



Undersealing a Leaking Man-Made Waterfall

A geotech contractor was called to Livingston, NJ to evaluate a settling man-made waterfall. The waterfall was constructed to continuously pump water from the pond below to the very top, so it could flow back down over the rocks. Over time, leaks and voids began to form through the entirety of the structure due to erosion. The structure itself started to settle as the water began washing out the soil underneath. In order to remediate the problem, the contractor advised undersealing the entire structure to seal it and fill voids underneath. This process would stabilize the entire structure and prevent any further movement.



Powerful Polymers

To complete the job, the contractor selected Alchemy-Spetec’s AP Fill 720 structural polymer due to its ability to permeate and encapsulate loose supporting soil into one solid mass. This material is a single component, closed cell, hydrophobic, water-reactive, solvent and phthalate-free, low-viscosity polyurethane injection resin for stabilizing soil and filling voids around structures (cutting off any existing leaks in the process).

AP FILL 720 Cured		
Tensile Strength	(ASTM D-1623)	43psi (2965 mb)
Tensile Elongation	(ASTM D-1623)	3.8%
Shrinkage	(ASTM D-1042/D-756)	Negligible
Compressive Strength (with Fine Sand)	(ASTM C-39)	1803 psi (124313 mb)

Properties will vary depending on application conditions.

Painless Procedure

The crew drilled small holes, installed injection ports, and injected the material into the soil below, every four feet, eventually creating a grid pattern across the entire structure. They started this process at the top of the structure and worked their way to the bottom, injecting the material into each spot until the void was full (a.k.a. grouted to refusal).

Rapid Result

From the start of the project, planning, and evaluation took about a month. Once the injection plan was in place, the crew completed the job in just a day and a half with a four-man crew. The man-made waterfall is now leak free and will continue to see decades of further use.

About Alchatek

Alchatek is an international leader in the manufacture and supply of chemical grouts and construction products for Geotechnical, Leak Seal, and Seawall Repair applications. Providing solutions from its headquarters in Tucker, Georgia and its manufacturing facility in Reno, Nevada, Alchatek specializes in advanced construction technologies for sealing leaks, stabilizing soils, lifting concrete, and protecting infrastructure and seawall structures. To best serve its customers, Alchatek is organized onto three divisions:

The Leak Seal Division combines a full system offering of polymer chemical grouts and equipment with perhaps the most experienced technical team in the industry. It specializes in preventing water ingress through concrete infrastructure including parking garages, culverts, basements and foundations, and sewer manholes.

The Geotechnical Division offers a complete line of single component products for soil stabilization as well as two component polyurethane foams for concrete lifting, void filling, and stabilization of infrastructure. This includes lifting sunken structures such as warehouse floors, back into place.

Seawall Repair Network® is the only national network of certified contractors in the repair, preservation, and protection of Seawalls waterfront barriers. Its proprietary methods and materials are environmentally friendly and safe for use in all marine environments and provide a non-destructive solution for seawall repair at 80% less than the cost of replacement.

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