



Leak Seal in Water Treatment Plant Pump Station Manhole

The Central Davis Sewer District (CDS) is a publicly owned collection system and water treatment plant that serves three local cities in Northern Utah. With a new highway being constructed just outside their facility, a new pump station had to be installed on the premises. After installation of the new pump station, a large leak appeared in the manhole which caused it to fill up with about 10 feet of water. The CDS contacted a local leak seal contractor to see what could be done. The contractor crew pumped all the water out of the manhole and discovered that two of the manhole's horizontal joints had large leaks. These leaks were allowing about 10-15 gallons per minute (over 20,000 gallons per day) of water to infiltrate the pump station.

Powerful Polymers

The contractor worked closely with an Alchemy-Spetec technical service manager to devise a plan to seal the large leaks using Spetec PUR F400. Spetec PUR F400 is a solvent and phthalate-free, water-reactive, hydrophobic, closed-cell, low viscosity, shrink-free, flexible, one-component polyurethane injection resin designed to stop water leaks. It is also certified to NSF/ANSI/CAN 61 (approved for contact with drinking water).



Physical Properties - Uncured - (appearance white liquid)

SPETEC PUR F400		
Viscosity at 77°F (25°C)	(ASTM D4878-98)	±340cps (±0.34 Pa·s)
Flash Point	(ASTM D1310-86)	>302°F (>150°C)
Density	(ASTM D3505-96 [2000])	1.067 ± 0.005 oz/ft ³ (1.068 ± 5.006 g/m ³)

Physical Properties - Cured

SPETEC PUR F400		
Tensile Strength	(ASTM D3574-03)	290psi (20 bar)
Elongation at break	-	±100%

Properties will vary depending on application conditions.

Painless Procedure

The crew drilled four holes around the lower manhole joint and then installed injection ports. As they pumped the polyurethane grout into the ports, it began to travel around the joint, sealing the leaks. Once the grout had traveled as far as it could from one port, the technician moved on to the next port until the entire joint had been sealed water tight. They used oakum to temporarily seal some of the larger leaks until the grout had time to cure. The upper joint only required 3 port injections due to the speed at which the grout traveled.

Rapid Result

The crew only took about 3 hours to completely seal all of the leaks and return the manhole to service. There was no way the leaks could have been left un-repaired due to the water treatment cost and the potential damage the erosion would have caused. Replacing the manhole would have easily cost three or more times the price of grouting. In this case, the community wins as many tax dollars are being saved.

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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