



EXECUTIVE SUMMARY

TOXICOLOGY REVIEW: MOE REPORT ON ENVIRONMENTAL CONDITIONS AT HERITAGE SILVER TRAIL (COBALT, ON) – May 6, 2005

REPORT: Consultant's Comments Prepared for the Timiskaming Health Unit on Ontario Ministry of Environment (MOE) Technical Report: *Screening Level Health Risk Assessment of the Historical Mining Tour of Cobalt, Ontario (April 2005)*.

AUTHOR: **Dr. Evert Nieboer, PhD**, Professor of Toxicology (McMaster University) and Environmental Medicine (University of Tromso, Norway).

The Timiskaming Health Unit consulted Dr. Evert Nieboer to review the Ontario Ministry of the Environment (MOE) Screening Level Health Risk Assessment (SLHRA) report. The results of this review are summarized as follows:

CONCLUSIONS:

While the SLHRA conducted by the MOE is considered conservative, the study has been successful in identifying a potential public health concern:

- Exposures to arsenic, mercury and lead present the highest potential public health concerns.
- Exposures to antimony, cobalt, nickel and silver are secondary concerns.
- Copper and iron present no public health concern based on these results.

The risk assessment methodology used in the study should be viewed as a screening tool. Further investigation is required to define the potential human health risks.

Private wells located near mine-waste sites should be identified, as environmental conditions at the mine-waste sites could potentially affect surrounding soils and watershed.

Residential and public properties should be characterized for related risks if there is rationale to suggest these areas may be affected. Dr. Nieboer suggests conducting a screening-level type survey.

BACKGROUND:

The MOE report was based on two sets of soil samples collected in October 2003 at 65 sampling locations corresponding to four former mill sites along the Heritage Silver Trail.

At 80% of the 65 sampling locations, the arsenic levels in the samples were approximately 100 times the MOE soil guideline level for Ontario background concentration.

Exposure calculations in the study are based on a one-time exposure of 4 or 8 hours duration by people of various ages and life stages, including infants, adults, and pregnant women.

Risk calculations considered the following possible routes of exposure to metals in the environment:

- ingestion (eating),
- dermal absorption (skin contact), and

- inhalation (breathing).

Urinary-arsenic studies conducted at other mining communities (Deloro and Wawa, ON), have shown no excess arsenic uptake (in the body) as compared to communities without elevated metals in soil.

DR. NIEBOER RECOMMENDS:

Posting warning signs along the trail, with a focus on potential exposure risks to children.

Conducting a site-use study for the Heritage Silver Trail to further define potential human exposure routes. Information could be gathered from visitors concerning demographics, on-site activities and length/frequency of visits.

Relocating picnic sites to grassy areas to limit soil contact.

Measuring levels of airborne dust along the trail during the summer to better define potential inhalation risks.