

Remediation of Groundwater at Coal Combustion Product Management Facilities: Driving Issues and Future Trends

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ABSTRACT

EPRI is compiling data on causes and remedies for groundwater degradation at coal combustion product (CCP) facilities in order to identify driving issues and determine areas where research on remedial alternatives will be most beneficial to the power industry. A database of remedial actions at CCP sites has been compiled and is being used for characterization. One function of this database is to identify chemical constituents that trigger remedial actions at CCP facilities. These data were combined with chemical mobility and leachate concentration data to identify primary potential constituents of concern for CCPs. These are boron, sulfate, arsenic, selenium, and chromium. The next step is to identify or develop remediation technologies to treat these constituents if released to groundwater. Boron and sulfate are particularly difficult to treat because they do not respond to many of the chemical processes used in standard remedial technologies. Several CCP remediation projects have recently featured barrier walls to contain the source and greatly reduce or eliminate the volume of groundwater that must be extracted and managed relative to standard pump and treat applications. Research is currently focused on reactive media to treat the identified potential constituents of concern, with a focus on in-situ applications. Early results indicate that several ion exchange resins, possibly as additives to zero-valent iron and organic matter, show promise for treating the potential constituents of concern.