
HydroFLOW®
U.S.A.

Hydropath Technology - Background

*Hydro*FLOW USA is based in Redmond, Washington. The company is the sole US distributor of the *Hydro*FLOW water conditioning device that is powered by the patented Hydropath technology.

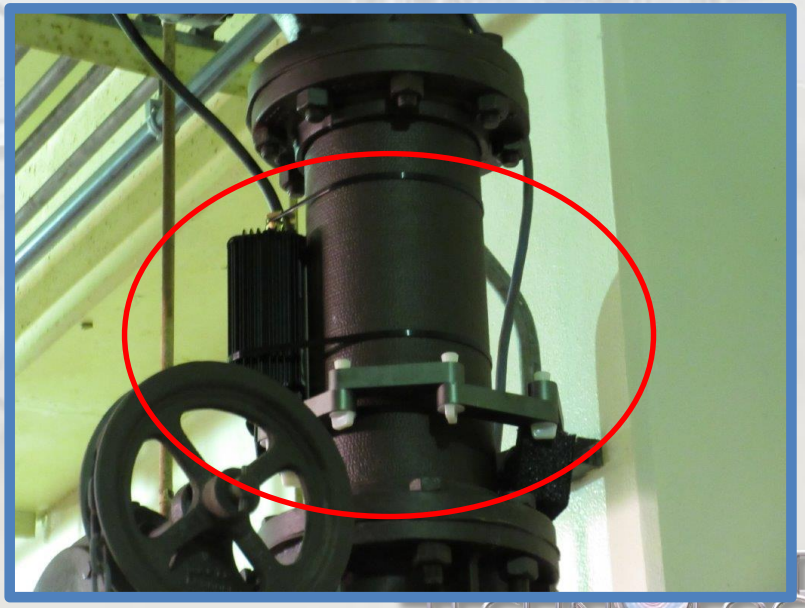
The *Hydro*FLOW device induces an electric signal of ±150kHz in the liquid inside any pipe on which it is installed. A specialized transducer connected to a ring of ferrites performs the electric induction.

HYDROPATH TECHNOLOGY

Hydropath Technology - Background

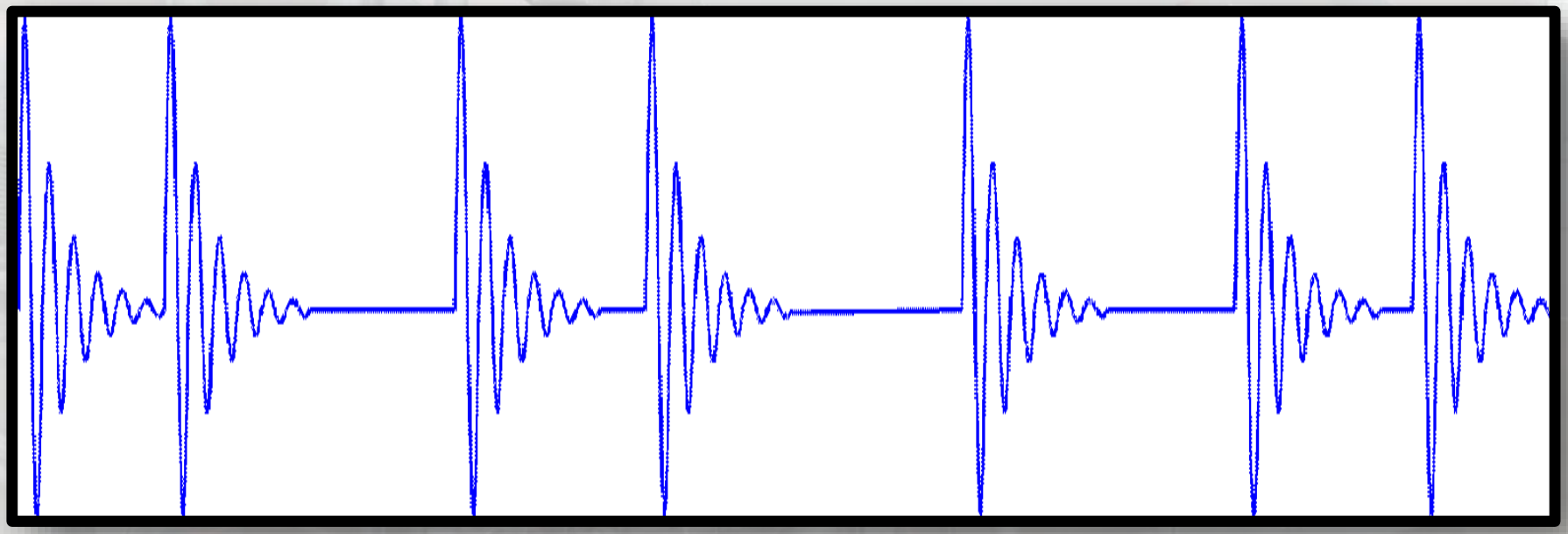
The technology was developed in England over 20 years ago, for calcium carbonate scale removal and scale prevention in domestic water heating applications. However, the use of Hydropath technology is not limited to residential systems; various device configurations are being successfully applied in the commercial, industrial, oil & gas, maritime and agriculture sectors.

