



CASE STUDY LEAK SEAL

High-Expansion Foam Stops Chronic Water Infiltration in One Day

A below-grade warehouse loading ramp had water infiltration at the slab-to-wall cold joint. Hydrostatic pressure forced water and sandy soil through the joint during rainfall, clogging the French drain and requiring manual removal after each storm.

Initial Assessment

The cold joint leak allowed water and sediment infiltration. Soil erosion created voids beneath the slab. Traditional solutions proved impractical. Slab replacement entailed demolition at 5–6 times the cost. Exterior waterproofing required excavation below the water table. And interior drains merely treated symptoms, not root causes.

Proposed Solution

Spetec PUR HighFoamer was selected for its 50x expansion ratio and hydrophobic properties. This single-component polyurethane resin reacts with water to create a curtain grout while filling voids. Safe for potable water contact with NSF/ANSI 61-5 certification, it delivers a rapid 15-minute cure time.



Procedures

1. Drilled 3/8" injection holes at 2.5' spacing along the cold joint.
2. Installed threaded nylon packers with zerk fittings for controlled injection.
3. Initiated injection at the lowest elevation using a gas-powered hydraulic pump.
4. Injected foam progressively upward, monitoring emergence at adjacent ports.
5. Sealed ports after 15-minute cure.

Results

- Eliminated 100% of water infiltration and sediment transport.
- Achieved 80% cost savings versus traditional slab replacement and 75% savings versus exterior membrane installation.
- Completed in one day with zero operational downtime—the facility remained fully functional.
- Eliminated recurring French drain maintenance.

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.

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