

# Plains Justice Iowa Coal Combustion Waste Disposal Report 2007

## Executive Summary

This report describes the risks associated with coal combustion waste (CCW) disposal and how Iowa and the federal government are handling the challenge. As the Clean Air Act progressively restricts the air contaminants that issue from smokestacks, CCW becomes increasingly contaminated with pollutants removed from the air. The waste stream is disposed of in a variety of ways, including sanitary landfills, industrial re-use, road building, fill for construction projects, and filling of abandoned mines and quarries. Without proper precautions, land-disposed CCW can leach toxic heavy metals into groundwater and surface water.

In comparison to coal, CCW is relatively enriched in elements such as arsenic, selenium, chlorine, copper, zinc, and mercury. Heavy metals are far more concentrated in bottom ash and fly ash than in the source coal prior to combustion. Emission controls exacerbate these differences by removing heavy metals from air emissions and concentrating them in CCW.

Disposing of the various forms of coal combustion waste can represent a significant expense to operators of coal-fired power plants. The cheapest means of disposal is therefore attractive to coal plant operators nationwide. Coal ash currently crosses state boundaries in search of the cheapest disposal sites. “In addition to mining and air quality problems caused by coal, we now have a land and water problem caused by coal combustion waste,” says Carrie La Seur, one of the report’s authors and founder of Plains Justice, a public interest environmental law center based in Iowa that produced the report.

Iowa is currently importing CCW from as far away as Indiana. The likely explanation for the distant imports is Iowa’s loose regulation of this waste stream, which keeps costs low but increases the risk of undetected groundwater contamination for Iowa residents. Iowa has nearly two dozen sites at which CCW has been used as “fill” without any liner, groundwater monitoring, or financial assurances in case of contamination. At least four sites use perhaps the riskiest form of storage: filling unlined quarries with vast amounts of CCW.

A significant portion of Iowa’s CCW is being dumped in unlined quarries near residential areas or rural water supplies, without groundwater monitoring or financial assurances. The primary risk from such poor disposal practices is contamination of ground water not only with arsenic but also with other heavy metals such as cadmium, chromium, lead, thallium, boron, selenium, nickel, molybdenum, antimony and vanadium.

These metals are called trace elements because they exist in trace amounts in the environment, but it is important to understand that they are toxic in trace amounts. Other more soluble pollutants present in even greater quantities in ash, such as sulfate, iron, manganese, calcium, magnesium, sodium and chloride, can often be bellwethers of contamination yet to come from trace heavy metals that will tend to leach more slowly from the ash, dissolving into groundwater in dangerous concentrations as factors limiting their solubility change over time.

The public has received little information about the true nature of this risk. Developers of a proposed 750 megawatt coal plant at Waterloo, Iowa, tout CCW fill as an “environmental benefit” of their plant. Indeed, the permitting program run by the Iowa Department of Natural Resources (IDNR) is referred to as “beneficial use” permitting for CCW that may go into everything from road construction to gypsum wallboard to filling up old quarries. However, the benefits of “beneficial use” fill sites are far from clear, and federal regulation of this waste stream has a long, troubled history.

State CCW regulation has become a patchwork because of a remarkable 27-year failure by the U.S. Environmental Protection Agency (EPA) to issue comprehensive regulations for the proper management of CCW. The National Academies of Science have recommended national regulations that would set minimum safeguards at CCW placed in surface mines. However, EPA has let its obligation to regulate CCW in these and other sites languish. What remains is a largely voluntary system of inconsistent state regulations and administrative guidelines that condones existing CCW management practices regardless of the hazards.

One hazard of poorly regulated CCW disposal is contamination of groundwater, which leads to increased cancer risk. EPA studies indicate that disposing of CCW in unlined surface impoundments creates a risk of cancer due to arsenic exposure through contaminated groundwater of up to one person in 100. This level of risk is 10,000 times higher than EPA's regulatory goals for reducing cancer. The harmful impact of excessive levels of heavy metals such as mercury and lead on human physiology is well documented. Risks for children are particularly serious and include a wide range of neurological and developmental disorders.

Iowa's regulatory regime for CCW landfill sites and for "beneficial use" of CCW fill poses significant risks of undetected environmental contamination, significant liability risks to fill site operators, and significant health risks to Iowans. In light of the documented risks to human health and the environment, the authors of this report strongly recommend immediate cessation of "beneficial use" fill permits and closure of fill sites. Closure should proceed according to recommended closure and post-closure practices for coal ash sanitary landfills.

National regulation, both of CCW landfill sites and "beneficial use" determinations, is desirable because of the fluidity of CCW across state borders. A state by state project of regulatory reform has the risk of commencing a race to the bottom, in which CCW finds its way to the most loosely regulated state, which in the Midwest may be Iowa. Until national reform takes place, Iowa must improve its CCW disposal regime to avoid becoming, or remaining, a regional net recipient of this hazardous waste stream.

In addition to the detailed recommendations for Iowa regulatory reform included at the end of this report, the authors recommend the following four steps as urgently needed for the protection of public health and the environment:

1. Halting further permitting, renewal or expansion of fill sites;
2. Closing existing fill sites on the most expeditious, yet practicable schedule (within two years);
3. Imposing immediate and longterm monitoring at existing fill sites; and
4. Mandating cleanup of contamination detected at existing sites.

Without immediate preventive action, Iowans are at significant risk for drinking water contamination and the kind of massive taxpayer financial liability for cleanups that states such as Maryland have already endured. Swift action by Iowa regulators could substantially reduce these risks.