

# TECH TIPS

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TECH TIPS BY NASSCO IS A BI-MONTHLY ARTICLE ON TRENDS, BEST PRACTICES AND INDUSTRY ADVICE FROM NASSCO'S TRENCHLESS TECHNOLOGY MEMBERSHIP PROFESSIONALS.

## ESTABLISHING A CHEMICAL ROOT CONTROL PROGRAM

By NASSCO member Stuart Tillery, Southeast Account Manager, Duke's Root Control

The intrusion of roots into sewer pipelines is one of the most destructive problems a system owner can encounter. The most common method of controlling this problem has been mechanical removal. Maintenance crews with jetter trucks use a variety of root removal equipment to cut and remove the roots from the pipeline. Historically, this process has led to a steady increase in maintenance costs for the owner because the root tends to grow back stronger and faster each time these mechanical methods are used. Even if roots are stopped, they continue to find new avenues into active pipelines. Repeated mechanical root removal can easily become the most expensive part of system maintenance. Many system owners have turned to chemical treatments to remove roots in sewers. The selection of a technique for root removal is typically the responsibility of the owner after researching different approaches. The best solution will be the one that meets the owner's requirements and is effectively applied by an applicator who follows the technology requirements.

### HOW CHEMICAL ROOT CONTROL WORKS:

The sewer pipeline is filled from manhole to manhole, with thick herbicidal foam. The foam will adhere to roots in the mainline and in the service laterals. Once exposed to the foam, the roots die on contact then slough off. A root treatment generally will be effective for two to three years.

**Reasons for a chemical root control program might include:**

#### STRUCTURAL

A root as small as 0.1 millimeter can find its way into separated joints, cracks and other defects. Once a root has access to the nutrients in the wastewater, it will grow, further opening joints and cracks and allowing extraneous flow to enter the collection system. Eventual structural deterioration of the pipe will occur as the loss of soils and fines surrounding the joint and defects undermines the foundation and soil support, accelerating failure of the pipeline.

#### CAPACITY

Roots in a pipeline can take up much needed capacity by disrupting and blocking the normal flow. Roots can collect debris, decreasing the capacity of the pipeline at an even faster rate. Ultimately, roots and debris will take up the majority of the pipe's capacity, contributing to flow backup and overflows.

As communities grow and sewer pipeline capacity is a key factor in that growth, flow-restricting roots need to be removed and the pipeline capacity restored.

#### SANITARY SEWER OVERFLOWS (SSO'S)

Root blockages in a sewer pipeline are a leading source of overflows, either when the pipe becomes totally blocked by roots, or when the blockage is significant enough to cause overflows during wet weather events.

#### INFILTRATION

Increased infiltration caused by root damage to the pipe structure will further accelerate the deterioration of the sewer pipeline and eventual failure will result. Implementing a root control program will generally decrease infiltration to the collection system and reduce flow to the treatment plants.

### TIPS TO ESTABLISHING A CHEMICAL ROOT CONTROL PROGRAM:

#### 1. PLANNING

Chemical root control should be considered in pipelines where roots are documented because of sewer back-ups, historic cleaning records, highly vegetated ground surfaces and CCTV.

#### 2. PREPARATION

It is generally not necessary to clean the sewer line prior to chemical foam application. The roots will decay at a faster pace if the pipeline has a large amount of existing bacteria. It usually takes about four to six weeks for the bacteria in the pipeline to become re-established. If however the pipeline is first cleaned it should be immediately treated before a foam resistant sap is developed at the root ends.

#### 3. FOLLOW-UP

After application of the chemical foam, it is not necessary to clean the treated pipeline. Roots will die on contact with the herbicide and will start to decay to a level where the roots would not support a stoppage in the pipeline as early as a month after treatment. If immediate full capacity of the pipeline is needed and the dead roots are removed immediately, the long term root inhibiting warranty may be voided. Some root treatment foams contain a root inhibitor which would be removed by the cleaning of the pipeline.

Chemical root control, a longer term treatment method, does not necessarily take the place of short term or immediate mechanical removal of roots, but can be an extremely effective measure to supplement a pipeline root maintenance program that will be the most cost effective approach over a longer period of time.

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