Expansion plans include application development in the wastewater sector, with the focus on enhancement of existing processes and the reduction of struvite.



*How Hydro*FLOW *works*

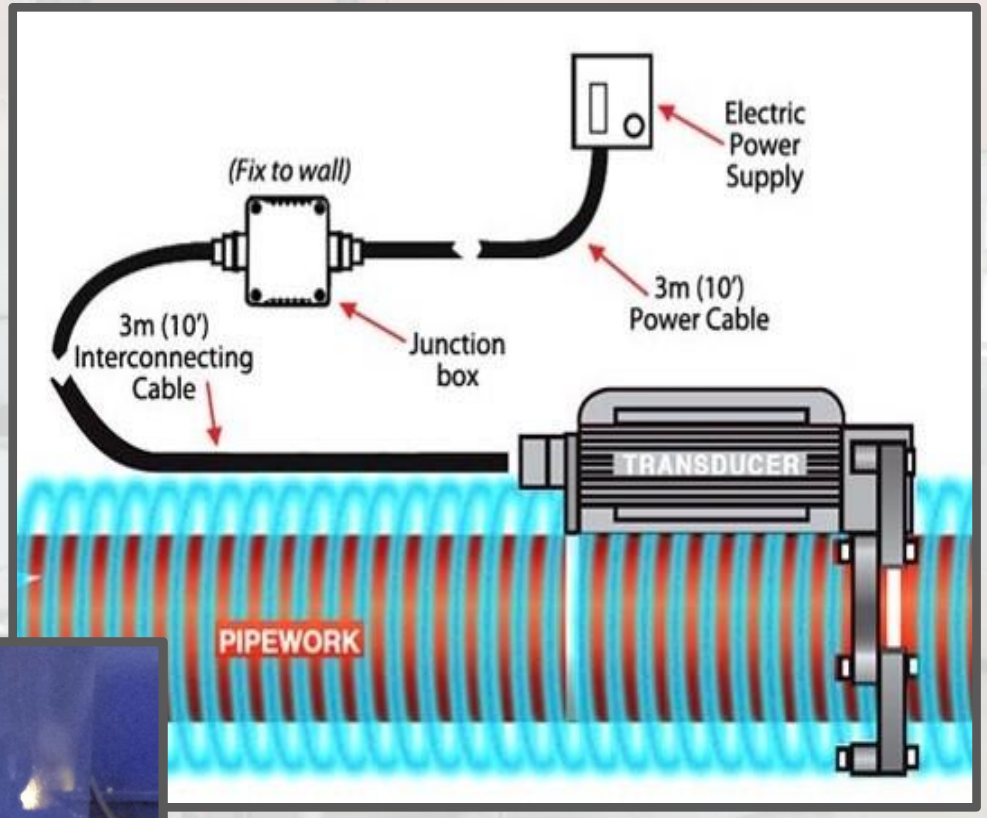
*Hydro*FLOW water conditioners induce a decaying sine oscillation of ±150 kHz into the water system.



Click to view two minute *Hydro*FLOW animation

Hassle free installation

- The unit simply attaches around an existing pipe made of any material.
- No plumbing or cutting of the piping system is required.
- On average, consumes less than $10 of electricity per year.



Wastewater development status

During the summer of 2013, *Hydro*FLOW equipment was installed at the Walla Walla, WA, wastewater treatment plant. The purpose was to determine if the *Hydro*FLOW device could reduce the accumulation of **struvite** forming on their belt press dewatering equipment. The results were very encouraging.

