



CASE STUDY
LEAK SEAL

Water Treatment Plant Losing Two Million Gallons Per Day Due to Leaks

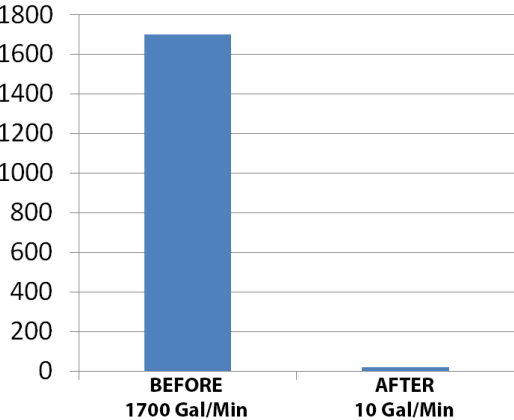
On top of a hill northeast of Chattanooga, Tennessee sits a clearwell that belongs to Eastside Utilities. Built in the 1940's on a former Army post, this clearwell consists of twin 2-million gallon tanks used for treating surface water to turn it into drinking water. The problem was that less than half of the water coming into the clearwells was making it out the other side. Although this water treatment plant has undergone several upgrades in its 70+ year lifespan, the ground beneath it has been subject to settling and consolidation. The tanks had shifted slightly and in doing so, loosened some of the joints and the water stops contained within. Measurements indicated **that the clearwells were losing 1,700 gallons per minute through various leaks**; well over 2-million gallons per day. A short drive downhill from the property revealed various gullies and small creeks created by water running down the hillside.

Powerful Polymers

An Alchemy-Spetec certified installer was called in to utilize Spetec PUR GT500, an NSF /ANSI 61 approved product for contact with drinking water, to seal the leaks. This single component polyurethane resin is designed to penetrate and seal off leaks in cracks, joints, and pipe penetrations. As a hydrophilic polyurethane, it chases down water and gets into the microstructure of the concrete, forming a flexible seal and a tenacious bond with the wet concrete.



Water Leak - Gallons Per Minute



99.4%
exfiltration
SEALED!

Small number of remaining leaks due to vintage valves & and fittings.

Physical Properties 77° F (25° C) - Liquid Physical Properties - Cured

SPETEC PUR GT500			
Tensile Strength	(ASTM D-3574)	450 p.s.i.	31,026 millibar
Tensile Elongation	(ASTM D-3574)	350%	-
Shrinkage	(ASTM D-1042/D-756)	Less than 2%	Negligible
Tear Resistance	(ASTM D-3574)	21 lbs / inch	3750 gram / centimeter
Same Day Viscosity at 25° C (77° F)	300 - 330 Centipose		

These properties were based on foam cured under pressure to simulate conditions inside a confined crack. Properties will vary depending on application conditions.

Painless Procedure

Due to the amount of water escaping, all of the joints around the perimeter walls were suspect as well as the roof support columns throughout each clearwell that penetrated through the floor. The contractor drilled holes to intersect the leaking joints around the perimeter of the clearwell and along all interior joints. Injection ports were installed and Spetec PUR GT500 was pumped into each one to create an injected membrane within the joints and beneath the clearwell.

Rapid Result

After three days of injection the work was done and the site was cleaned up. Monitoring after the Spetec PUR GT500 was installed indicated that the leak had been reduced from 1,700 gallons per minute to 10 gallons per minute. The small number of remaining leaks were attributed to the many vintage valves and fittings that are still present at the plant.

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 into 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.

Tech Support:
404-618-0438
www.Alchatek.com

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