

Alchatek

CASE STUDY
LEAK SEAL

COOLING TOWER LIFT STATION IUKA, MISSISSIPPI

Sealing Leaks in a *Cooling Tower Lift Station*

A cooling tower lift station under construction in Iuka, Mississippi, had a significant water leak problem.

WATER LOST
1,000 *gallons/day*

PRODUCT
Spetec F400

I · THE PROBLEM

01 What made this job *difficult.*

COOLING TOWER LIFT STATION
IUKA, MISSISSIPPI

A cooling tower lift station under construction in Iuka, Mississippi, had a significant water leak problem. The facility was losing approximately 1,000 gallons of water daily. The source and destination of the leak were unknown. A solution was implemented using concrete sealing techniques. Leak seal experts were called in to perform the repairs.

KEY CONDITION

The source and destination of the leak were unknown.

THE CONSTRAINT

1,000 *gallons*

WATER LOST DAILY

The lift station was still under construction, and no one knew where the water was entering or where it was going.

THE SITUATION

01
Under construction
The lift station was still under construction.

02
1,000 gallons a day
Approximate volume of water lost daily.

03
Unknown source
The source and destination of the leak were unknown.

02 What was specified, *and how it went in.*

SPETEC F400

The technicians chose Spetec F400 for the repair. This polyurethane-based material has a closed-cell structure that seals cracks and joints. It remains flexible after curing, which allows for structural shifts. The material is NSF-certified, meeting environmental standards for water-related applications.

THE MATERIAL

Spetec F400

SPETEC F400

Physical Properties - Uncured (appearance white liquid): Viscosity at 77°F (25°C) 350 cP (350 mPa·s); Density at 77°F (25°C) 64.3 lb/ft^3 (1.03 kg/dm^3). Physical Properties - Cured: Elongation at break 100%. Properties will vary depending on application conditions.

THE METHOD

01
Drilled
The crew drilled four holes around the lower manhole joint and then installed injection ports.

02
Injected
As they pumped the polyurethane grout into the ports, it began to travel around the joint, sealing the leaks.

03
Advanced
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.

04
Temporarily Sealed
They used Alchatek 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.

WHY SPETEC F400

It remains flexible after curing, which allows for structural shifts.

A closed-cell polyurethane that seals cracks and joints, NSF-certified for water-related applications.

JOB NOTE

The grout traveled fast enough that the upper joint needed only 3 port injections.

03 What the result was, *and what confirmed it.*

REPAIR TIME

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.

REPAIR TIME

3 *hours*

The crew completely sealed all of the leaks and returned the manhole to service in about 3 hours.

AT A GLANCE

350 cps	>302 °F	290 psi	100 %
VISCOSITY AT 77°F	**FLASH POINT**	**TENSILE STRENGTH**	**ELONGATION AT BREAK**
ASTM D4878	ASTM D1310-86	ASTM D3574-03	ASTM D3574-03

REPAIR VS. REPLACE

Replacing the manhole would have easily cost three or more times the price of grouting.

Leaving the leaks unrepaired was not an option, given the water treatment cost and the potential damage from erosion.

WHO WINS

The community, as many tax dollars are being saved.

START THE CONVERSATION

Send us the job.
We will send back an approach.

Send us the soil report or the failure photos and Technical Services will return a written approach within two business days.

TECH SUPPORT

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WWW.ALCHATEK.COM

Alchatek

Alchatek manufactures polyurethane resins, chemical grouts, and injection equipment for infrastructure repair: leak sealing, soil stabilization, concrete lifting, and seawall repair. Headquarters in Tucker, Georgia, with a bonded warehouse in Reno, Nevada.

Information in this document is believed accurate at the date of publication. Product performance depends on site conditions and application; consult the current Technical Data Sheet, which is the controlling document.