

CCR Landfills – Part 1: Groundwater Considerations during Design and Construction

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ABSTRACT

The Environmental Protection Agency (EPA) Coal Combustion Residuals Rule (CCR Rule) and state regulations have resulted in the closure of unlined CCR units throughout the United States. Placing CCR material in newly constructed on-site landfills is a common approach to disposing of CCR material. Landfills constructed in or near unlined units during basin closure activities may be constructed under transient groundwater conditions that should be accounted for during landfill design and construction.

Understating historical, current, and future groundwater conditions during design and construction can have major impacts on the success of new CCR landfill construction projects. Unforeseen transient high groundwater conditions can result in costly redesigns, impacts to schedules and budgets, impacts to regulatory compliance, and tensions between stakeholders. Building CCR landfills in dynamic hydrologic settings like stream valleys or groundwater recharge/discharge zones, along with dynamic nearby basin closure activities, can result in higher than anticipated groundwater conditions that should be accounted for during landfill design and construction. Fortunately, tools are available that can be used during the design phases of these projects to understand and accurately predict groundwater conditions during the construction phases of these projects. Tools range from traditional hydrogeological studies to numerical modeling. With these tools, project teams can accurately predict transient high groundwater conditions and plan accordingly to avoid construction delays and impacts to a project's success.

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