



Follow-up Evaluation on Public Health Implications of Surface Soil Exposures

July 2012

In 2009, the Colorado Cooperative Program for Environmental Health Assessment (CCPEHA) completed the initial health consultation on the NT-CWR site (ATSDR 2009). Since there was only a limited amount of environmental data available at that time, the health consultation focused on acute exposures to surface soil, sediment, and surface water. Additional data collection and an EPA Emergency Removal action have occurred since the initial health consultation was conducted. This health consultation utilizes the additional surface soil sampling data to evaluate the public health implications of exposure to site-related surface soil contamination in its current condition.

Site Background

The NT-CWR is located approximately 1 mile north of the town of Creede in southwestern Colorado. The site is an abandoned mining area that was placed on the National Priorities List (Superfund) on September 3, 2008 because of a combination of site-related metal contamination and physical hazards that could have an adverse impact on human health and the environment. The NT-CWR is one component of the historic Creede Mining District, one of the most profitable mining districts in Colorado history. The site is located within the Willow Creek Watershed, which drains into the Rio Grande River. The major contaminant sources at the site are the Nelson Tunnel mine drainage and the adjacent Commodore Waste Rock Pile. Both sources contain elevated levels of heavy metals such as arsenic, cadmium, lead, manganese, and zinc. The land use is primarily recreational including rock hunting, hiking, and ATV riding.

What are past activities conducted at the site?

From 2008-2009, a time critical removal action was conducted by the EPA to stabilize the CWR pile and reshape the West Willow Creek bed, which had been altered from past mining activities. In 2009, CCPEHA completed the initial health consultation on the NT-CWR site which concluded that the site poses an "indeterminate" public health hazard for past, current, and future exposures because of a limited amount of environmental data, uncertainties associated with actual land-use, and the actual extent of contamination from the NT-CWR site. As a result, additional environmental data was collected in 2010 after the work on the waste rock pile and creek bed was complete.

What did CCPEHA find in the Health Consultation?

CCPEHA and ATSDR have reached three conclusions regarding current and future exposures to soil at the Nelson Tunnel-Commodore Waste Rock Pile Superfund site:

Exposure of children (age 7-12 years) and adults to metal contaminants while riding ATVs on County Road 503 near the site could harm people's health This conclusion was reached because the estimated non-cancer health hazards for arsenic are associated with an increased risk of developing non-cancer health effects due the estimated dose approaching levels known to be associated with harmful effects such as a decrease in intellectual function. In addition, the estimated non-cancer hazards for exposure (via dust inhalation) to manganese in surface soil while ATV riding enter a range of potential concern because the estimated exposure concentration for both children and adults are significantly above (20-fold) the health guideline (or acceptable level). Furthermore, based on the ATSDR and EPA recommended ALM model, an underestimation of lead risks is likely due to inhalation of small particles that are absorbed in the pulmonary region, especially for the ATV rider scenario with exposure to high lead dust concentration, and the fact that there is no safe level of lead.

Exposure to metal contaminants including lead in soil on County Road 503 near the site is not expected to harm the health of child (age 7-12 years) and adult hikers. This conclusion was reached because the estimated non-cancer health hazards and theoretical cancer risks from non-lead contaminants (aluminum, antimony, arsenic,

barium, cadmium, chromium, cobalt, copper, iron, manganese, mercury, silver, thallium, vanadium, and zinc) are associated with a low increased risk of developing cancer and non-cancer health effects. In addition, lead exposures are associated with a low risk of developing non-cancer health effects in the developing fetus.

Exposure to metal contaminants including lead in soil at the Commodore Waste Rock pile is not expected to harm the health of child (age 7-12 years) and adult hikers. This conclusion was reached because the estimated non-cancer health hazards and theoretical cancer risks from non-lead contaminants (aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, manganese, mercury, silver, thallium, vanadium, and zinc) are associated with a low increased risk of developing cancer and non-cancer health effects. In addition, lead exposures are associated with a low risk of developing non-cancer health effects in the developing fetus.

What's next?

- As necessary, CCPEHA will review any additional data collected from the NT-CWR site and evaluate the public health implications of the new data (e.g., surface water and sediment).
- Upon request, CCPEHA will provide assistance to State and Local environmental officials on sampling plans and analysis.
- CCPEHA will provide the appropriate level of health education on the findings of this health consultation to stakeholders and the community.

FREQUENTLY ASKED QUESTIONS:

What is a health consultation? A health consultation provides advice on a specific public health issue related to real or possible human exposure to toxic material. A Health Consultation is a way for the Colorado Department of Public Health and Environment to respond quickly to a need for health information on toxic substances and to make recommendations for actions to protect the public's health. Health Consultations may consider:

1. The levels (or "concentrations") of hazardous substances;
2. If and how people might be exposed to contamination (through "exposure pathways" such as breathing air, drinking or contacting water, contacting or eating soil, or eating food);
3. The harm the substances might cause to people (or the contaminants' "toxicity");
4. If and how working or living nearby might affect people's health; and
5. Other dangers to people, such as unsafe buildings, explosive hazards, or other physical hazards.

Where can I find this health consultation?

An electronic copy of this health consultation can be found at:

<http://www.cdphe.state.co.us/dc/envtox/ccpehasites.html>

To request a free copy of this health consultation or for more information about the health consultation, please feel free to contact Thomas Simmons, Health Assessor, at 303-692-2961. For other site-related concerns, please call Wendy Naugle, Project Manager, at 303-692-3394