

## Heavy Metal Soil Study in Creighton and Flin Flon

Manitoba Conservation, in partnership with Saskatchewan Environment, conducted surface soil testing in Flin Flon and Creighton in August 2006. Several elements, including arsenic, cadmium, lead, copper, thallium, selenium, zinc and mercury, were above soil quality guidelines at some sites.

The highest concentrations of heavy metals were found in Flin Flon on undeveloped parcels of land. The highest concentrations in Creighton were found in the northeast part of the community, south of the tailings management area.

A preliminary health risk assessment concluded that the risk to human health is likely low, but a more comprehensive assessment was needed. A further human health risk assessment study is currently underway and should be completed in the fall of 2008.

### What was found in Flin Flon/Creighton soil?

Thirty-three heavy metals and other elements were measured in the soil at Flin Flon and Creighton. Of the metals tested, 11 were found to be elevated relative to other control sites. In some locations in Flin Flon, concentrations of arsenic, cadmium, copper, lead, mercury, selenium and thallium were found to be above the recommended soil quality guidelines for the protection of human health. At some sites in Creighton, concentrations of arsenic, cadmium, lead and mercury were found to be above the recommended soil quality guidelines for the protection of human health.

### What is the health risk of heavy metals?

Heavy metals can enter the body through food, water, air, or absorption through the skin. Finding increased levels of metals in the soil does not necessarily mean people will be exposed to levels of metals that could cause health concerns.

According to the preliminary health risk assessment, the risk to human health is likely low for residents of Flin Flon and Creighton. In general, you would have to swallow or inhale significant amounts of soil over a period of time before your health would be jeopardized.

The study currently underway is looking at all possible routes of exposure and the likelihood that an individual will be exposed to a sufficient amount to produce injury or disease.

### Can my children play in playgrounds? In our backyard?

Yes. The preliminary assessment information indicates that the risk to human health is likely low. However, Manitoba Health and Healthy Living and Saskatchewan Health encourages parents and children to take usual hygiene precautions to reduce their exposure to soil by reminding children to keep their hands out of their mouths when playing outside and washing your hands after outside activities.

### What about air exposure? Is my water safe to drink?

The air quality in Flin Flon and Creighton has improved over the years. However, outdoor air levels of some metals, such as arsenic, have sometimes exceeded air quality guidelines, especially in the "uptown" area of Flin Flon. Elevated levels of heavy metals have not been identified in the drinking water.

The risk assessment that is underway will be assessing the possible exposures from all sources to determine the overall exposure risk.

## How can I reduce my exposure to these metals?

The preliminary risk assessment indicates that the risk to human health is likely low. However, as a precautionary measure, the following measures can be taken to reduce exposure to soil:

- Wash your hands after outside activities, such as playing and gardening, before handling and eating food, or smoking.
- Wear gloves when working outside.
- Wear certain clothing only for outdoor play, work and gardening, and remove that clothing when going indoors.
- Keep children's toys, play areas and surfaces clean.
- Clean stroller and bike wheels to avoid tracking soil indoors.
- Remind children to keep their hands out of their mouths when playing outside.
- Remove shoes and boots at the door.
- Wet-mop/wet-wipe when dusting where possible (vacuuming and sweeping can raise dust levels).
- Clean heat ducts and furnace filters regularly.
- Brush and/or wash pets often and outdoors, removing dirt before they enter the home.
- Wash all locally-grown produce with soap and water and peel root crops (carrots, potatoes, turnips, etc.) before eating or cooking.

The risk of exposure to heavy metals in soil decreases with snow cover.

Key healthy living activities that have been shown to improve health include: avoiding direct and indirect exposure to tobacco, eating a healthy and balanced diet, keeping physically and mentally active and maintaining a healthy weight.

## What are the symptoms of heavy metal exposure?

The symptoms of heavy metal toxicity can vary, depending on the type and duration of exposure. Most of the symptoms are not unique to heavy metal toxicity. In general, a person would have to have significant exposure to the soil (such as swallowing or inhaling large amounts of soil over a period of time) before their health would be jeopardized.

The symptoms of significant exposure to heavy metals can include nausea, vomiting, diarrhea, easy bruising, pale skin colour and other skin changes and/or nerve symptoms (ex: "pins and needles" sensation or a gradual loss of feeling over time). Any of these types of symptoms are more likely to be caused by common conditions such as a viral infection, a gastrointestinal illness, anemia (ex: from low blood iron) or diabetes. In addition to these symptoms, significant exposure to some of these metals over time has been linked to other health effects, such as delayed brain development or increased risk of certain cancers.

## I think I have been exposed to heavy metals. What should I do?

If you have concerns about heavy metal exposure, talk to your family doctor.

## What are the next steps?

A human health risk assessment is being conducted, with input from Manitoba Health and Healthy Living, Manitoba Conservation, Saskatchewan Health, Saskatchewan Environment and Health Canada. The risk assessment will assess the likelihood of human health effects related to exposure to metals in the Flin Flon/ Creighton area.

The health risk assessment has already begun and is expected to be completed in the fall of 2008. Decisions regarding next steps will likely be made after the results of the health risk assessment study are received.

## Where can I get more information?

Additional questions and answers are available at [www.gov.mb.ca/health/publichealth/cmoh/](http://www.gov.mb.ca/health/publichealth/cmoh/) or by calling Health Links-Info Santé at 788-8200 or 1-888-315-9257. To view a complete copy of the soil study report, visit: [www.gov.mb.ca/conservation/wildlife/managing/mon\\_ecoflinflon.html](http://www.gov.mb.ca/conservation/wildlife/managing/mon_ecoflinflon.html).