

HOT SPRINGS VILLAGE, ARKANSAS: SEVERELY CORRODED MANHOLE REHABILITATED WITH GEOKRETE® GEOPOLYMER SHOW NO SIGNS OF DEGRADATION

Snapshot

Project:

Emergency manhole rehabilitation

Owner:

City of Hot Springs Village, AR

Problem:

Highly corroded manhole, connected to forcemain, in need of corrosion protection. H₂S levels ranged from 165-190 ppm

Solution:

Quadex® GeoKrete® Geopolymer was applied to fully restore and protect the manhole from future corrosion.

Application:

- Hyperform® Rapid Setting Patching Material
- GeoKrete - 1.5" on walls. Troweled to smooth finish.

Four years after manhole with H₂S levels of 165-190 ppm is rehabilitated with GeoKrete, there are no visible signs of degradation.

SITUATION

A collection system was experiencing unusually high and consistent levels of H₂S gas (165-190 ppm). One manhole in particular had completely deteriorated and was originally thought to be beyond repair. The corrosion was so bad, that when the walls were water blasted at 4,000 psi, old concrete and aggregate completely washed away to the soil level in some areas.

SOLUTION

Quadex® recommended its GeoKrete® Geopolymer. Known for both its structural and corrosion resistant properties, GeoKrete was the perfect solution to this particular manhole problem.



2014 - High H₂S levels caused this manhole to quickly deteriorate to a point where structural integrity and I&I were an issue.



2018 - Approximately 4 ½ years later the GeoKrete lined manhole shows no signs of degradation.



Compared to Baseline for Trenchless Repair Systems for Structural Rehabilitation of Civil Infrastructure



APPLICATION PROCESS

Once the walls were water blasted, the Quadex crew applied Hyperform®, a quick setting patching material, to fill the large voids in preparation for lining.

A certified Quadex applicator spray-applied the GeoKrete to a 1.5" thickness. A trowel was then used to create a smooth finish.

A new flow channel also had to be constructed at the manhole's base. The original was so deteriorated and started to dissolve during the water blasting procedure.



The corrosion was so bad, the manhole needed to be completely reprofiled.



2014 - This photo shows the manhole just after it was lined with Geokrete. Note the smooth finish and rebuilt flow channel at the bottom.