1B; 98-2A and 2-B; 98-3 plus extra copies have no PDF format in PDF report database.

The paper copies are in Laurentian Library in Sudbury.

SOUTH BAY

MINE SITE

EM34 ELECTROMAGNETIC SURVEY

September, 1998

To 411
December 21, 1998

Ms. Margarete Kalin
BOOJUM RESEARCH LIMITED
468 Queen St. East, Suite 400
Toronto
Ontario M5A 1T7

Dear Margarete,

Please find enclosed two sets of five maps and one drawing presenting results of a survey conducted in Mine Site area in South Bay during September, 1998. Below I will describe shortly our findings.

EM34-3 Survey

The survey results are presented on 5 colour maps of soil conductivity:

- Map 98-1A contains results of the survey conducted at 10 m coil separation (depth of investigation is approximately 0 to 7.5 m) along survey lines oriented in N-S direction,
- Map 98-1B contains results of the survey conducted at 10 m coil separation (depth of investigation is approximately 0 to 7.5 m) along survey lines oriented in W-E direction,
- Map 98-2A contains results of the survey conducted at 20 m coil separation (depth of investigation is approximately 0 to 15 m) along survey lines oriented in N-S direction,
- Map 98-2B contains results of the survey conducted at 20 m coil separation (depth of investigation is approximately 0 to 15 m) along survey lines oriented in W-E direction,
- Map 98-3 contains results of the survey conducted at 40 m coil separation (depth of investigation is approximately 0 to 30 m) along survey lines oriented in N-S direction,

The EM34-3 conductivity surveys of the entire Mine site were conducted during winter of 1992 and 1995. The study conducted during September 1998 focussed on the western and eastern ends of the site, near Confederation Lake and North and East of Mill Pond. This year survey that was performed without snow cover allowed operators to place instrument antennas away from visible metallic debris, therefore acquired data may contain less interferences originated by cultural sources.

One additional survey line 25E was surveyed during this year survey in area adjacent to Confederation Lake. Data taken along this line allowed to observed lack of continuity of high amplitude anomaly located between RR and shore of the lake (along 0N) on Map 98-1A (coil

separation 10m). The same anomaly on Map 98-1B (larger depth of penetration) appears to be better delineated, however its amplitude is of lower conductivity (approximately 14 mS/m) than measured during 1992 survey (above 20 mS/m) indicating possible change of subsurface conditions in this area during last six years. The 1995 survey in the area of this anomaly indicates interferences which distort this anomalous zone. Material causing higher conductivity readings in this area appears to be relatively shallow since Map 98-3 (the deepest measurements) does not show increased readings in anomalous area indicated by shallower surveys.

Additional data taken along line 25E confirm higher conductivity path oriented SW-NE (located between the Confederation Lake and borehole 18). Conductivity in this anomalous zone is similar to conductivity measured during former surveys, approximately 12 mS/m for coil separation 10 m, and below 7 mS/m for separation 20 m. Higher conductivity readings were not detected at deeper measurements (40 m coil separation), Map 98-3, indicating its relatively shallow nature. This anomaly may indicate presence of trench like feature filled with fine grain, more conductive soil material.

The survey conducted in Mill Pond area allowed to detect one very high conductivity anomaly (approximately 450E and 10 to 30N). The same anomaly was detected during the 1995 survey. This type of anomalous response is likely associated with interferences originated by metallic objects. This anomaly may represent a reinforced concrete pad.

Conductivity values in area adjacent to Mill Pond appear to be slightly lower than values measured during 1995. At the same time zone of increased conductivity is of smaller spatial extent. This difference is probably even larger, assuming that measurement taken on snow cover (at height of 1 to 1.5 m) would likely provide lower readings.

The electromagnetic method applied during investigations of Mine Site detects electrical changes in soil material. These changes are relatively high in acid generating areas. The EM34-3 measurements are also relatively susceptible to cultural noise originated by surface and subsurface metallic structures, which are present within this site. For above reason, any attempt to investigate depth to bedrock in Mine Site area may likely lead to non conclusive interpretation.

Yours truly,

A handwritten signature in black ink, appearing to be 'JP' followed by a long horizontal flourish.

Jerzy Pawlowski, M.Sc.
Geomar Geophysics Ltd.