

# Case study for sealing stormwater pipes

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**Client:**Regional airport authority in the U.S. Midwest

## **Problem:**

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A regional airport in the Midwest has miles of pipe and storm sewers that stretch under the runways. These pipes carry surface runoff from rain events into the storm sewers. The airport sits near the Missouri River, in the river bottom, so the water table is extremely high. **Cracks and leaking joints caused erosion** around the pipes during major rain events. Eventually, the erosion would compromise the runways, potentially leading to sinkholes. The exfiltration had to be stopped.



## **Solution:**

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The contractor, who also does mudjacking, proposed curtain grouting the pipes with **Prime Flex 920**, a highly expansive structural polyurethane foam. When cured, the hydrophobic material forms a water-tight rigid mass, sealing leaks in the concrete pipes.

## **Foam vs Cement**

The airport authority requested a mudjacking approach, but the contractor proposed polyurethane as a better alternative.

“A few years ago I did a similar project using my mudjacking equipment, but the hydrostatic pressure prevented our ability to pump the material. Pressure against pressure meant you couldn’t pump anything. Also, given the length of the stormwater pipes, the weight of the pumping pipes filled with concrete slurry make it impractical. **The 920 is water-activated, so it was a much better permanent fix than what they originally hired us to do.**”

He did a demo for the engineers, showing how 920 worked. In addition, the airport authority does **video inspections yearly** of pipes that the contractor grouted four to five years ago with 20-30 gallons of Prime Flex 920. **There are no leaks.**

The result? “Now this is all they spec,” says the contractor.

### **Outcome:**

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The crew pumped 700-800 gallons of Prime Flex 920 to encapsulate several leaks. “We sealed everything 100% and they were happy with it.”





### **Challenges:**

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The project was pretty standard, so the crew didn't have to tackle any major obstacles. Some voids were larger than expected, which had a budget impact but were not a problem from an execution standpoint.

### **Alternatives:**

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Replacement was the only other true option, according to the contractor since he ruled out cementitious grouting given the hydrostatic pressure and the distance the material had to be pumped. Replacement would have cost millions of dollars plus lost revenue and productivity from runway shutdowns.

“I wish more people understood how good this product works. This is right next to the Missouri River. Mud would not have been able to flow far enough and would have been washed away. The 920 won't get washed away. The beneficial cost of using chemical grout compared with replacement is probably what many engineers and property owners don't know.



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