



# CASE HISTORY ~ CH-004

## BIO-FIX911/ BIO-DUR 561 STOPS ACTIVE LEAK IN 36” HOT WATER LINE

**THE CHALLENGE:** A large chemical manufacturing plant operating cascade evaporative coolers had a severe leak in the overhead 36” hot water main serving the unit. The leak was in a bell and spigot joint which had partially blown out its “O” ring rubber gasket. The unit could not be shut down for repair since the entire plant relied on its operation and the only access was from the outside on the “negative” side of the pipe.

**THE SOLUTION:** TFT provided materials and an application technician to undertake the repair. An initial inspection showed the “O” ring was too deep inside the joint for repair. The entire joint area was drenched with a heavy jet of water exiting from a gap of approximately 6” x 1” at 12 o’clock position. The only possible repair method was to install a new seal inside the 1” gap between pipes.

BIO-DUR 561 was selected as the principal epoxy sealant to be used because of its tremendous adhesion to wet surfaces and because of its potlife of about 40 minutes which allowed plenty of time to install the repairs. The repair was undertaken by making a very strong and adhesive “sausage” from oakum, (shredded rope fibers) thoroughly impregnated with the BIO-DUR 561. This sausage was hammered into the bell and spigot gap using a wooden “drift” and mallet. The bulging “O” ring at the top of the pipe was cut out as far as possible and an approximate 6” gap was left to relieve pressure on the repair as the BIO-DUR 561 cured. Sufficient curing had taken place in three hours at the pipe temperature of 125°F to allow the final step to take place.

This last critical step was to shut off the flow of water which had been spraying out of the system for over a day.

BIO-FIX 911 was used as the adhesive in this step because of its rapid curing rate – about 4 minutes at 80°F – and its great adhesion to underwater surfaces. All tools were gathered at the ready since once mixing of the BIO-FIX 911 begins there is rarely enough time to get organized if something vital is missing.

The white BIO-FIX 911 epoxy base was mixed with an equal amount of black curing agent to produce a uniform “Haze Gray” mixture. Using gloved hands this mixture was thoroughly impregnated into another oakum sausage of about 8” length. After the two minutes or so that it took to complete this mixing and impregnation the BIO-FIX 911 was just beginning to feel warm indicating that its exotherm, or heat generation from the curing reaction, was beginning.

The 8” BIO-FIX 911 sausage was carefully placed by the 6” x 1” hole then quickly stuffed into gap using wooden rods and fingers. The sausage was held in place against the internal pressure for about two or three minutes after which time curing had progressed sufficiently for the repair to be self-supporting.

**RESULT:** Once the leak had been stopped the pipe was dried and plant personnel moved in to wrap the joint with a polyester/fiberglass sheath to tie the two pipes together to make a permanent repair. The joint was permanently repaired at minimal cost with no interruption to normal plant activities.

For more information regarding this project, contact:

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PRODUCT: BIO-FIX 911/BIO-DUR 561

YEAR: 1998

LOCATION: LAKE CHARLES, LA

*We go where others fear to spread!*

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