

Virginia Coal Ash Assessment



Coal combustion products (CCPs), also typically referred to as “fly ash”, are the fine particulate material left over from burning ground or powdered coal. Coal-burning power plants are generally the largest producers of CCPs. The main components of CCPs are oxides of silicon, aluminum, iron, and calcium, with lesser amounts magnesium, sulfur, sodium, and potassium. Of significant environmental concerns, trace quantities of the following metals may also be present in CCPs: arsenic, beryllium, boron, cadmium, chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium.

In addition, polycyclic aromatic hydrocarbons (PAHs) are a group of chemicals formed during the incomplete burning of coal, or other organic materials. The following PAHs have also been reported in CCPs: naphthalene, anthracene, phenanthrene, benzo(k)anthracene, fluoroanthene, chrysene, dibenzofuran, fluorene, and benzo(a)pyrene.

Of the millions of tons of waste stream CCPs that are currently not utilized in other processes or products, excess CCPs are typically stored in surface waste ponds, impoundments, abandoned mines, and quarries. Components of the CCPs, including trace metals, can leach out of the stored waste and contaminate groundwater and surface water.

Aquilologic has been retained by a group of environmental organizations to evaluate groundwater contamination, and resulting impact to surface water and ecological habitats, at a large coal-fired power plant in Virginia. Historically, the plant stored CCPs in large, unlined ponds adjacent to a creek that ultimately drains into the Potomac River. These ponds received coal ash, pyrites, water treatment wastes, boiler cleaning wastes, and oil ash. Groundwater monitoring detected elevated concentrations of numerous trace metals, including cadmium and nickel. **Aquilologic** is evaluating the nature, magnitude, and extent of groundwater contamination, the migration of contaminants to surface water bodies, the long-term fate of the chemicals of concern, and any mitigation measures that may be needed.