Coal Combustion Residuals Management
Integrated Life Cycle Services
The U.S. Environmental Protection Agency published its new rule tightening regulations for coal combustion residuals management. New mandates are required to meet this already complex requirement.

We understand the challenges you face, and we’re here to help.

The new CCR rule brings new requirements to this already complex industry. We will help you manage demands and mitigate disruptions and risks that could impact your employees, customers and local community—all of which could be costly to your business’ long-term prospects.

Our teams bring the full strength of our insight and knowledge to you, as our clients—we connect expertise and geographies, delivering the answers you need when you need them.

We work with you, delivering insight so you can navigate and manage all aspects of the industry including the complexities that the new CCR rule presents. Our experts can help you:

- Assess and comply
- Upgrade and repair
- Close and replace
- Convert and dewater
- Monitor and report
- Remediate
- Innovate
- Construct

1000 dedicated CCR specialists
400 offices across the U.S.A.
175 impoundments benefiting from our services
45 utilities receiving our expertise in CCR
Providing a life cycle of services that meet industry standards and responsibly manage CCR, while balancing a safe, profitable and efficient utility operation.

We know that industry knowledge counts, so we put CCR management solutions at the center of our power services. Our professionals know the CCR rule from the inside out.

Each power company defines their needs differently. That’s why we partner with you, combining CCR and power expertise to deliver integrated services across the entire project life cycle. Our insight begins with project planning and extends through construction.

Along the way, we incorporate a thorough knowledge of coal-fired boilers and associated air pollution control systems to deliver customized cost effective, sustainable and value added services. We foster the best possible innovative results for CCR compliance, new units, dry conversions, dewatering systems, water management and groundwater monitoring/remediation.

!-- Industry Recognition --!
*Engineering News-Record’s 2016 Top 500 Design Firm Survey recognized us as the industry’s #1 firm overall.*

#1 Design Firm  
#1 Hazardous Waste  
#1 Site Assessment and Compliance  
#2 Clean Air Act Compliance  
#4 Power
Assess and comply

Assessment and compliance form the foundation of well-managed CCR operations. We provide engineering solutions that help pinpoint and address issues uncovered during inspections and monitoring.

Assessments: our assessments identify technical issues at the very beginning of your project, allowing time for strategic planning and evaluations. We focus on facilitating regulatory compliance, establishing costs and determining what and when modifications will be required for each CCR unit.

We use site characterization measures such as surveys, subsurface investigations, aquifer testing, fate and transport modeling, groundwater assessments, data evaluation, visualization and statistical analysis to determine groundwater corrective actions and CCR and subsurface conditions. And we discuss these concepts with you, providing clear communication channels so that together, we can deliver assessments that satisfy regulators and meet your project needs.

Compliance: Meeting CCR rule requirements can be challenging. Utility and independent power producers are working hard to meet the complex demands. We can help. Our understanding of the complexities of compliance is second to none.

We’ve written extensively on the subject, developing a summary and series of guidance documents about the CCR rule and its applications and are well-versed about the ins and outs of this challenging rule. We’ve also developed strong relationships with key regulators so we can expedite approvals and support you through the compliance process. Given the complexity of the many facets associated with compliance, we foster partnerships with our clients from strategy and planning through construction.

Our team will help your team to understand and meet regulatory deadlines while avoiding issues that impinge on smooth business operations.
Upgrade and repair

CCR sites and site conditions are varied and we take those variable factors into account when we deliver upgrades and repairs. That's where our integrated team approach produces results. We combine our key leadership roles in power industry organizations, with CCR management and engineering to provide you with consistent, cost efficient and high quality upgrades and repairs.

Upgrade: We deliver integrated services across the CCR and power markets. Our team incorporates our long-standing expertise in dams, solid waste, power plant engineering, and more through every partnership.

Our combined knowledge and experience drive upgrade strategies across all forms of sites. And our insight into scheduling, costs and benefits gives you a clear advantage as you work to upgrade your sites.

Repair: Our professionals have completed more than 4,000 dam projects worldwide and are leaders on all types of dams as well as impoundments, dikes and levees. We apply our knowledge to evaluate existing CCR units. We take assessing and repairing deficiencies and other issues into account balancing the cost effectiveness of repair upgrades with closure and replacement to determine the best course of action for you and your CCR sites.

Improved CCR units stability and safety through assessment and implementation of fleetwide remedial measures for CCR units subject to stability and seepage concerns.
Close and replace

A deep bench of professional resources can go a long way to delivering a well-planned CCR closure and replacement program. Our dedicated team brings comprehensive planning, order and efficiency to these complex processes. We have the capability to construct closures and replacements whenever and wherever they are required.