[Link to the case study]

Wastewater development status

Walla Walla, WA

Before

After

With *Hydro*FLOW energized for 8 weeks, there was no accumulation on the clean section and struvite layers began to gradually remove.

Link of treated struvite washing off with regular water pressure (previously needed to be chiseled off)

Wastewater development status

*Hydro*FLOW equipment was subsequently installed in the fall of 2013 on the Orlando, FL, Water Conserv II Water Reclamation Facility for a **struvite** removal and prevention trial.

The trial results reported after five months showed significant reduction of struvite build up and a surprising 20% reduction in **polymer** use.

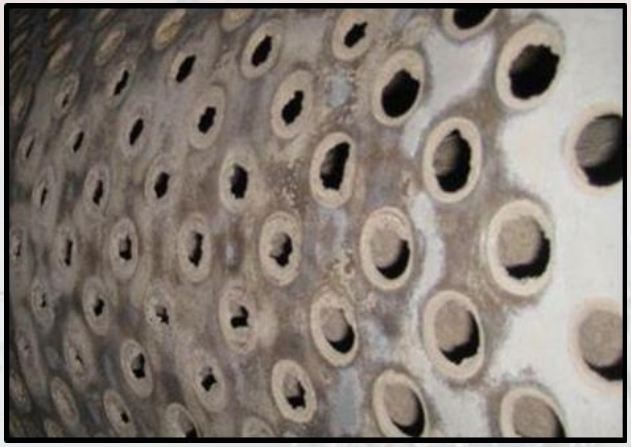
[Link to the case study]

Wastewater development status

Orlando, FL

Before

After



With *Hydro*FLOW energized for 150 days.

Wastewater development status

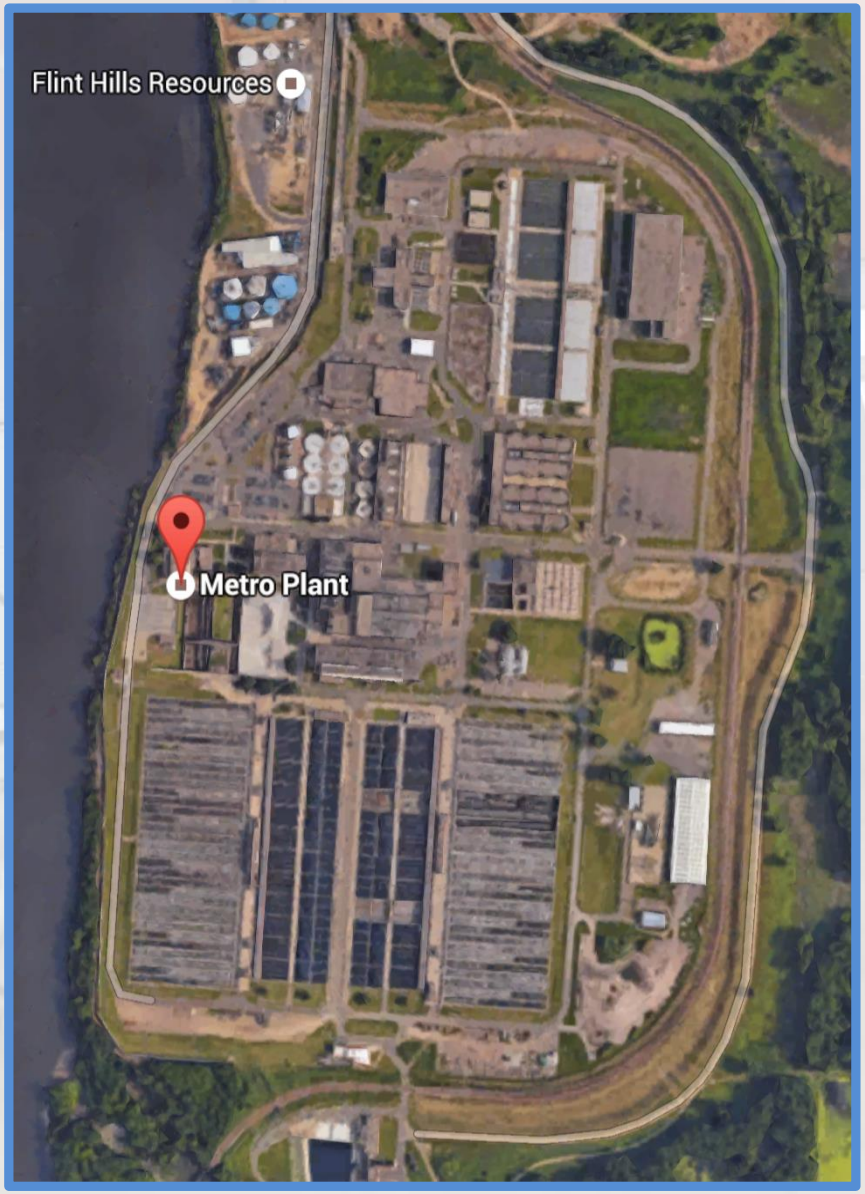
*Hydro*FLOW equipment was installed in the end of 2015 at the Somersworth, NH, WWTP to investigate the reduction of **polymer** consumption of a centrifuge separator, and possibly improve **cake dryness**. During six testing sequences over a span of 45 days, *Hydro*FLOW reduced polymer use from an average of 25.5 to 19.1 pounds per ton (25.1% reduction), increased cake solids by up to 3% TS and kept centrate quality within testing limits of less than 1,000 mg TSS/L.

