TECH TIPS FROM NASSCO

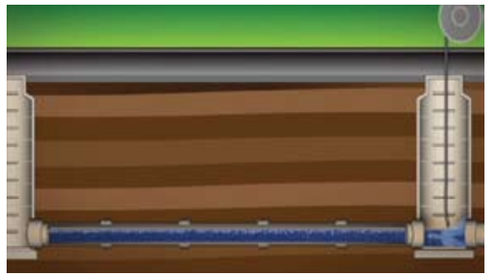
Tech Tips by NASSCO is a bi-monthly article on trends, best practices and industry advice from NASSCO's Trenchless Technology Membership professionals.

STEP CLEANING – AN EFFECTIVE CLEANING METHOD

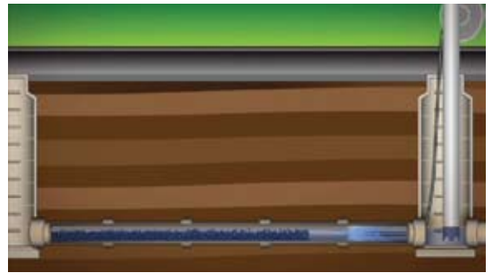
By NASSCO member Dean Monk, Regional Manager, Pro-Pipe

From medieval collection systems to 19th century pipeline infrastructure, removing accumulated debris in pipelines was like slowly tunneling through a swamp. Many of the early hope-filled methods, such as the dumping of large volumes of water while releasing bundles of little wooden balls, proved useless as debris levels rose. Fortunately, as our experiences grew, technology developed and the early 20th century brought us the first engine-driven mechanical cleaners. These units, albeit crude, slowly removed heavy debris in incremental stages via buckets. Thus was the re-emergence of what we now call step cleaning.

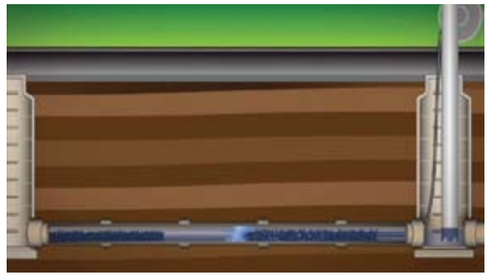
In short, Step Cleaning is the only economically proven process for cleaning pipelines with substantial deposits of debris. It is analogous to digging a hole for a fence post: Digging a hole requires debris be removed from the top down, not the bottom up, and that the dirt/debris be removed in stages, not all at once. The invention of the bucket machine gave us our first look at the value of step cleaning, and it remains an effective cleaning method for the removal of sand and roots in pipes where combination machines cannot gain access, or where pipe flows are excessive.



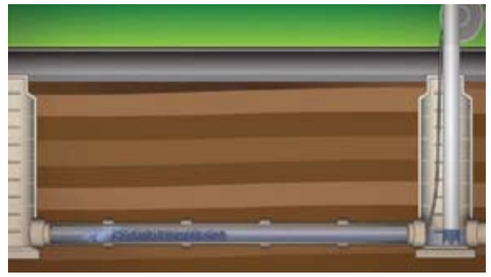
1. SET NOZZLE IN PIPE.



2. CLEAN FIRST "STEP".



3. CLEAN SECOND "STEP".



4. FINAL CLEANING PASS.

THE STEP CLEANING PROCESS

When you couple the advancements in jet-vac technology with high efficiency nozzles, today's operator needs a clear understanding of the concept of step cleaning. The savvy equipment operator who encounters heavy debris knows that rapidly launching the nozzle towards the end of the pipe is not a good idea. Anyone who has had to cut a sewer hose and sacrifice a buried nozzle understands this concept.

In the step cleaning process, you need to be patient and take "small bites" of debris. Send the nozzle up the pipe about 20 feet, pull back and vacuum out the debris stream. Take a bigger bite the next time, jet up 40 feet and pull back. Repeat the process until you get to the upstream manhole. If you can't hear the nozzle or see a debris stream in the bottom of the manhole, you're probably taking too big of a bite. In this case, make a few passes at the same length until your debris stream starts to clear. The exact length of each cleaning pass will vary based on the pipe size, flow conditions and debris level.

The use of this technique requires careful attention in order to avoid common risks such as blowing toilets and backing up the collection system.

THE FIVE MOST IMPORTANT CONSIDERATIONS DURING STEP CLEANING:

1. Nozzle selection - bottom cleaners are preferred to 360 degree style nozzles
2. Direct connection to a water source - you are going to use a bunch of water
3. Bypassing – not always necessary but will increase production in certain cases
4. Disposal/ bin placement – a dump site at or near the cleaning site is ideal
5. Take your time - remember "little bites"

Good operators are able to gauge the reaction of the equipment during cleaning and continuously adjust or refine their approach during the process. Although basic in form and well supported by advances in technology, step cleaning is an age-old art and will always be a delicate procedure warranting experienced operators and safe procedures.

For more info, including how to obtain NASSCO's Introduction to Sewer Cleaning with Jetting Equipment video, please visit www.nassco.org.