Human Health Risk Assessment:
Frequently Asked Questions (continued from page 3)

in Sudbury represents less than 10 per cent of total exposure, removing soil is not an effective measure to reduce risk.

How do I know my soil is safe? Can I get my soil tested for lead?

For most of the study area, lead levels in soil and dust were within acceptable benchmarks for protection of human health. In some localized areas of Copper Cliff, Coniston, Falconbridge and Sudbury Centre, a minimal increase in risk may exist where small children are exposed to soil and dust. More than 500 properties were sampled in Greater Sudbury in 2001. Only nine properties (less than 2 per cent) exceeded the soil risk management level of 400 ppm for lead in soil. In all cases, these property owners were notified by the MOE. For more information or to speak to an expert on lead exposure, please call the toll-free information line at 1-866-315-0228.

Are employees exposed to higher risks while working at the mining companies?

The purpose of the HHRA was to assess potential risks to residents of the Greater Sudbury area. Occupational exposures were not considered in this study. However, these exposures are assessed on an ongoing basis through workplace health and safety programs at both mining companies, with the Unions, and the Ontario Ministry of Labour.

Will the companies conduct a health study with biological testing to ensure Sudburians are safe?

Health risks identified in the HHRA are in the 'negligible' to 'minimal' range and do not indicate the need for biological testing. If you are concerned about chemical exposures in your home, you are encouraged to consult with your family physician, who can provide you with information concerning your personal health status.

Is it safe to eat blueberries and other locally grown foods?

Yes. Blueberries and other locally grown fruits and vegetables were analyzed for the chemicals of concern. In all cases, the results indicated that these products are well within the health-protective standards for safe consumption. For added protection, it is recommended that all Canadians thoroughly wash their produce before eating, to remove soil.

What is being done to reduce the risks identified in the HHRA?

The HHRA studied the potential impacts of metals in the environment related to past and current mining and smelting activities. Where minimal health risks were identified in the study, the companies are working in cooperation with the MOE, the City of Greater Sudbury, and the Sudbury & District Health Unit, to further reduce the potential for exposure. In the past 10 years, the mining companies have reduced their emissions by as much as 80 per cent or more. Further details on what is being done to minimize the potential for risk are outlined in the Joint Risk Management Report for Mining and Smelting Operations, developed by Vale Inco and Xstrata Nickel. For information please visit www.sudburysoilsstudy.com, or call the toll-free number at 1-866-315-0228.

Further information and frequently asked questions can be found on the project website www.sudburysoilsstudy.com.

Public Comment Period continues through October
Have your say on the HHRA!

There's still time to submit your comments on the Human Health Risk Assessment (HHRA) report that was released in May. The public comment period began on May 19, 2008, and will close on November 1, 2008.

All comments must be relevant to the contents of the HHRA Report, and must be submitted in writing before 11:59 pm on November 1, 2008. To qualify, all submissions must include the name, address and phone number of the individual submitting the comment(s).

The full technical report, and a plain-language summary report are available for public review at all branches of the public library in Greater Sudbury, at the Ontario Ministry of Environment (199 Larch St.), and online at www.sudburysoilsstudy.com.

All relevant comments received during this period will be reviewed by the study team, and responses will be provided as an appendix to the final report.

How to submit your comments on the HHRA:

- **By MAIL:** **Sudbury Soils Study – HHRA Public Comments**
  c/o Gartner Lee Limited, 512 Woolwich St. Suite 2
  Guelph, Ontario N1H 3X7
- **By FAX:** 1.519.763.1668
- **By EMAIL:** comments@sudburysoilsstudy.com
- **By INTERNET:** www.sudburysoilsstudy.com
  (online comment form provided)

Upcoming Events

Technical Committee Meetings

- **Thursday, November 13, 2008**

Public Advisory Committee Meetings

- **Tuesday, November 25, 2008**

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Ecological Risk Assessment Nears Completion

Results of the Ecological Risk Assessment (ERA) for Greater Sudbury will be released in the coming months. The ERA, which represents the third and final volume of the Sudbury Soils Study, is designed to assess the potential impact of metals on plants and animals in the Sudbury area.

Once completed, the report will outline the results of fieldwork, detailed laboratory testing and a comprehensive analysis of ecological impacts in the environment related to historic emissions from metal production.

