Construction Management of Dam Rehabilitations
Virginia’s Upper Occoquan Dam features an innovative water-proofing method to reduce dam seepage without draining its reservoir.

**Reinforcing Our Foundation**

Dam owners expect top performance from service providers when protecting our water supply. For nearly 100 years, Gannett Fleming has delivered amazing results. Our Construction Management Division oversees dam rehabilitations while working with owners to achieve financially sustainable infrastructure improvements.

Gannett Fleming engineers have inspected more than 500 dams and modified more than 250 dams, including 50 dam rehabilitations during the past decade. Our renovations include earthfill, rockfill, concrete, masonry, and timber crib dams for private, municipal, county, state, and federal organizations throughout the U.S.

**Integrating Construction Services**

We apply an integrated services approach to enhancing water resources during dam renovations. Our project teams consist of planners, scientists, engineers, construction managers, and boots-on-the-ground personnel who work with clients to achieve a zero-defect goal on every assignment.

Our construction management expertise ranges from pre-construction, constructability, value engineering, and inspection through contract administration, project controls, and commissioning.

**Serving Pennsylvania American**

“Gannett Fleming is the best in the business,” said David Kaufman, vice president of engineering for Pennsylvania American Water, referring to our dam rehabilitation design and construction management efforts.

**Nesbitt Dam**

Constructed in 1901, Nesbitt Dam is undergoing a roller-compacted concrete (RCC) upgrade to armor the structure for extreme flood events. Owned by Pennsylvania American, Nesbitt is a 101-foot-high composite earth embankment and stone masonry dam with a masonry core wall and a 538 foot-long spillway located in Spring Brook Township, Pa. Its reservoir stores more than 1 billion gallons of water, processed for safe consumption by 75,000 customers throughout 17 municipalities.

Gannett Fleming is managing the Nesbitt Dam rehabilitation while maintaining continual service and supplying raw water throughout construction. Improvements include 27 individual 54-strand rock anchor installations with a new interface drainage system to reinforce the dam’s existing masonry section and meet safety requirements.

Viewed by the owner as an once-in-a-lifetime assignment, Nesbitt Dam upgrades should last well into the next century.
Watres Dam

Nearly 100 years old, Pennsylvania American’s Watres Dam is a 135-foot-high earthen embankment that extends more than 1,400 feet in Wilkes Barre, Pa. In concert with Pennsylvania American, our firm managed dam rehabilitation to meet safety regulations. We improved spillway capacity and stability and maintained the reservoir in service and near full pool. Continuous dewatering was required to install a new blanket and toe drains to control seepage. More than 75,000 cubic yards of rock excavation widened the spillway to three times its original capacity to stabilize the downstream embankment.

Thorn Run Dam

The rehabilitation of the Thorn Run Dam in Butler County, Pa., involves constructing RCC embankment overtopping protection to improve safety. This Pennsylvania American project includes reconstructing the high-hazard dam’s principal spillway and installing embankment drainage systems. Thorn Run is a 38-foot-high raw water impounding structure with a 600-foot-long zoned earthfill embankment.

Upgrading Virginia’s Largest Water Supply System

We are rehabilitating the 70-foot-high by 740-foot-long concrete gravity Upper Occoquan Dam and Reservoir in Fairfax County, Va. Owned and operated by the Fairfax County Water Authority, the dam impounds runoff from a 595-square-mile drainage area to create a reservoir with a 2.9-square-mile surface area. With 8.3 billion gallons of storage, the Occoquan Reservoir is one of two major water supply sources serving nearly 1.7 million Northern Virginia residents.

As part of modifications to three outlet works, Gannett Fleming is removing a 1,000-kilowatt hydroelectric station. This effort enables construction of a new 70-foot-high concrete control tower to increase outlet works capacity.

Upgrades include lining a 70-foot-high concrete screen chamber silo with a polyvinyl chloride membrane. This innovation reduces seepage without draining the reservoir.

Working in West Virginia

Gannett Fleming is providing the U.S. Department of Agriculture with inspections, design, surveying and mapping, and construction management to rehabilitate the 100-foot-high, 940-foot-long earthfill New Creek Site 14 Dam in Keyser, West Va. Our services include construction-phase and project management services such as slope stabilization, RCC auxiliary spillway armoring, a new toe drain system, and outlet works modifications. This work is part of a statewide contract.

Maintaining Relationships

We continue our role as client advisor long after the job is done. Our high percentage of repeat business reflects that commitment. Well-respected for effective project management and delivery, our Construction Management Division completes projects on time while averaging less than two percent on change orders.

Simply stated, we work to deliver successful projects.
Gannett Fleming is a global infrastructure firm that provides planning, design, technology, and construction management services for a diverse range of markets and disciplines. With 2,000 highly qualified individuals across a global network of 60 offices, we are united in our passion to deliver excellence. We have played a part in shaping infrastructure and improving communities in more than 65 countries, specializing in transportation, environmental, water, energy, and facility-related projects.

Founded in 1915, we embrace sustainability and innovation in our projects and internal activities, achieving results while being responsible stewards of our environment. Our culture of service, ingenuity, and responsiveness empowers us to fulfill our key mission: make our clients successful.

Gannett Fleming is consistently ranked in the top 10 percent on Engineering News-Record’s Top 500 Design Firms list.

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