

EPA's Blind Spot

HEXAVALENT CHROMIUM IN COAL ASH



Just three weeks ago, after a study found chromium, a toxic heavy metal, in tap water in 31 of 35 U.S. cities tested,ⁱ the U.S. Environmental Protection Agency (EPA) issued new guidelines recommending that all public water utilities test their drinking water for hexavalent chromium or Cr(VI). EPA's well-placed concern for protection of public health has a dangerous blind spot. While government regulators express concern for small quantities of the cancer-causing substance in our water, they are ignoring one of the largest sources of the hazardous chemical—coal combustion waste (or coal ash) from the nation's coal burning power plants.

A new report by Earthjustice, Physicians for Social Responsibility, and Environmental Integrity Project documents the threat to health from chromium VI leaching (dissolving) from coal ash disposal sites across the country.

A Dangerous Carcinogen

EPA and health experts have found that ingesting hexavalent chromium in drinking water, even in minute amounts—many times lower than current federal drinking water standards—can cause cancers of the stomach and of the mouth. The Agency for Toxic Substances & Disease Registry (ATSDR) notes, “An increase in stomach tumors was observed in humans and animals exposed to chromium(VI) in drinking water.”ⁱⁱ

The State of California's Office of Environmental Health Hazard Assessment (OEHHA), after an extensive, peer-reviewed study, recently lowered its original hexavalent chromium draft goal by 66 percent to account for the special sensitivity of infants and children to carcinogens. California's proposed public health goal, 0.02 parts per billion, is 5,000 times lower than the current federal drinking water standard for total chromium.ⁱⁱⁱ

Chromium -VI Leaches From Coal Ash

Coal ash, the waste left after coal is combusted, contains numerous toxic heavy metals that leach when exposed to water. Coal ash disposal sites have been found to be a major pathway for the release of hexavalent chromium into groundwater, in some places leaching deadly quantities of Chromium(VI) into drinking water.^{iv}

Remarkably, the U.S. Department of Energy (DOE) and the utility industry has known for years about the aggressive leaching of hexavalent chromium from coal ash. In a 2006 report cosponsored by DOE, the Electric Power Research Institute tested leachate—liquid collected from wells, ponds or seeps at coal ash dumps—at 29 coal ash landfills and ponds and found hexavalent chromium at hundreds of times the proposed California drinking water goal at 15 coal ash disposal sites. That study also found definitively that the chromium that leaches from coal ash is 97–100 percent hexavalent chromium.^v

Although coal ash readily leaches hexavalent chromium, the waste is currently not federally regulated and is routinely dumped in unlined



The toxic heavy metals in coal ash can contaminate our drinking water supplies.



The Emory River was contaminated with chromium when toxic ash spilled from a ruptured containment pond.

ponds and pits and used as construction fill without restriction.

Chromium-VI Contamination:

A Multi-State Threat

The threat that this dangerous carcinogen may contaminate drinking water is present near many hundreds of unlined coal ash disposal sites across the United States. The new report identifies 28 contaminated sites in 17 states where chromium levels in water were documented to exceed existing federal or state standards. [See Table B, pp. 6 - 8.] These levels of chromium, if 100 percent hexavalent chromium, represent levels at least 5,000 times higher than the proposed California drinking water goal.

In addition, findings included three landfills where leachate exceeded the proposed drinking water goal by over 5,000 times, with two landfills exceeding that goal by more than 100,000 and 250,000 times. [See Table A, p. 5.] The location of these potentially deadly dumps is not known, but the high levels of hexavalent chromium at the sites may pose a danger to those living near the landfills.

Coal-Fired Power Plants: The Major Source of Chromium

The amount of chromium released by our nation's coal-burning power plants dwarfs all other industrial sources. According to EPA's Toxic Release Inventory, the electric power industry dumps over ten million pounds of chromium and chromium compounds in on-and off-site disposal sites each year. Most of this chromium ends up in unlined or inadequately lined coal ash landfills, ponds, fill sites and mines. In 2009, the electric power industry reported 10.6 million pounds of chromium and chromium compounds were

released to disposal sites. This represents 24% of the total chromium and chromium compounds released by all industries in 2009.

EPA Needs to Regulate Coal Ash Responsibly

While the EPA doesn't need another reason to define coal ash as a hazardous waste, it certainly has one now. Although the cancer risk associated with Chromium(VI) in groundwater is substantial, EPA completely ignored this risk in its proposed coal ash rule-making. EPA discussed Chromium (VI) in the preamble to the proposed rule, yet treated it as a carcinogen by inhalation only. For purposes of calculating the human health risk by ingestion, Chromium(VI) was treated as a non-carcinogen.^{vi} **EPA must keep this dangerous chemical out of our water—by regulating coal ash as a hazardous waste, thereby requiring its disposal in safe, secure landfills.**

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ⁱ Environmental Working Group, "Chromium-6 Is Widespread in U.S. Tap Water," <http://static.ewg.org/reports/2010/chrome6/html/home.html>

ⁱⁱ <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=61&tid=17#bookmark06>

ⁱⁱⁱ <http://yubanet.com/california/OEHHA-Releases-Revised-Draft-Public-Health-Goal-for-Hexavalent-Chromium.php>

^{iv} <http://www.p2pays.org/ref/45/44934.pdf>

^v Electric Power Research Institute, *Characterization of Field Leachates at Coal Combustion Product Management Sites, Arsenic, Selenium, Chromium, and Mercury Speciation (November 2006)* at 5-26.

^{vi} U.S. EPA, *Human and Ecological Risk Assessment of Coal Combustion Wastes (draft, Apr. 2010)*.