Closures

Our pond closure strategies are deliberate and well thought out, bringing you customized and cost effective solutions that incorporate condition assessment and employ materials and cap design to meet regulatory and post closure requirements.

We apply innovative analytic tools and methods to CCR closures. When closure is required, our professionals evaluate all options, traditional and non-traditional, so you are prepared and can make the selection of the best possible available approach.

Replacements

When you need to replace your storage with landfill projects, look for a team that has a track record of success. We have permitted and designed landfills throughout the United States and incorporate design features that ease construction and operations.

Innovation is at the core of our work and our customized Opti-Site process identifies candidate sites using geographic information system mapping, decision analysis and detailed criteria.

Our experienced professionals can construct new landfills on a subcontractor or direct hire basis.

Construction is an integral part of our professionals’ experience. We know how to reduce the annual fill materials required, allow gradual operations transitions and select the most suitable closure option.

Left:
Provided full life cycle services to deliver and assist in selecting a contractor to implement closure of a 160+ acre impoundment in full compliance with the CCR Rules. Unique challenges were embraced with an alternative evapotranspiration cap system.

Integrated solutions applied to deliver a stable pond closure and repair of a failed embankment incorporating deep soil mixing wall.
AECOM, through its joint venture with Advatech, designed and constructed a dewatering system for gypsum. Provided continuity throughout the lifecycle of the project as the designer for bottom ash and gypsum dewatering facilities while delivering innovation through a blending process for a dry, stable product.

Convert and dewater

High profile ash pond failures have changed industry standards for conveying and dewatering with new installations and retrofits now using dry fly ash conveying methods.

We can help coal power plant operators with active ash retention ponds evaluate their options and the processes they will need to tackle to convert from wet ash to dry ash systems.

We have completed some of the largest ash conversion projects in the United States over the last decade. A trusted utility partner, our professionals have conducted pilot studies with the Electric Power Research Institute and the United States Department of Energy for first of a kind technologies and processes. And we’ve used that knowledge to help smooth the way for utilities converting coal power plant systems from wet to dry.

Our solutions are anything but boiler plate. We understand the important place that technology selection holds in meeting plant objectives. Whether it’s extending operating life or meeting today’s environmental regulation, our technical staff designs customized solutions based on our clients’ specific needs, delivering strategies that will optimize plant performance. Our experience covers the marketplace. We’ve worked with nearly all of the systems with today’s technology including submerged systems, pneumatic ash extractor system, dewatering bin systems and continuous dewatering and recirculation systems delivering results that meet your goals.
Monitor and report

We understand the essential role that groundwater monitoring and reporting on CCR sites play in your overall operations. Our monitoring and reporting services are top notch and encompass system design and installation, data evaluation and reporting and assessment planning – all developed to meet your compliance needs.

Our experience extends to such efforts as monitor system design, installation and testing as well as detection, assessment and compliance monitoring.

We also provide initial and ongoing monitoring to evaluate contamination in response to permit issues, discharge permits, special agency requests and as voluntary actions.

As part of our consulting services, our team documents processes and trains plant personnel on routine inspection requirements. We also use historic data collection and evaluation to monitor projects and develop needed reports.

Above:
Developed a predictive modelling tool for water balance and quality that facilitated improved operation and better selection of treatment technology(ies).

Established a fleetwide, groundwater monitoring network that compliments existing instrumentation and complies with multiple state and federal programs.
Remediate

Remediating CCR sites has long been one of the top challenges within our industry. And with the new CCR rule in place, the path to effective remediation is even more difficult to navigate.

We know. And we can guide you through.

Our engineers and scientists will work with you, providing a customized remediation road map. Our remediation services address the full business life cycle of project needs, from planning to operation to sustainable long-term follow through. From preparing risk assessments to remedial design, construction and operations and maintenance, we unite disciplines and tools to complete and implement soil and groundwater remedial designs across all types of CCR sites.

Our approach begins with site condition evaluations that identify alternatives and feasibility evaluations that help target each client’s goals. We handle all types of remedial solutions, tailoring our technologies to your specific site needs. We provide solutions that include such technologies as physical and chemical barrier systems, hydraulic containment/removal and treatment and natural attenuation remedies. Our innovative technologies round out our complete toolkit for each individual project and can provide you with the services needed to make your remediation project a success.

Our long-established relationships with federal, state and local regulatory agencies can provide you with the information you need to make the process run as smoothly as possible.

Below:
Implemented corrective actions during the decommissioning of a coal plant through a targeted remediation plan (saving costs) and focused excavation and removal of impacted soils/groundwater.