[Link to the report]

Wastewater development status

In December of 2015, *Hydro*FLOW equipment was installed on the main centrate line at the St. Paul, MN, Metropolitan Wastewater Treatment Plant.

The purpose was to determine if the *Hydro*FLOW device could reduce the accumulation of hard **struvite** formation inside the pipes. After 6 months, the pipes were given a quick water flush and then opened. Results were outstanding.



Wastewater development status

St. Paul, MN

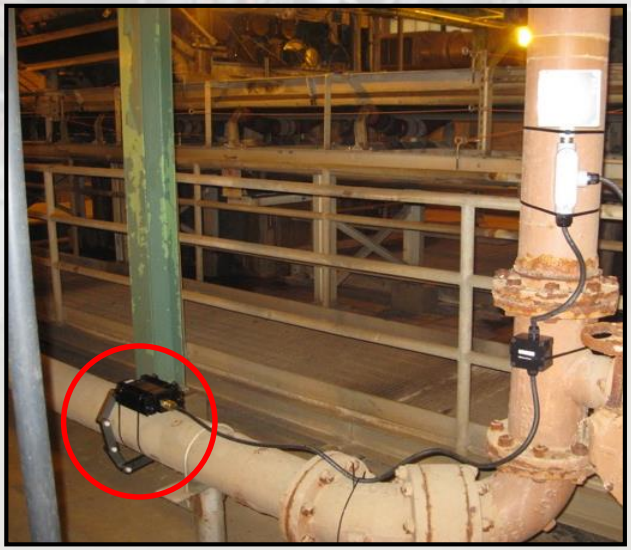
Before

6 Months After

Wastewater development status

*Hydro*FLOW equipment was installed in the beginning of 2016 at the Lehigh County Industrial WWTP, Allentown, PA.

The purpose was to determine if the *Hydro*FLOW device could reduce the accumulation of **struvite** forming on their belt press dewatering equipment. The results are very favorable.



Link to the referral letter

Wastewater development status

Lehigh County, PA

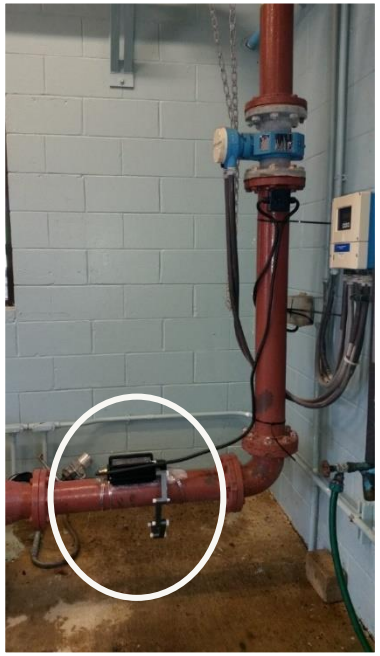
Before

After

Struvite removal was noticeable within 8 days.

Wastewater development status

*Hydro*FLOW equipment was installed in May of 2016 at the London, OH, WWTP to determine if **struvite** can be removed from the belt press without chemical, manual or mechanical assistance. The results speak for themselves.



