



APTIM

**CONSTRUCTION
SERVICES FOR
COAL COMBUSTION
RESIDUALS**

CCR SERVICES

APTIM is a leading provider of integrated environmental services for the management and disposal of Coal Combustion Residuals (CCR) generated from coal-fired power plants. We have provided engineering services to private and public clients since the inception of Subtitle D (40 CFR 257) of the Resource Conservation and Recovery Act (RCRA). We provide technical, design, engineering, and construction support for our clients and have provided consulting and engineering services to more than 800 landfills/impoundments throughout the United States in accordance with federal, state and local regulations. Since the inception of the CCR rule, we have provided the same suite of services for multiple coal-fired utilities across the nation.

We provide customers with effective, low-cost solutions to their CCR projects in full compliance with Federal and Local regulatory requirements.

Company Overview

Having operated for eight decades under predecessor companies with distinguished histories, APTIM is a leading provider of integrated civil and environmental engineering design, construction, and operations within a variety of industries. We provide our services through all project phases, based on our comprehensive capabilities in up-front engineering and design, construction (including EPC and traditional approaches), operations and maintenance, program management, remediation, emergency action, and recovery services. A

steadfast commitment to our clients, safety, and operational excellence differentiates us within the industries we serve.

Our Coal Combustion Residual (CCR) specialists have extensive experience in both the power and waste management sectors and have been working as a group for more than 40-years. These qualifications, along with a nationwide presence, allow us to take on CCR projects ranging from the routine to the most challenging



Exhibit 1: APTIM's evolution

CCR Construction Services

We provide a complete spectrum of construction services for power and utility clients. Highly experienced construction professionals have mastered the integration of plans, specifications, and concepts from the computer through project completion. These managers, planners, estimators, schedulers, supervisors, superintendents, field engineers, and skilled craft labor are all supported by the latest management technology and utilize our guidelines and procedures to ensure that work is performed safely and correctly at all times.

We place primary importance on a safe work environment for all employees and vigorously pursue a proactive safety management program. Our

team of experienced and trained safety professionals are dedicated to eliminating unsafe work practices through the continuous promotion of safety awareness and safety education. Employees are recognized and rewarded for job safety.

APTIM has extensive experience in all phases of facility planning, engineering, design, permitting, and construction.

Resources

What differentiates APTIM is our vertical integration and available resources to accommodate projects of all sizes and all levels of technical complexity. Our flexibility in project staffing allows us to provide technical specialists on short-term, long-term, or on an as-needed basis. We have a bench of talent that allows numerous projects to be completed simultaneously. By far, the most important asset we offer our clients is our experienced, talented personnel, who are summarized by category in Exhibit 2 below.

Registrations	Number
Professional Engineers	537
Professional Geologists	201
Construction	
Construction Managers	317
Contract Managers	32
Project Management Professionals	400
Field Engineers	74
Craft Labor	5,267
Certifications	
Asbestos Professionals	103
Industrial Hygienists	8
Safety Professionals	177
Emergency Medical Technicians	13
Health Physicists	3

Exhibit 2: Our environmental specialists



Equipment

APTIM maintains a significant fleet of construction equipment that enables us to successfully complete projects in a cost-effective manner. We mobilize equipment and supplies quickly and efficiently from our facilities in Findlay, Ohio and Prairieville, Louisiana to best service large and small projects at various locations nationally. We activate national and local partnerships and agreements held with major lease and rental equipment providers to supplement inventory that projects may need. We procure equipment through the most appropriate means considering reliability, cost, and schedule.

Exhibit 3 below highlights our extensive selection of available equipment that we are prepared to activate for successful project completion.

Equipment	Number
Blowers and Compressors	55
Communication Equipment	3,056
Equipment	152
Generators	12
Geophysical Equipment	181
Heavy Construction Equipment	507
Hydrological Equipment	81
Instrumentation/Monitoring Equipment	563
Material Handling Equipment	192
Nuclear Equipment	180
Operations Support Equipment	1,011
Pumping Equipment	13
Recovery and Treatment Solid Material Equipment	56
Trailers	300
Vacuum Equipment	8
Vehicles	1,096

Exhibit 3: APTIM-Owned Equipment

Construction Management

We maintain an experienced organization with experts in a diverse range of construction management projects. We function as construction and maintenance specialists who review projects during the engineering and design stages, prepare construction and maintenance projects for entry into the field, and oversee construction efforts. We can provide limited services or complete control of all construction, maintenance, and subcontracted work for customers.

Our suite of applications integrates related project functions and data for



cost, schedule, procurement, material management, requisitioning, accounting, and change control. Real-time access to data allows us to exercise strategic influence over project activities in a timely manner, preventing slippage in schedule and budget.