Executed an effective remediation with a plan to cost effectively address impacted soils during construction thereby avoiding excessive cleanup efforts.
Innovate

Insight and innovation are the keys to effective CCR management. We continuously conduct research and development to provide our clients with best-in-class technologies, pioneering strategies that solve current and future regulatory and operational challenges. We provide design and build, operations and maintenance, monitoring resources, geotechnical services, groundwater modeling, risk assessment, and numerous other innovative and established tools to meet your CCR management needs.

Our experienced professionals balance opportunities for innovation with traditional, low cost and value added solutions. We have a long history of thinking outside of the box, providing power and industrial market sectors with technology research, development, demonstration, commercialization, and technology implementation.

Our innovative approach to our clients’ challenges encompasses such measures as the use of solar installations at closed CCR impoundments or landfills, which can provide multiple opportunities for solar power production and revenue generation. We also enable beneficial reuse and recycling of CCR, using them as ingredients in concrete, structural fill, blasting grit and roof shingles.

We evaluate competing technologies and varied site visualization tools and incorporate our own customized tools including environmental sequential stratigraphy technology, and concise and accurate cost estimates using industry-accepted technology standards (RACER™).

From stabilization, dewatering and modeling technologies to construction and execution innovations, our professionals ensure full compliance delivering turnkey solutions. We are driven and committed to prove ourselves through your success.

Below:
Avoided the high cost and regulatory challenges of a new pond by developing a FGD thickened slurry for dry disposal.

Repurposed a closed landfill through the installation of a solar generating facility over the finished site that doubled the utility’s solar capacity.
Our teams apply creative vision, technical expertise, interdisciplinary insight and local experience, addressing complex challenges in new and better ways. Our vast expertise in engineering, procurement, and construction provides our clients with a full-services-aligned approach for development and operations. We provide a full suite of pre-construction and construction-related services and solutions for projects of varying scope, budget, schedule and complexity. Our services are tailored to fit your needs as your project progresses or increases in complexity.

We’ve tackled all kinds of complex projects including CCR impoundment and landfill construction and closure, wet-to-dry conversions, CCR materials dewatering, roads, water/runoff control, waste product containment, groundwater monitoring and remediation and site support facilities, including warehouse and inventory facilities, maintenance/repair shops, engineering and administrative offices, wash bays and change houses.

Our extensive preplanning activities align your project activities and goals and work with you to develop the overall project roadmap, fitting the key activities and milestones together to meet project objectives and develop a project work plan and schedule that is flexible and adaptable to meet change management requirements, providing a clear vision of the path to project success.
The power of the relationship

It’s what transforms a good opportunity into a successful project.

AECOM can help you address the power generation issues of today. We can implement clean air systems to reduce emissions. We can deal with regulatory requirements and permitting. AECOM can plan and implement programs to deal with coal combustion residuals.

The work can be challenging. Obstacles can present themselves.

We can overcome them together because we’re more to each other than customer and supplier. We’re more than a list of projects in an experience matrix. We’re partners focused on achieving a single goal. Together.

The power of the relationship transcends project goals. It translates into safer, more efficient projects that are delivered on time, within budget while achieving performance goals.

Our integrated approach means we deliver on all components of the project’s life cycle.

AECOM offers utilities the benefits of an integrated approach through every phase of a project’s life cycle. Our integrated approach makes AECOM’s broad engineering, procurement, construction and startup service portfolio available under a single contract.

This means a quick start up on even the smallest project because a single management team will understand and respond with full knowledge of your expectations and requirements.

The result is improved safety, quality, schedule and cost performance across the board.
Safety

A core value at AECOM

One of the values of a close client relationship is the ability to positively influence quality, schedule, cost and, most importantly, project safety.

AECOM is regularly cited as one of “America’s Safest Companies” and has industry-leading safety statistics.

TVA alliance safety performance

The positive safety results of an alliance relationship and a top-to-bottom corporate commitment to safety are best demonstrated by the safety performance of AECOM.

Safety is a corporate value that is shared at every level of the corporation. CEO Michael Burke was one of nine corporate leaders named by the National Safety Council in 2015 as “CEOs Who ‘Get It.’”
AECOM has been recognized throughout the industry with numerous awards from *Power magazine*, *Power Engineering magazine*, *Powergrid International*, *Environmental Business Journal* and *Platts Global Energy*.

### Power markets we serve

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About AECOM

AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM had revenue of approximately $18 billion during fiscal year 2015. See how we deliver what others can only imagine at aecom.com and @AECOM.

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