The ERA process has followed four clear objectives:

- To evaluate the extent to which Chemicals of Concern (COC) are preventing the recovery of regionally representative, self-sustaining terrestrial plant communities.
- To evaluate risks to terrestrial wildlife populations and communities due to COC.
- To evaluate risks to individuals of threatened or endangered terrestrial species due to COC.
- To conduct a comprehensive Problem Formulation for the aquatic and wetland environments in the Sudbury area to support ongoing research and monitoring programs in the aquatic/wetland ecosystems.

Setting New Standards in Science

Due to the size and complexity of the Sudbury study, traditional approaches and scientific models used to assess ecological risks have not been applicable in this ERA. To address the Sudbury-specific conditions and concerns, the study team developed a unique approach that is breaking new ground in the science of risk assessment.

Of the four objectives addressed by the ERA, Objective 1 has posed both the greatest scientific challenge and the greatest opportunity for innovation. To more accurately determine whether metals in Sudbury soils are preventing the recovery of self-sustaining forest communities, the team focused on four different indicators, or "lines of evidence," that provide important information on the health of a forest community:

- The composition and health of plant communities;
- The physical and chemical composition of the soil;
- The results of soil toxicity tests; and
- The rate of microbial decomposition (decay).

When analyzed together, these four lines of evidence offer a more complete assessment of ecological conditions, providing the necessary information to complete the ERA.

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Ecological Risk Assessment Nears Completion

(continued from page 1)

Digging for Information

To assess environmental impacts on a site that is equal to the size of Switzerland, study scientists and field workers were required to collect and analyze a vast amount of information.

At each of 22 study sites, the study team collected approximately 1,560 individual measurements for a total of over 35,000 pieces of Sudbury-specific data. Extensive field surveys were conducted in the summer of 2004 to collect soils for the chemical analysis and the toxicity testing. The rate of microbial decomposition was measured by placing bags of fresh birch leaves at each site in the fall of 2004. The collection of these "litter bags" of decaying leaves continued through the summer and into fall of 2005.

Once the mountains of data had been gathered, the task of evaluating and integrating the four lines of evidence began. This process of assessing what all of the information means will provide an unprecedented view of the ecological conditions in the Sudbury region.

Putting all the pieces together to complete the ERA has been a very detailed exercise that has taken five years to complete. It seems like a long time, but consider that similar studies in the U.S. have continued for 15 years or longer. By comparison, the Sudbury ERA will be delivered in record time.

The results of the ERA will be announced at a public information session, which will be scheduled as soon as the Technical Committee completes its final review. For more information on the Sudbury Soils Study, call us toll free at 1-866-315-0228, visit the website, or email us at **questions@sudburysoilsstudy.com**.

ERA gets support from Local Experts

In addition to the extensive fieldwork completed by the study scientists, a great deal of important information was contributed to the ERA process by several local experts from Laurentian University in Sudbury.

The Technical Committee for the Sudbury Soils Study would like to acknowledge the support and assistance of Laurentian University and specifically, these respected individuals:

- **Dr. Graeme Spiers** assisted with locating field study sites to evaluate ERA Objective #1 and helped to develop the protocol for assessing physical and chemical parameters in soil.
- **Dr. Peter Beckett** provided information on the regreening programs in the Sudbury region to locate field study sites, and helped develop the detailed vegetation community survey protocol as a critical Line of Evidence.
- **Dr. Glenn Parker** provided critical information on data on deer diets and metal concentrations in the Sudbury-area deer population.
- **Dr. Jean-Francois Robitaille** provided important data on small mammal populations in Sudbury.
- **Mr. Chris Blomme** provided information on local wildlife species.
- **Dr. David Lesbarrères** offered information on local amphibian and reptile species.
- **Dr. Jacqueline Litzgus** provided information on local amphibian and reptile species.
- **Mr. Keith Winterhalder**, (formerly of Laurentian University) and graduate student Andrea Sinclair provided a thesis on small mammal populations and many photographs related to the regreening progress.
- **Dr. John Gunn, Mr. Bill Keller and Mr. George Morgan** (Laurentian University and Ministry of Natural Resources Freshwater Co-op Unit) collected fish from eight local lakes for tissue metal analysis, and provided detailed water chemistry and zooplankton population information.