We use proven management practices and technical procedures to facilitate work inspection activities such as documentation practices inherent to the construction management process. We provide comprehensive construction management services, from selected engineering support services to complete owner representation during the construction phase. Construction management services include:

- ▶ Selection of general and specialty contractors
- ▶ Preparation and implementation of construction quality assurance plans
- ▶ Preparation of health and safety plans
- ▶ Procurement
- ▶ Resident engineering
- ▶ Project management
- ▶ Management and administration of construction contracts and multiple prime contracts
- ▶ Submittal reviews
- ▶ Preparation of construction schedules
- ▶ Review of contractor applications for payment and associated recommendations
- ▶ Management of field orders and contract change orders
- ▶ System start-up
- ▶ Contract closeout
- ▶ Certification of work, including as-built drawings

We earned our stellar record preparing accurate engineer's cost estimates used for the bidding process and also managing the contracts.

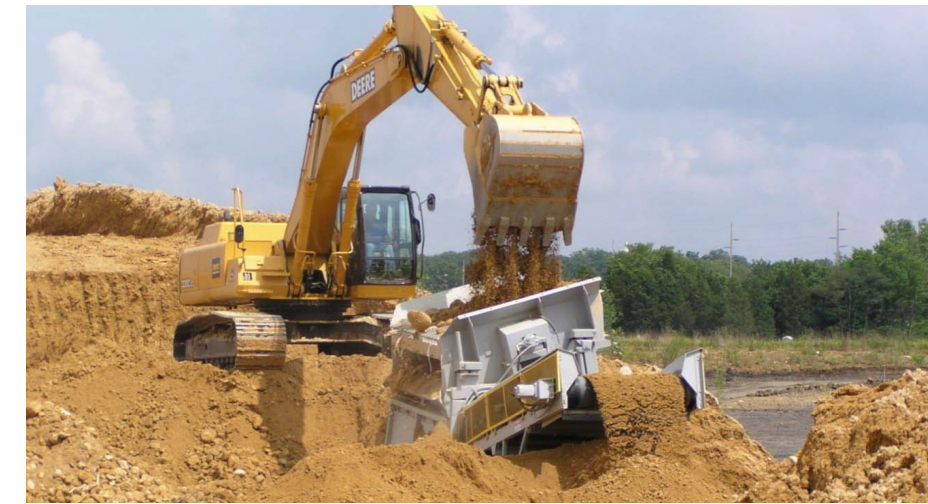
CCR Closures

Our Environmental Construction Group, through various configurations, has taken the lead in environmental construction services since the early 1980s and integrated this extensive background and knowledge into a strong portfolio of CCR closure projects.

APTIM provides a full range of CCR/ environmental construction services to all sectors of the power industry as well as public and private customers. These services include the following:

- ▶ CCR landfill/impoundment construction
- ▶ CCR landfill closure
- ▶ CCR impoundment closure
 - › Cap in place
 - › Closure through removal
- ▶ CCR management
 - › Consolidation
- ▶ Dewatering/water management
- ▶ Stormwater management/erosion and sediment control
- ▶ Groundwater extraction and treatment
- ▶ HDPE pipe conveyance system Installation
- ▶ Environmental treatment systems
- ▶ Stabilization and solidification (in-situ and ex-situ)

We execute multiple CCR landfill and impoundment closure projects safely and successfully for customers nationwide. Examples of current and historic projects, including CCR, solid waste and hazardous closures, are presented in the following section.



Remedial Construction

APTIM has moved millions of cubic yards (cy) of earth, much of it containing contaminants such as:

- ▶ Heavy metals
- ▶ Polychlorinated biphenyls (PCBs)
- ▶ Caustics and acids
- ▶ Organics
- ▶ Petroleum hydrocarbons
- ▶ Radioactive compounds
- ▶ Unexploded ordnance and munitions
- ▶ Medical materials
- ▶ Sediments and sludges

Excavation Experience

- ▶ Impoundments and lagoons
- ▶ Consolidation and capping
- ▶ Sediment excavation and restoration
- ▶ Clean construction and earthmoving
- ▶ UST and process pipelines
- ▶ Drums and buried materials
- ▶ Radioactive materials
- ▶ Munitions and explosives
- ▶ Residential

CCR Stabilization and Solidification

We support our clients in stabilizing and the solidification of CCR material for both closures and disposal. Stabilization covers a wide variety of techniques to reduce the solubility, mobility, degradability, or toxicity of a given constituent in a hazardous material; it generally refers to the chemical or physical pretreatment process that renders a material suitable for solidification. The solidification process produces a solid from the stabilized material.



Material stabilization mixes conventional stabilization reagents (e.g., cement, lime, and silicates) with material media to decrease leachability and permeability. Leachability is decreased by several mechanisms, such as reduced solubility, chemical bonding, and encapsulation in a matrix inaccessible to water. The process often requires an initial step in handling materials, such as petrochemical and

metals-contaminated sludges and dusts, before placement in a material landfill or containment cell.

Solidification is a process in which a primary additive mixes with a material; through a chemical reaction, the primary additive (usually with water) and materials react to form a strong, low-permeable, irreversibly non-compressible, and monolithic solid that immobilizes potential contaminants in the material. A variety of solidification technologies exist, each based on a different principal binder material additive and/or immobilization technique.

