

Health Consultation for Public Comment:  
“Chelated Metals in Groundwater, Sturgis, St. Joseph County, Michigan”

**EXECUTIVE SUMMARY**

The Michigan Department of Environmental Quality (DEQ) asked the Department of Community Health (DCH) to evaluate the public health threat posed by groundwater contaminated with metals chelated to ethylene diamine tetraacetic acid (EDTA). Abbott Laboratories, Ross Products Division (Abbott), in Sturgis, Michigan discharges EDTA-containing wastewater to a land-application site. Down-gradient from the site, monitoring wells and/or drinking water wells contained levels of arsenic, cobalt, iron, lead, manganese, and nickel that were above state drinking water standards.

Abbott manufactures infant formula and adult nutritional products at its facility. It uses EDTA to remove hard-water scale from pipes. EDTA, and other chelating agents, can bind strongly to metal atoms. As the wastewater saturates the soil and enters the groundwater, the EDTA chelates naturally-occurring iron and manganese from the surrounding soil. When the groundwater flows into less saturated areas, conditions cause the EDTA to release the iron and manganese and chelate other metals that are present.

Water softening removes iron and manganese from the water but does not remove cobalt, lead, or nickel. Concentrations of arsenic in the drinking water wells are not above state standards. Cobalt is not expected to dissociate from EDTA in the gastrointestinal tract; therefore there is no internal exposure to cobalt, so it cannot cause adverse health effects. The concentrations of lead in the drinking water, when considered along with other potential exposures to lead (soil, old paint), are not expected to cause harm. Nickel exposure may result in an allergic reaction, usually a rash, in sensitized individuals.

Because affected drinking water wells have been closed, any exposure that was occurring has stopped and there is no current public health hazard. Past exposure may have posed a public health hazard, but this cannot be determined with certainty. Abbott and DEQ are continuing to monitor the groundwater plume. Therefore, future exposure should not occur.

There will be a public meeting regarding the consultation on October 10, 2007 at 7 PM at the Sturgis Township Hall, corner of US12 and White School Road in Sturgis.

The health consultation is available for public review and comment at the following locations:

- The Sturgis Public Library at 255 North Street, Sturgis.
- The MDCH website at [www.michigan.gov/mdch-toxics](http://www.michigan.gov/mdch-toxics), under “Health Assessments and Related Documents.”

Comments are due by October 25, 2007. Please direct comments and questions to Christina Bush, Toxicologist, MDCH Division of Environmental Health, Capitol View Building, P.O. Box 30195, Lansing, MI, 48909 or at [bushcr@michigan.gov](mailto:bushcr@michigan.gov). DCH will review all comments and prepare a follow-up Responsiveness Summary health consultation.