A sincere thank you to all of these experts for their time and commitment to ensuring a comprehensive environmental assessment of the Greater Sudbury area.

Human Health Risk Assessment: Results Discussed in Sudbury

Local scientist Franco Mariotti was on hand to provide residents with his perspective on the HHRA, in his role as Independent Process Observer for the study.

Dr. Penny Sutcliffe, Medical Officer of Health, offered Sudburians a public health perspective on the findings of the HHRA.

On May 13, 2008, the Technical Committee overseeing the Sudbury Soils Study released the results of **Volume 2: Human Health Risk Assessment (HHRA)**. The findings were announced to the public at Science North, followed by additional public meetings held in Copper Cliff and Falconbridge.

More than 250 people attended the three open meetings to hear the results, which offer important information related to metal exposure and human health.

Study director Dr. Christopher Wren provided an overview of the study findings, and other members of the study team offered their perspectives on the results.

"I would like to publicly acknowledge the study partners for ensuring that important scientific and policy issues were identified, debated and ultimately addressed," said Dr. Penny Sutcliffe, Medical Officer of Health for the Sudbury & District Health Unit. "I am reassured by the results."

For complete information on the results of the HHRA, visit the website at www.sudburysoilsstudy.com

Human Health Risk Assessment: Frequently Asked Questions

As the public comment period for the Human Health Risk Assessment (HHRA) continues, residents have raised some common questions that may be on the minds of many Sudburians.

Here, the study team provides answers to Frequently Asked Questions on the HHRA.

What were the findings of the HHRA?

Overall, the study predicted little risk of health effects for residents associated with metals in the environment. There were no risks identified for four of the six chemicals of concern: arsenic, copper, cobalt, and selenium. The HHRA identified potential risks associated with exposure to nickel and lead in localized areas. These risks are considered to be in the 'negligible' to 'minimal' range. For more detailed information on the risks identified in the HHRA, please refer to the Summary Report, available online at www.sudburysoilsstudy.com

What do the results about lead in soil mean to me and my family?

The presence of lead in soil does not necessarily mean that people are exposed to it. Levels of lead detected in Sudbury soils and dust are consistent with other older urban communities in Canada, particularly where homes were built before the 1950s. Exposure to lead from soil in Sudbury represents less than 10 per cent of a person's total estimated exposure. Other sources may include lead in paint, plumbing, supermarket foods and other household products. Since children sometimes play on the ground, exposures may be higher through direct contact with soil. As part of the HHRA, all local beaches, parks, daycares and schools were tested for lead, and no concerns were identified at these sites. The MOE and the Sudbury & District Health Unit provide important information for all parents on how to reduce exposure to lead in the environment.

What do the results about nickel in air mean to me and my family?

Generally, the HHRA predicted no unacceptable risks associated with nickel in the Sudbury environment. However, minimal health risks were predicted due to nickel in air in Copper Cliff and the western portion of Sudbury Centre. The source of airborne nickel in these areas may be related to wind-blown dust from Vale Inco's Copper Cliff Complex. Based on the conservative risk predictions used in the study, it is unlikely that any extra cases of respiratory cancer will result from nickel exposure in the study area over the 70-year lifespan considered in the study. These risk predictions were supported by the local Medical Officer of Health.

Why is Sudbury's standard for lead in soil 400 ppm (parts per million), when the Ministry of the Environment says 200 ppm is the safe level?

The Ontario Ministry of Environment (MOE) sets generic standards for total lead exposure to provide a conservative level of health protection across the entire province.

A generic standard is based on many assumptions and generalized conditions. The Sudbury Soils Study is a site-specific risk assessment. As part of this study, we measured the concentrations of lead in media to which people are exposed in Sudbury such as air, water, food, dust, local fish and meat. These measurements allowed the study team to calculate a more specific total exposure to lead for Sudbury residents, rather than using the generic assumptions. Using these more specific calculations, we concluded that a level of 400 ppm lead in soil is protective of human health in Sudbury. In many older, urban communities in Canada, it is common to see lead levels of 1,000 parts per million or greater. Since exposure to lead from soil

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