[Link to the report]

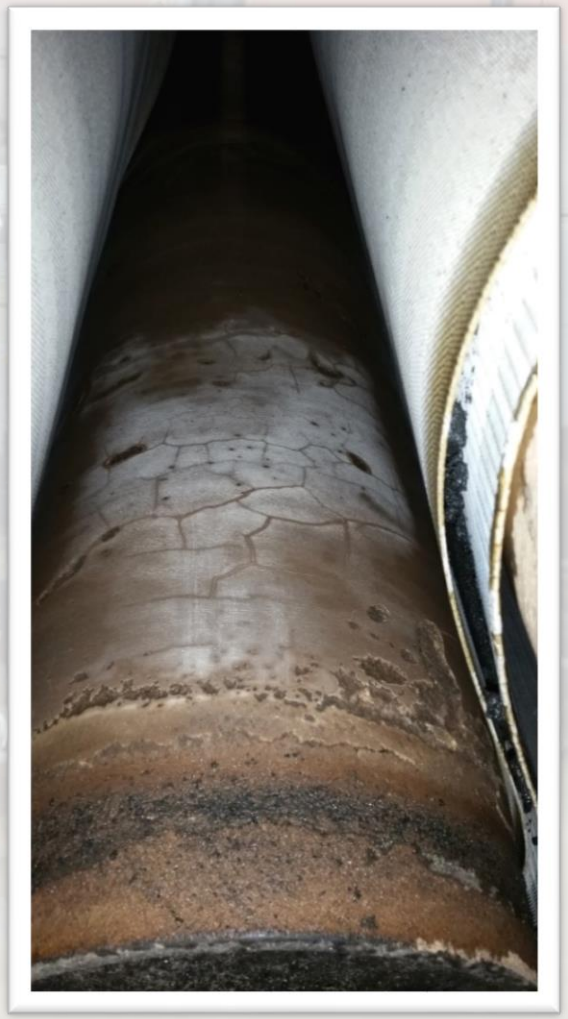
Wastewater development status

London, OH

Before

35 Days After

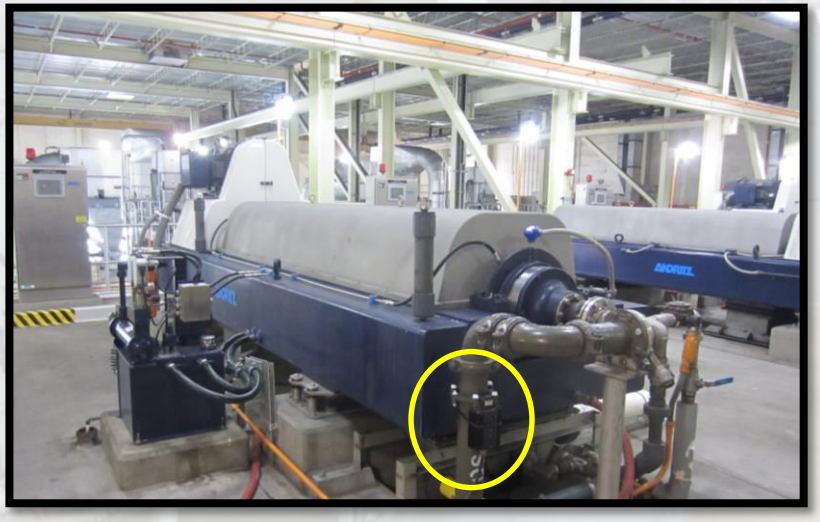
Before



35 Days After

Wastewater development status

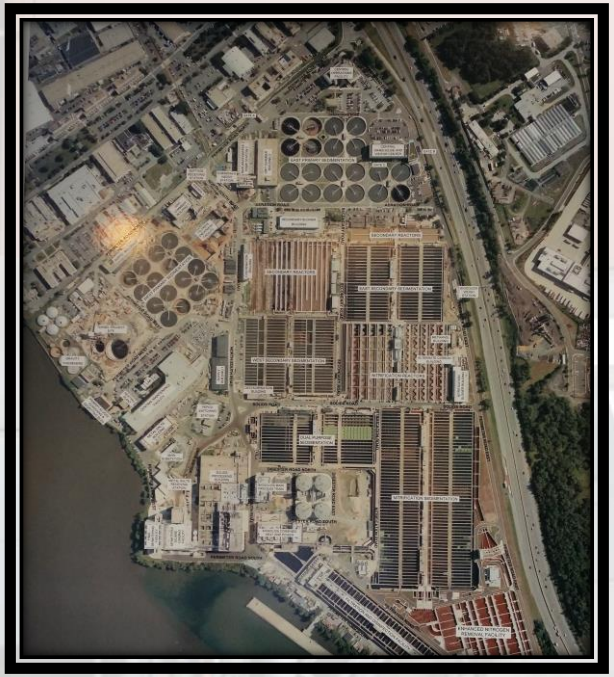
*Hydro*FLOW equipment was installed in the middle of 2016 at a wastewater treatment plant in Nashville, TN. The goal of the examination was to determine if **polymer** reduction can be obtained. The dewatering equipment used by the plant was an Andritz Centrifuge.



