

Background:

On an early spring day after a particularly cold Pittsburgh winter, *Seal Guard Inc.* was called to look at a manhole repair in the middle of the Monongahela River just below the Sandcastle waterpark in the city's Homestead borough. Ice dams had formed on the river throughout the winter and as the temperatures began rising an ice mass broke free and collided with the precast manhole. The force of the collision was enough to compromise the internal seals on the concrete segments, and water inflows were exceeding 200 gpm.

Being particularly concerned about their recently installed manhole, the contractors sought the expertise of a local engineering firm who advised that divers would be able to locate and seal the leaks using bentonite grout. Two expensive and unsuccessful days were spent in the river, when someone on the contracting team came across Seal Guard's website. Being only 30 minutes North of Pittsburgh, Seal Guard was onsite the very next morning with several boxes of its **SealGuard II** dual component polyurethane grout and some dried oakum.

Solution:

Access to the interior of the manhole was gained after carefully making it across the temporary scaffolding to the center of the river. The water entry point was immediately visible along the impact side of the first precast joint of the manhole, which was about 8 ft below the water line. Static mixers were spaced evenly throughout the joint (about 1 ft apart), and oakum rope was methodically worked into the joint to prevent material washout (preparation is key!). Working from one side of the leak to the other, a continuous grout interface was created through the keyed precast joint; a total of 14 tube sets were used to shut off the inflow. Total time spent in the manhole was under one hour.

Follow Up:

This was the first of many interactions that *Seal Guard Inc.* had with this contractor, who in their very first application became firm believers in **SealGuard II's** performance in high water flow settings. To our knowledge, the manhole is still intact and has managed to avoid any further ice induced damages.

Material:

An 8-lb density ridged foam, **SealGuard II** has been formulated for high water flow situations where fast reaction times and physically strong characteristics are necessary (reaction time 1-3 s / tack free < 10 s). This material has been developed for mining applications with extreme water problems and routinely shuts down high-pressure inflows in excess of 1000 psi! Seal Guard II is a robust material with 20+ years of large-scale installations that make it one of the best grout choices on the market.

Manhole Repair on Pittsburgh's Monongahela River

