

EPA's proposed coal ash amendments will boost risk of toxic contamination, study finds

October 1 2019



Credit: Grant Wilson/public domain

Allowing coal ash to be spread on soil or stored in unlined pits and landfills will raise the risk that several toxic elements, including carcinogenic hexavalent chromium, could leach out of the coal ash and contaminate nearby water supplies across the U.S., according to preliminary findings from a new Duke University study.

Federal rules currently prohibit the uncontrolled disposal of [coal ash](#) into the environment, but the U.S. Environmental Protection Agency has recently proposed amendments to the federal 2015 Coal Ash Rule that will remove this and other safeguards if the ash is dumped or spread for a "beneficial use," such as fill.

That's a bad idea, said Avner Vengosh, professor of geochemistry and [water quality](#) at Duke's Nicholas School of the Environment. He led the new study, which is the first to document the widespread presence of hexavalent [chromium](#) in [coal](#) ash leachate.

"Our experiments suggest that when coal ash interacts with water—as it will if it is spread on soil or buried in soil without protective liners—there is extensive mobilization of arsenic, selenium, and chromium, in the form of highly toxic hexavalent chromium," Vengosh said.

"Our experiments also demonstrate that coal ash chemistry induces high pH when the ash interacts with freshwater and this further enhances the mobilization and solubility of elements like hexavalent chromium and arsenic," he said.

Vengosh will present testimony about his unpublished new research and the [environmental risks](#) from softening the 2015 coal ash rule at an EPA public hearing on Wednesday, Oct. 2, at the Double Tree by Hilton Hotel in Arlington, Va.

To conduct the new study, he analyzed coal fly ash samples from the U.S.'s three major coal basins, the Appalachian, Illinois and Powder River, in laboratory settings simulating the high-pH conditions found when ash mixes with freshwater in the environment.

The average hexavalent chromium concentrations in samples from each region exceeded the EPA Maximum Contaminant Level for total chromium. Some samples contained levels as high as 415 micrograms per liter. That's four times the EPA limit and about 6,000 times higher than the 0.07 micrograms per liter health advisory level set by the North Carolina Department of Health and Human Services.

Vengosh is a widely cited expert on environmental geochemistry and isotope hydrology. He and his team have published 15 peer-reviewed scientific studies on coal ash's environmental impacts and he has also testified twice before Congress on the topic. His lab at Duke University has developed a field-tested suite of forensic isotopic tracers that can identify and measure the presence of coal ash contaminants in water and track them back to their source.

"These findings add to more than a decade's worth of hard scientific evidence, by my lab and many others, documenting coal ash's harmful environmental and human health impacts," Vengosh said.

"The amendments proposed by the EPA would allow the 'beneficial' placement of unlimited quantities of coal ash in the environment, potentially near drinking water wells, rivers and lakes, without any restrictions or safeguards," he said. "That could create countless new

sources of leached contamination that will infiltrate into the subsurface and contaminate soil and water resources across the nation."

Provided by Duke University

Citation: EPA's proposed coal ash amendments will boost risk of toxic contamination, study finds (2019, October 1) retrieved 27 June 2024 from <https://phys.org/news/2019-10-epa-coal-ash-amendments-boost.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.