After multiple test runs, an average polymer reduction on 27.5% was achieved.

Wastewater development status

In September of 2016, a *Hydro*FLOW device was trialed at the Blue Plains Advanced Wastewater Treatment Plant (AWTP), based in Washington D.C. The objective was to determine if scale accumulation that is believed to be a combination of **Vivianite** and other amorphous mineral deposits, can be treated effectively.



Wastewater development status

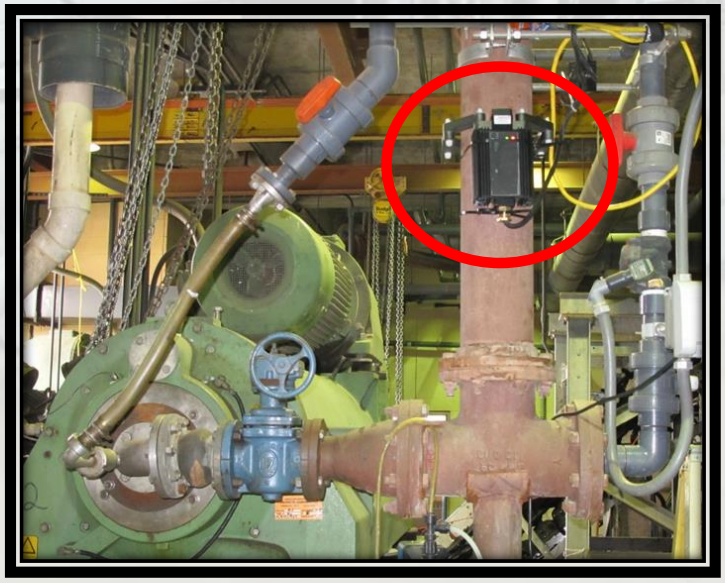
Blue Plains, Washington D.C.

Flow meter 2 [**with *Hydro*FLOW**] had scale buildup of 2 to 3 mm in some areas with mostly thin/bare spots. All electrodes were visible. Runtime was 2,100 hours since last cleaning.

Flow meter 11 [**without *Hydro*FLOW**] had scale buildup of about 5 mm over the entire flow tube. One electrode was visible and two were covered. Runtime was 2,000 hours since last cleaning.

Wastewater development status

*Hydro*FLOW equipment was installed in the beginning of November 2016 to evaluate its ability to treat **struvite** scale accumulation in the effluent discharge system of the wastewater treatment plant's GEA Westfalia CA505 centrifuges in Rockland County, NY. The goal was to multiply the time between cleaning by a factor of two; from approximately once every two weeks to once every four weeks. Results greatly exceeded expectations.

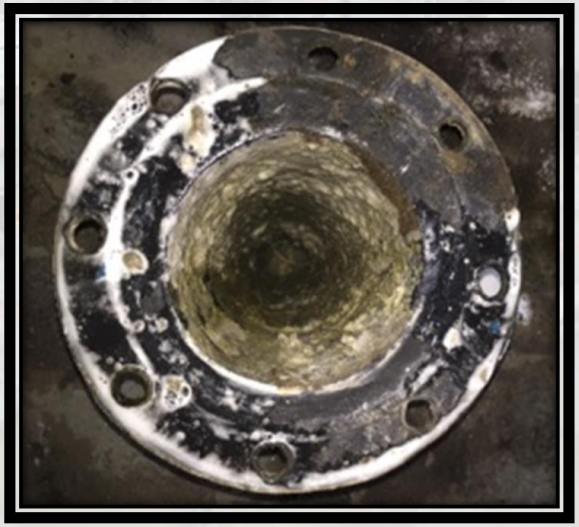


Wastewater development status

Rockland County, NY

Before

After

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