The Lalor deposit is approximately 15 kilometres from the HudBay concentrator in Snow Lake, Manitoba, an area that is a significant lead producer of gold. The Lalor Deposit is located in the Chast Lake portion of the Pinion Greenstone Belt and is believed to be the largest VMS deposit found in this region to date. For more details on the Lalor deposit, including the resource estimate for the zinc-rich base metals zone and the conceptual estimates of the potential Gold zone, please refer to the HudBay website at www.hudbayminerals.com.

The survey was conducted using transmitter loops already in place as shown in the accompanying figure. Lines T1000 and Lines T1700 were surveyed with the Jessy HTS SQUID at a transmitter frequency of 1.6 Hz using the large transmitter loop. Line T1700 was also surveyed with an induction coil at a transmitter frequency of 1 Hz with the large transmitter loop. Lines T9000 and T2650 were surveyed with the JESSY HTS SQUID at a transmitter frequency of 0.5 Hz using the smaller east loop.

Maxwell (EMIT at www.electromag.com.au) was used to interpret the data with a controlled inversion process. In this case, an interpreted model was made with Maxwell using all 4 profiles simultaneously. A constrained inversion using late-time channels 25 - 34 (22 ms to 125 ms) was performed with the strike and dip direction constrained from the geological data. The later time gates are essential for high conductivity targets. TDEM surveys at 30 Hz (8 ms) are not suitable. Long stacking improved the signal at late times and resulted in the detection of the Lalor deposit. The Jessy SQUID shows very stable and clean decays. The figures on the right show a comparison of the induction coil (8 repeats at 296 stacks) and the Jessy SQUID (10 repeats at 64 stacks). The figures on the left shows the Jessy SQUID at 1.6 Hz (10 repeats at 64 stacks) and 0.5 Hz (10 repeats at 32 stacks).

The profile data from the Jessy HTS SQUID is comparable (if not cleaner) than the existing fluxgate and Landtem SQUID data, although the target is easily detected by all three sensors.

The authors would like to acknowledge the management of Hudbay Minerals Inc. and all those who have been instrumental in supplying information and supporting the use and application of Jessy HTS SQUID in an effort to expand the limits of exploration technology.

**INTRODUCTION**

The Lalor deposit is approximately 15 kilometres from the HudBay concentrator in Snow Lake, Manitoba, an area that is a significant lead producer of gold. The Lalor Deposit is located in the Chast Lake portion of the Pinion Greenstone Belt and is believed to be the largest VMS deposit found in this region to date. For more details on the Lalor deposit, including the resource estimate for the zinc-rich base metals zone and the conceptual estimates of the potential Gold zone, please refer to the HudBay website at www.hudbayminerals.com.

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**SURVEY LAYOUT**

The survey was conducted using transmitter loops already in place as shown in the accompanying figure. Lines T1000 and Lines T1700 were surveyed with the Jessy HTS SQUID at a transmitter frequency of 1.6 Hz using the large transmitter loop. Line T1700 was also surveyed with an induction coil at a transmitter frequency of 1 Hz with the large transmitter loop. Lines T9000 and T2650 were surveyed with the JESSY HTS SQUID at a transmitter frequency of 0.5 Hz using the smaller east loop.