

Polyurea Trench Coatings



All industrial sites have them, it's the law. Trenches made of concrete encircle the manufacturing facility, to capture all the potential pollutants and directing them to the site wastewater treatment facility.

The problem is that concrete cracks. Concrete trenches that crack are not capable of doing what the law requires. In Figures 1 & 2, many concrete trenches are covered with an iron grate. The usual form of failure is that the concrete shoulders of the trench begin to spall from compression. In some cases the shoulders of the trench have a metal flange that helps protect the concrete.



The entire process includes water blasting, priming and coating with polyurea. The preparation and priming are the most important parts of the application. Figures 3 & 4, the trenches are opened and the cracked concrete is exposed. One of the problems with concrete that has been in service is that there are usually contaminants embedded in the surface. High pressure water blasting, at least 2500 psi is mandatory. The water blasting will open bug-holes and weakened concrete.

Priming can be done with either a low viscosity primer or a high viscosity primer. The low viscosity primer will penetrate the concrete surface and the high viscosity primer will fill the surface imperfections.

After the primer has achieved a tack-free state, the polyurea application can begin. Figures 7 & 8 show the polyurea application. The polyurea application is very fast and therefore allows more time for preparation. The better the preparation, the better the polyurea application will proceed.

Polyurea coatings have very good chemical resistance. Additionally, due to some elongation in the polyurea coating, the elastomer has excellent crack bridging properties. The latter characteristic is important, because the concrete will continue to crack over time. When the concrete cracks, the polyurea coating will not. Therefore, the effluent pollutants will not seep into the ground water.