

Joint Testimony of Eric Schaeffer, Director, Environmental Integrity Project  
and Lisa Evans, Attorney, Earthjustice  
before the Subcommittee on Water Resources and the Environment  
of the Committee on Transportation and Infrastructure  
U.S. House of Representatives

April 30, 2009

Thank you, Mr. Chairman, for the opportunity to testify before the Subcommittee on Water Resources and Environment today. My name is Eric Schaeffer, and I am Director of the Environmental Integrity Project, a nonprofit and nonpartisan organization that advocates for more effective enforcement of federal environmental laws. I also served as director of the USEPA's civil enforcement program from 1997 to 2002. The testimony that follows is offered on behalf of myself and my colleague Lisa Evans, a senior attorney at Earthjustice and one of the nation's leading experts on coal ash. Our testimony will make the following points:

- 1) Coal ash is a hazardous material that tends to leak toxic metals into groundwater and surface water, especially when the ash is saturated or stored in wet ponds.
- 2) The discharge of wastewater from coal ash ponds, as well as the runoff from so-called dry landfills, can release arsenic, selenium and other pollutants in amounts known to be toxic to human health and aquatic life in our rivers and lakes. Despite the risks, discharges of toxic metals are generally not restricted under Clean Water Act permits at power plants and are often not even monitored.

- 3) Air pollution control equipment installed to comply with the Clean Air Act will generate thousands of tons of scrubber sludge at a typical power plant. USEPA and industry data show that the wastewater discharged from scrubber sludge treatment systems can release toxic metals like selenium in concentrations that are hundreds of times higher than water quality standards designed to protect aquatic life.
- 4) USEPA has promised to develop federal safeguards for the disposal of coal ash, but is also evaluating whether to set limits on the toxic discharges from ash and sludge treatment systems. The monitoring data indicate that such limits are overdue, and there is little time to lose.

### *Coal Ash is Hazardous*

Coal contains toxic metals like arsenic, boron, cadmium, chromium, lead, and selenium. The National Research Council (NRC) observed in a 2006 report, Managing Coal Residue in Mines, burning coal increases the concentration of these pollutants; if the ash is saturated, these pollutants are likely to leak into groundwater or surface water. The NRC examined the growing practice of depositing ash in mines to reduce acid runoff and warned that, “the presence of high concentration levels in many leachates may increase the health or environmental risks near some mine sites.” In fact, the USEPA has determined in recent reports that coal ash, when tested with a reliable leach test, exceeds the toxicity characteristic (the threshold for a hazardous waste determination) under the Resource Conservation and Recovery Act for both selenium and thallium.

Most ash is disposed of in landfills or in large ash ponds like the one that collapsed at the Tennessee Valley Authority's Kingston plant in Tennessee just before Christmas. While catastrophic releases remain a real risk at some disposal sites, the leak or discharge of toxic metals from the sites is a daily event at many locations. The USEPA has identified at least 67 proven or likely instances in which groundwater, creeks, wetlands or lakes have been seriously contaminated by arsenic, boron, selenium, and other metals released from ash disposal sites.

Many additional confirmed cases of contamination from coal ash are not on the USEPA's list, including ones that resulted in the destruction of drinking water supplies; the Agency acknowledged in 2000 that the threats from coal ash are likely to be far larger, due to the lack of monitoring at so many coal ash sites. For example nearly two-thirds of the ash ponds in America did not have groundwater monitoring as of 1999, and little has changed since then to require monitoring at these sites.

The U.S. electric power industry generates about 130 million tons of ash, scrubber sludge and other combustion residues annually according to the USEPA, or about 1,000 pounds per person. This volume of waste would fill 1 million train cars, and USEPA predicts that volume will swell to some 175 million tons annually in just six more years. That's comparable to the amount of household garbage that we generate in the U.S. every year, with one important difference: in most states, municipal landfills are subject to significantly more regulation than coal ash dump sites. Leaks from these unregulated operations may not only contaminate drinking water wells, but can also reach rivers and streams through adjacent aquifers.

### *Discharge of Toxic Metals from Coal Ash*

While toxic metals held in ash ponds, landfills, and treatment systems can leak into groundwater, the wastewater residue from such operations is also routinely discharged into wetlands, creeks, rivers and lakes. Based on annual industry reports to the USEPA's Toxics Release Inventory, power plants are the second largest discharger of metals and metal compounds, releasing more than 2 million pounds in 2008. The actual volume may be significantly larger, since these discharges are not regulated by the USEPA, and are not routinely monitored or reported at many plants.

