Laid to Waste

The Dirty Secret of Combustion Waste from America's Power Plants

Citizens Coal Council
Hoosier Environmental Council
Clean Air Task Force

March, 2000

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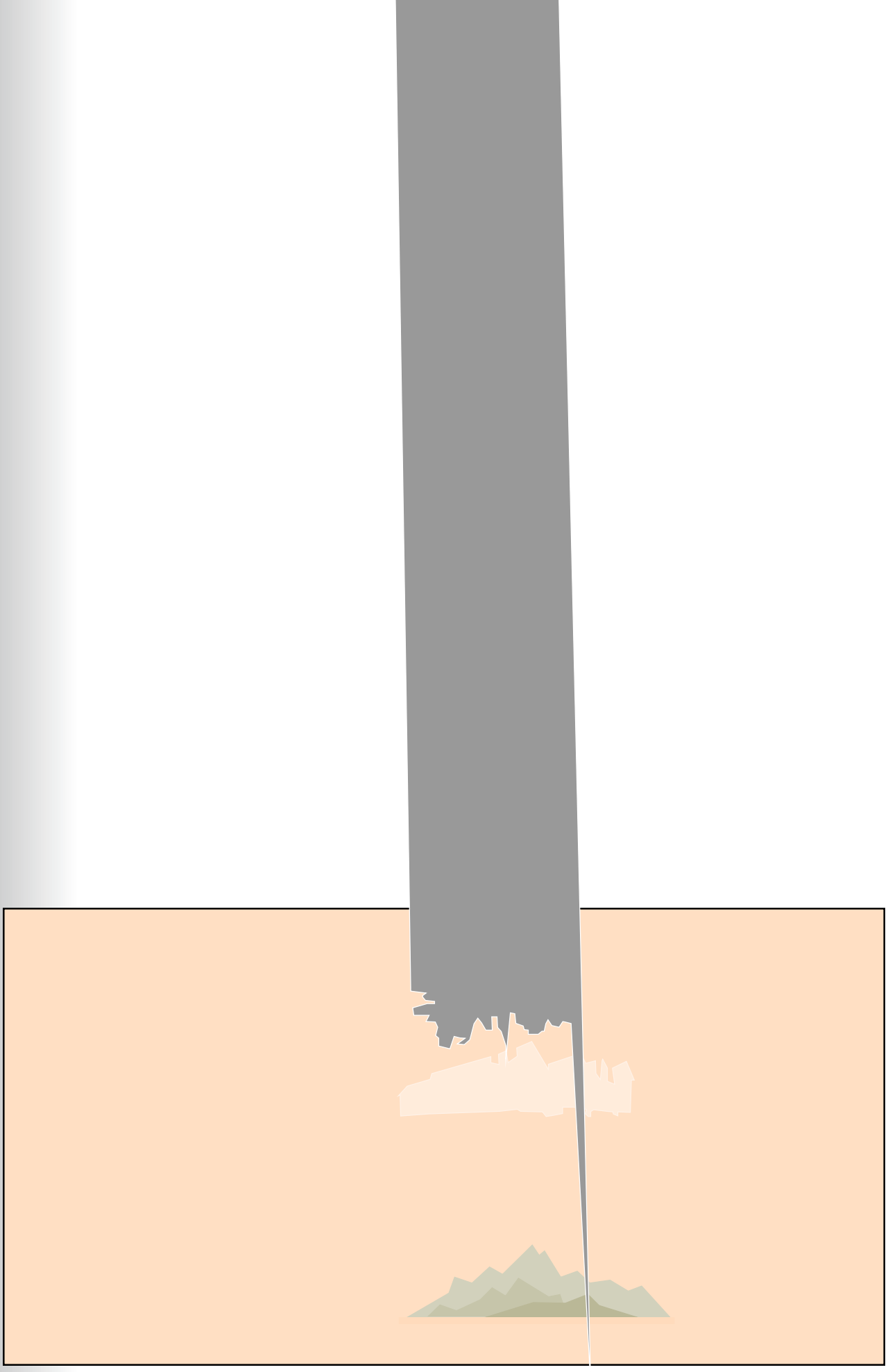
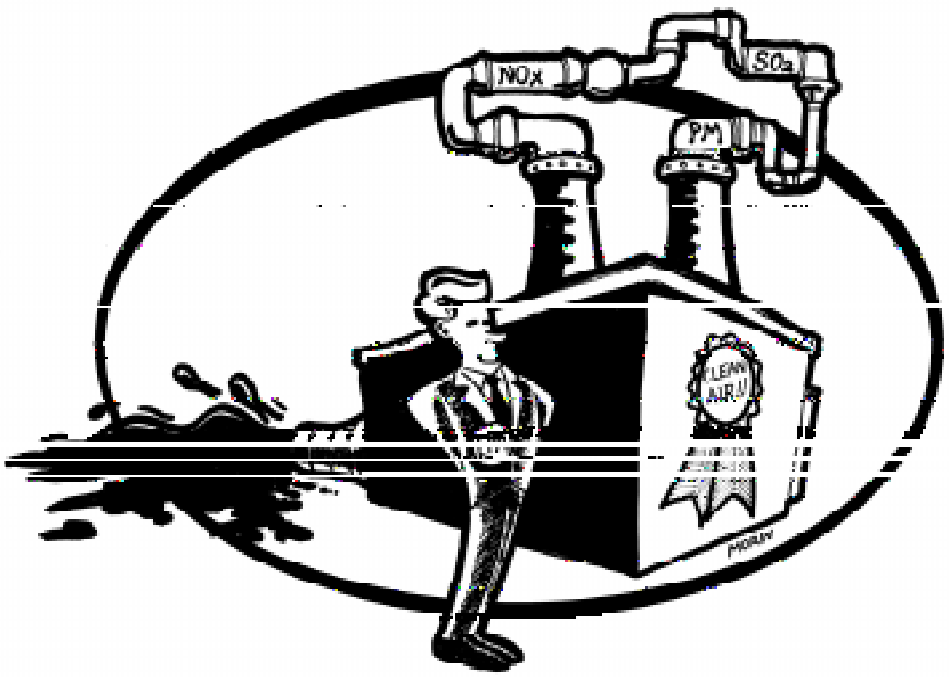