Our engineers, scientists, and field personnel use their technical and practical experience to provide material solidification and stabilization services. Our Technology Development Laboratory formulates design mixes and performs recipe development.

APTIM develops site-specific, grout-based stabilization formulations to reduce organic and metal species' leachability that will meet regulatory criteria, such as the toxicity characteristic leaching procedure (TCLP). We have successfully treated electric arc furnace dust, lead- and organics-contaminated soil, scrubber salts, fly and incinerator ashes, physical/chemical treatment and petrochemical sludges, and radioactive materials using formulations developed in our laboratories and designed by our engineers/scientists.

We initially undertake stabilization and solidification treatability studies that determine the material's physical and chemical characteristics, screen potential reagents and/or reagent combinations, and verify that the treated material will meet the performance criteria. Treatability testing uses specific, locally available reagents to evaluate cost-effective alternatives.

Environmental Decommissioning

We provide clients with comprehensive decontamination and demolition (D&D) services through our experienced, OSHA-trained field personnel. All projects adhere to OSHA regulations and project-specific HASPs.

We safely decontaminate and decommission highly toxic materials and mixed materials and other regulated substances, including asbestos, PCBs, dioxins, furans, nitroglycerine, tetraethyl lead, radioactive materials, and biological agents (anthrax).

We combine more than 30-years of technical knowledge and experience in the D&D of large and/or unstable buildings and structures. We provide a complete range of D&D services from project planning and assessment through final material disposition.

Our technical and field staff, equipment inventory, regulatory expertise and relationships, and proven performance record demonstrates our ability to

Primary Services

- ▶ Cleaning tanks and railroad cars, barges, tankers, and pumping
- ▶ Decontaminating industrial facilities and cleaning process systems and plants to meet regulatory closure standards
- ▶ Demolishing buildings following abandonment, closure, fires, or accidental releases
- ▶ Decontaminating and decommissioning nuclear facilities and equipment
- ▶ Removing asbestos and lead coating from public buildings, airports, and industrial facilities
- ▶ Salvaging equipment and building materials to obtain maximum value

complete any D&D project. We have successfully performed more than 31,000 decontamination tasks for government and private sector clients, of which 5,000 involved radioactive contaminants. We offer a full spectrum of hands-on decontamination technology expertise that ranges from small surface contamination removal to the complete D&D of facilities, including contaminated equipment, tanks, hardware, and structural components.

APTIM completes chemical surveys and assesses structure contamination to determine the proper decontamination methods. We also provide project management support, construction supervision, construction engineering, and structural engineering services for dismantling and removing equipment and systems. These services can include rigging, handling, and shipping preparation of large components.

Decommissioning and Demolitions Services

- ▶ Characterization
- ▶ Equipment and system removal
- ▶ Structural dismantlement and demolition
- ▶ Cost-beneficial material stream segregation
- ▶ Material minimization, volume reduction, and packaging
- ▶ Transportation and disposal of explosive, radioactive, hazardous, and mixed materials

Construction Technology Group (CTG)

APTIM places a strong emphasis on selecting the right technology for our clients. Our CTG is available to any project/client which require support. Including but not limited to:

- ▶ Heavy crane/critical lift planning and approval
- ▶ Specialized rigging
- ▶ Demolition planning and support
- ▶ Structural stability analysis
- ▶ Design of tie-off systems
- ▶ Vessel and tank modifications
- ▶ Modularization and sub assembly planning
- ▶ Unique rigging with gantry's, monorails and tracks
- ▶ Welding & materials engineering (in process)
- ▶ Developing and maintaining construction manuals and standards

The CTG provides innovative and responsive support to all of our clients from pre-contract constructability optimization through the construction execution period, including rapid emergency support for disaster relief and significant events.



Increasing CCR Beneficial Re-Use Opportunities

Our project management integrates strengths to increase beneficial re-use of material through:

- ▶ Obtaining analysis coal ash samples in our lab(s)
- ▶ Utilizing consultants to identify “Best Fit” re-use opportunities on-site and/or identify off-site users through construction opportunities
- ▶ Developing implementation plans to bridge gap between site CCR material production and other industry users
- ▶ Providing services to close gaps
 - › Ash handling and transportation
 - › Water treatment
 - › Construction of conversion processing facilities (i.e. Ash to Concrete)

- › Plant modifications and/or small construction projects
- › Business development and marketing of re-use material to end users
- › Community outreach communications to improve public perception

Fabrication Facility

We maintain a 95,000 sq. ft. fabrication facility in Findlay, Ohio. This facility manufactures specialized equipment for projects and offers a cost-effective alternative to renting or purchasing specialized equipment. The design/build capabilities of this fabrication and maintenance facility help provide considerable advantage over our competitors by supplying immediate and innovative solutions to project equipment needs.