AquaBlok® Composite Particle Technology

AquaBlok® is a patented manufactured composite aggregate material that provides a technology platform for the delivery of known materials, such as bentonite, treatment amendments, or seeds, through a water column. The material hydrates in the presence of water and self-compacts to form a low permeability seal.

Although many materials, such as bentonite, have been used for such applications as lining ponds, sealing leaking reservoirs, etc. for decades, the ability to effectively apply bentonite through a significant water column to form an effective seal at the bottom is very difficult. AquaBlok can be applied cost-effectively and efficiently using a variety of standard construction techniques. In addition, because of its expansive properties, durability and demonstrable geotechnical attributes, it can be used as a replacement to anti-seep collars and is a more effective sealant for annular spaces associated with the installation of well casings.

AquaBlok also functions as a geotechnical construction material and can be installed dry in applications such as the construction of a low permeability core in a dam or levee, a lining for canals or as a waterproofing backfill around critical joints on tanks, etc. The material can also be used advantageously as a cap for landfills, as freeze-thaw cycles or desiccation-rehydration cycles will not impact its long-term effectiveness as a low permeability barrier, unlike compacted soil barriers which need to be protected from frost and desiccation, Its geotechnical properties can be determined and anticipated for project-specific design objectives and product formulations can be modified to meet the specified objectives.

The use of this material allows many activities to be conducted “in the wet” and retroactively, can effectively replace current tricky and time-consuming construction activities such as handtamping soil backfill around anti-seep collars. Material placement is accomplished by pouring the aggregated into the void in approximately 8” lifts, spraying with water and placing the next layer. No compactive effort is required and no compaction testing is necessary. The material also does not require “step-cutting” to provide an effective seal. In the case of sediment remediation projects, it can accommodate in-situ remedies that can be used in lieu of much more expensive processes such as dredging, dewatering and disposal of contaminated sediments.

The product was originally developed as a test solution to cap contaminated sediments at a military firing range in Alaska, where it was applied by helicopter drop. It has since been used to cap contaminated sediments at several Superfund sites, and has been used as an effective annular seal to replace recompacted soil and anti-seep collars at several installations associated with landfill improvements. It is currently being evaluated for additional applications by several universities, and is undergoing review under the Superfund Innovative Technologies Evaluation (SITE) program at the U.S. Navy Yard in the Anacostia River in Washington, D.C. Both the Navy and U.S. EPA have recognized this technology in their periodic technical communications such as U.S. EPA Tech Trends and NAVFACs.

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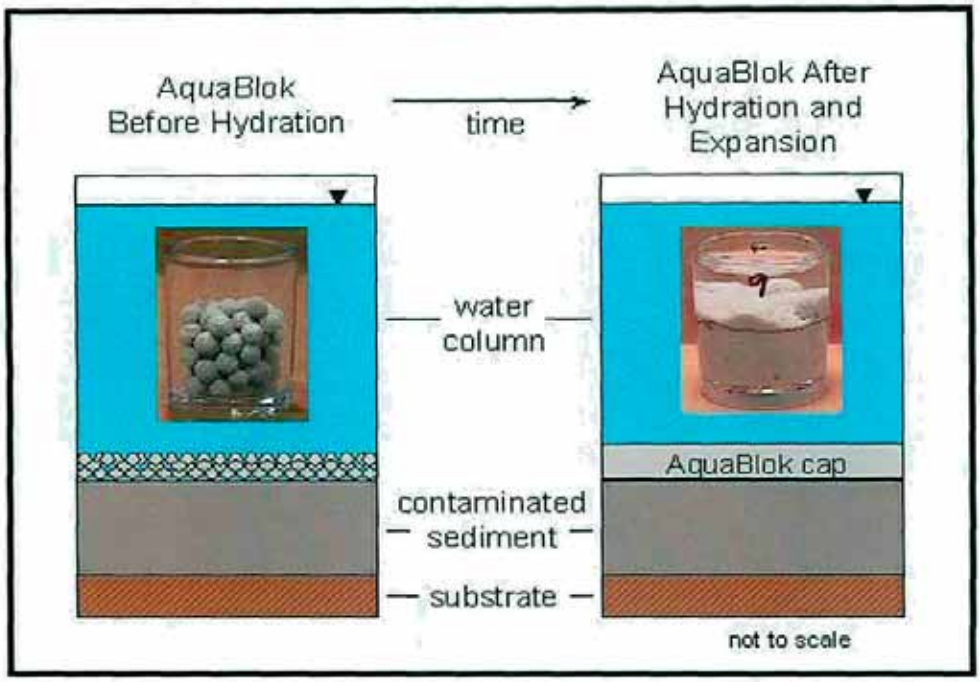

Photo 1 - View of AquaBlok® prior to hydration and after hydration.

Photo 2 - AquaBlok® placement over Geoweb® along a creek in St. Louis, Missouri.

Photo 3 - AquaBlok® placement in Massena, New York using clamshell.