The exemption of power plant combustion waste from regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA) has been in place since 1980. The exemption is granted in the so-called "Bevill Amendment" to RCRA that excludes most coal and oil combustion wastes and other "special wastes" from hazardous waste rules, pending an EPA Determination to regulate.[2] Since 1993, EPA has been developing a Report to Congress and a draft Regulatory Determination as to whether so-called low-volume fossil fuel waste rules, po DoBlndas bet2tory DeterminDı˝a9n876Qı˝qı˝381.3437as bet2tory DeterminD55¯Determin84l2P has been



Current Management Practices do not Prevent Releases of Toxic Combustion Wastes

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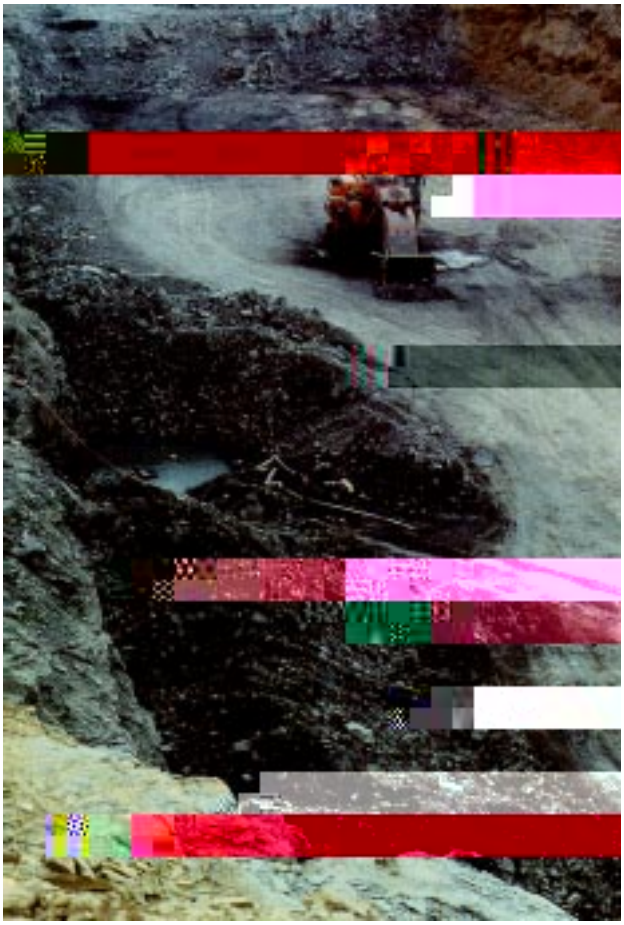

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Health Risks from Combustion Waste Disposal are Above Typical EPA Action Levels

EPA assessed the human health impacts from toxic metals in FFC waste that leach from unlined landfills and surface impoundments and contaminate downgradient drinking water wells.[14] Many of these metals are known or suspected to cause cancer in humans. EPA found that if adults and children drink, over a period of years, an average amount of water contaminated with combustion waste, they have a higher risk of cancer. These contaminants also persist in the environment and bioaccumulate in the food chain; they do not degrade over time. If children grow up in homes that use contaminated groundwater for their drinking water supply, they would be particularly vulnerable to the long-term effects, including cancer, associated with exposure to these contaminants. Appendix A summarizes the analyses that EPA did and the health effects of important pollutants found in combustion wastes.

According to the EPA Report, the average health risks to the public due to metals (including arsenic, nickel, chromium and selenium) from power plant FFC waste disposal units could be up to 10,000 times higher than EPA's allowable risk levels for cancer and other illnesses.[15] Some of the metals in FFC waste (like mercury) also impair the development of fetuses and children. As shown by Table 2, EPA's analyses show that power plant FFC wastes pose a threat to human health.

