

Overview

The price of gold has increased greatly in the last ten years, causing more and more people to start small-scale (or “artisanal”) gold mining operations. Small-scale gold miners mix mercury with soil containing small amounts of gold to form a mercury-gold amalgam. That amalgam is then heated; the mercury is burned off and the gold is left behind. Mercury is a severe toxin that bio-accumulates. Mercury is released into the atmosphere through the burning of amalgam, and into local waterways through the dumping of mining waste materials.

What To Look For

- Small-scale gold mining often exists at abandoned mines and around the edges of formal, large-scale mining operations.
- Small-scale gold mining is often done illegally, so proceed with due caution.

Community Evaluation

Health Risk:

When elemental mercury is consumed by fish, it combines with carbon to form methyl mercury. Exposure to very small amounts of methyl mercury can result in devastating neurological damage or death. It can cause permanent damage to the brain and kidneys. Symptoms of acute mercury poisoning include cough, chest tightness, trouble with breathing, and an upset stomach. Pneumonia can develop, which can be fatal. Mental retardation, blindness, and cerebral palsy have been observed in children born to women having high levels of methyl mercury exposure. Exposure could have a negative impact on their neurological development resulting in psychological abnormalities like deficits in short-term memory, irritability, and social withdrawal.

Concentrations in Blood:

Mercury exposure is important to monitor in women of childbearing age because mercury can cause adverse neurodevelopmental effects in the developing fetus at blood levels potentially attainable through dietary sources. Presence of 58 micrograms per liter ($\mu\text{g/L}$) is a concentration associated with neurodevelopmental effects in the fetus.

Sampling in Water:

It is useful to sample the following areas:

- Water where fishing takes place (144 parts mercury per trillion.)

- Drinking water (2 ppb)
- Seafood (1ppm)

Resources for Stakeholders

ATSDR Fact Sheet on mercury

http://www.cdc.gov/exposurereport/pdf/factsheet_mercury.pdf

Global Mercury Project

http://www.unites.uqam.ca/gmf/intranet/gmp/index_gmp.htm