Our analysis of the limited data that are available through the USEPA indicates that power plants routinely discharge some toxic metals – particularly selenium – in concentrations that exceed water quality standards. For example, selenium is a toxic pollutant found in coal ash that is deadly to fish, and which can also damage the liver and other soft tissues in humans. USEPA has determined that chronic exposure to selenium at levels above 5 micrograms per liter – or about 5 parts per billion -- is harmful to freshwater fish and other aquatic life. Some states have also adopted standards to limit acute (short-term) exposures to no more than 20 micrograms.

Data compiled from permit applications, monitoring reports, and sampling conducted for the USEPA identified at least thirty sites in which routine long-term discharges of selenium exceed 20 micrograms, and sometimes 100 micrograms (See Table A and Attachment A). Selenium water quality standards are meant to protect receiving waters, and do not necessarily apply to the actual discharge of wastewater from pipes. But we have already learned the hard way that releasing selenium into rivers and lakes can decimate fish populations and make the surviving species unsafe to eat. For

example, according to the USEPA, the discharge of selenium from a power plant wiped out 16 of 20 fish species in Belews Lake in North Carolina in the 1980s, while selenium contamination from Texas power plants in approximately the same decade led the state to recommend limiting consumption of fish.

### *Discharge of Toxic Metals from Scrubber Sludge*

U.S. power plants that haven't already done so are scrambling to install scrubbers to reduce emissions of sulfur dioxide, in anticipation of Clean Air Act deadlines or to comply with enforcement increases. That is a welcome trend, since scrubbers can remove 95% of the sulfur compounds that cause acid rain and promote formation of fine particles that trigger asthma attacks, heart disease, and premature death. Less welcome is the news that alarming amounts of some of the metals that are stripped out of the smokestack are ending up in our waterways.

Scrubbers generate sludges that need to be periodically treated or dewatered to remove contaminants and reduce the need for additional landfill space. The limited monitoring data available from the USEPA show that selenium levels in wastewater that is discharged from scrubber sludge can be sky-high, reaching concentrations in excess of 1000 parts per billion, or hundreds of times higher than the USEPA's recommended water quality standard of 5 parts per billion.

### *Release of Arsenic and Other Pollutants*

The limited monitoring data available show that power plants also release other pollutants at levels that exceed drinking water standards or limits meant to protect

recreational uses like swimming and fishing. The USEPA has established a maximum contaminant level of 10.0 micrograms per liter for arsenic in drinking water. States like Tennessee use the same threshold in waters used for recreational purposes, recognizing that arsenic becomes increasingly concentrated as it moves up the food chain, which could potentially make some fish unsafe to eat. USEPA data identify at least 20 power plants where arsenic levels in wastewater discharges routinely exceed 20 micrograms per liter, or at least twice the recommended federal standard for drinking water or recreational waters. Again, this is likely an understatement, as so few monitoring data actually exist.

#### *EPA Needs to Regulate Before It Is Too Late*

Air pollution controls create mountains of ash and sludge, and these already staggering volumes will grow rapidly as companies move to comply with new Clean Air Act requirements. But cleaner air should not mean dirtier water, and the USEPA needs to establish strict standards to make sure that we are not just trading one problem for another.

- After decades of delay, the USEPA has promised to propose standards for safe disposal of coal ash no later than the end of this year. Those standards should recognize that coal ash is a hazardous waste. In addition, those standards should apply to scrubber sludges and other types of combustion residue, and address potential risks to both human health and the environment. In particular, the regulations should prevent both the contamination of drinking water, and the

pollution of surface waters from adjacent aquifers from both existing and retired coal ash dump sites.

- USEPA standards should also apply to the disposal of coal ash in mines, quarries and other sites that have escaped virtually any common sense safeguards due to exemptions in state laws that are exploited in the absence of federal action.
- Wet storage of coal ash should be phased out as quickly as possible, as the highest threats to human health and the environment occur when coal ash is placed in water.
- USEPA is evaluating the need to set limits on toxic discharges from coal plants – the data it has gathered so far, and the expected growth in waste from new air pollution control equipment, indicate that there is little time to lose. USEPA should move immediately to require more extensive monitoring of the discharge of arsenic, selenium, and other toxic pollutants from power plants and should set discharge limits, including zero discharge limits, consistent with water quality criteria for toxic substances.
- In at least some cases, power plants may be violating federally enforceable permit requirements or rules that limit discharges that contribute to a violation of water quality standards. USEPA's enforcement program, working with state agencies, should investigate and take action where serious violations can be established.

Thank you again for the opportunity to testify and for your attention to this important issue, and I will be pleased to answer any questions that you may have.