Table 2 — Human Health Risks Associated with Power Plant Wastes (from EPA's Report to Congress)[16, 17]

	Coal-fired combustion waste	Oil-fired combustion waste	FBC-fired combustion waste
How People Are Exposed	Do predicted risks exceed typical EPA action levels?[a]	Do predicted risks exceed typical EPA action levels?	Do predicted risks exceed typical EPA action levels?
Groundwater[b]	YES	YES	YES
Inhalation	YES	NO	YES
Agricultural Use	NOT ASSESSED	NOT ASSESSED	NO
Ingestion[c]	YES	YES	YES

[a] Typical action levels for EPA would be a one-in-one-million excess cancer risk or, for noncancer effects, a hazard quotient greater than 1.

[b] Exposure by ingestion of contaminated groundwater

[c] Exposure by ingestion of contaminated vegetables, soil, livestock and fish

FBC = Fluid Bed Combustion

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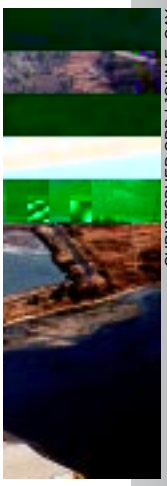

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numerous pollutants, including many toxic metals. Secondary maximum contaminant levels (SMCL) have also been established to maintain the aesthetic quality of the drinking water (e.g. taste, odor). Water quality criteria (WQC) which are intended to protect aquatic life have also been established for some pollutants.

Even though MCLs and SMCLs have been established for most of the contaminants found in FFC waste, these contaminants were not routinely analyzed for in the damage cases. The sampling and analysis of various constituents is inconsistent from one damage case to the next because each State handles these cases differently. Analyses of more toxic constituents that are found at much lower concentrations are less likely to be conducted in the initial site investigations. Most of the available information from the damage cases indicates a predominance of contaminants that have secondary standards, such as total dissolved solids and sulfates, because these contaminants are easily measurable. Equally important, these measurements serve as indicators that more toxic contaminants are also leaching from the disposal site.

Summarized below are the results for 21 damage cases.[19] The amount of contamination varied from site-to-site, but the established criteria for these criteria were exceeded at almost all of the 21 sites.

Examples of Damage

Two sites owned by the Tennessee Valley Authority (TVA) have been documented to be causing significant groundwater contamination. Power plant waste sites at TVA's Widows Creek and Colbert power plants have caused exceedances of drinking water and health advisory standards. At Widows Creek there have been exceedances for lead, iron, manganese, aluminum, sulfates and boron. The Colbert site has exceeded standards for sulfate, chromium, selenium, iron, molybdenum and boron. There are at least two Superfund sites associated with disposal of power plant FFC wastes: the Vitale Fly Ash Plant in Massachusetts and the Chisman Creek power plant in Virginia.

Pollutant	Exceeds Human Health Standard for Drinking Water[1]	Exceeds Taste & Odor Standards for Drinking Water[2]	Exceeds Acute Standards for Aquatic Life[3]	Exceeds Chronic Standards for Aquatic Life[3]
Sulfate	✔	✔	no standard	no standard
Total Dissolved Solids	no standard	✔	no standard	no standard
Boron	no standard	no standard	✔	✔
Manganese	no standard	✔	no standard	no standard
Iron	✔	✔	✔	✔
Sodium	✔	no standard	no standard	no standard
Chlorine	no standard	✔	✔	✔
Aluminum	✔	no standard	✔	✔

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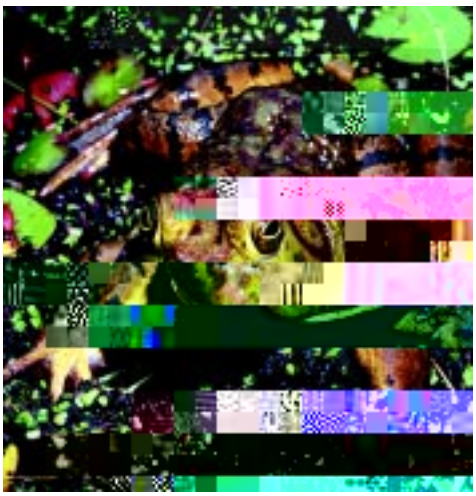

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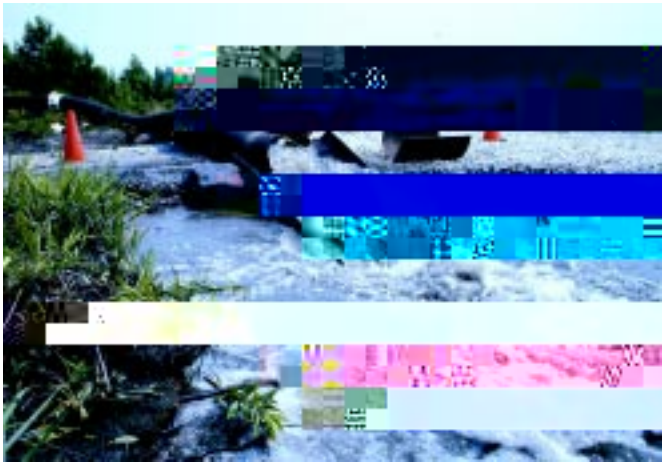

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