

CASE HISTORY

BBZ RESIN INJECTION SYSTEMS

Project:	Deer Island Waste Water Treatment Plant Winthrop, MA	Engineer:	ICF Kaiser Engineers
Owner:	Massachusetts Water Resource Authority	GC:	Modern Continental
Injection System:	Duro Rapid, Duroseal Inject	Completed:	March 2000



The first problem BBZ encountered was water leakage into the expansion joints on the clarifying tank. BBZ needed to stop the leak while maintaining the function of the expansion joint. This required an injection resin that would not only stop the water but also be able to “move” with the expansion joint.

Duro Rapid was chosen for this particular repair. A fast reacting, non-foaming 2-component injection resin that gels within ten seconds, sets within thirty seconds and cures within minutes to form a high strength elastic compound. The leaks were plugged with a material strong enough and flexible enough to “move” with the expansion joint.

Drilling was done at a 45° angle to the expansion joint, bisecting the joint behind the elastomeric facing. Drilling the alternate sides for the length of the area to be injected. The injection material was introduced through a 2-component pump and a static mixer. Due to its low viscosity the Duro Rapid was able to travel before setting up, filling the area in the joints and stopping the water.

The second problem BBZ encountered was small cracks and construction joints in the clarifying tanks. These cracks and joints needed to be sealed permanently.

Duroseal Inject, a solvent-free, water-soluble injection resin was chosen for this particular repair. Due to its low viscosity and low flow resistance, Duroseal Inject is able to penetrate into even the smallest cracks and capillaries. Even if changes in the cross section of the joint occur at a later point in time, the seal made with Duroseal Inject remains stable. That is because the material can swell up to a factor 1.5 on contact with water, thereby maintaining a permanent seal.

Drilling was done at a 45° angle to the crack or joint until one-half of the wall thickness is reached. Drilling on alternating sides for the length of the crack to be injected. The injection material is introduced through a 1-component pump into the injection packer. Due to its low viscosity, Duroseal Inject is able to penetrate even the smallest of cracks.