

TECH TIPS

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SANITARY SEWER OPERATIONS: BLOCKAGE REMOVAL

By NASSCO member Stephen Tilson, Collection Systems Operations Consultant, Tilson Associates

In sanitary sewer operations, blockage removal is perhaps the most demanding and highly visible. For purpose of this discussion a blockage is defined as the “stopping or interruption of sanitary sewerage flow.” These can be temporary events that stop flow for a short time, allow the “weeping” of water to filter through solids, or it can cause a sewer spill when water backs up and relieves at the lowest point in the system via manholes, cleanouts, or plumbing systems inside structures.

BLOCKAGES ARE A VERY VISIBLE FAILURE OF THE SYSTEM AND SHOULD BE MANAGED IN A PROFESSIONAL AND EXPEDITIOUS MANNER TO MAINTAIN PUBLIC CONFIDENCE.



BLOCKAGES & SAFETY

Blockages fall into five primary categories: Blocked flow with manhole(s) holding water but not spilling; Spilling but contained/ponding on its own; Spilling and relieving into waterways; Spilling inside a structure, and; Large diameter pipe/forcemain spilling requiring by-pass. Outside of the local regulatory agency reporting criteria, there are elements of tactical response and remediation that should be observed.

From a safety standpoint, blockages should be relieved from the downstream, dry manhole. Many serious accidents have occurred from using high velocity flushing machines from the full manhole. If relieving the blockage from the full manhole is the only option, extreme caution should be used when flushing equipment is used in this situation.

RELIEVING BLOCKAGES

Relieving blockages can be quick and easy, or difficult and slow depending on circumstances. The key is patience in working the high velocity jet nozzle. Selecting the proper tool is critical, nozzles specifically designed for this task such as penetrator and/or chisel point should be utilized. They will provide the thrust required to break through and break up the blockage.

Blockage removal is typically achieved by working the nozzle into or over the blockage. The key is to keep the nozzle moving at all times. In order to avoid and/or minimize damaging the pipe, do not to leave the nozzle in one position for extended periods. Once the nozzle passes through the blockage, a steady hose rewind rate of less than one (1) foot per second

should be maintained to ensure effective cleaning of the blockage material.

Debris removed from the blockage should be examined and evaluated to determine the possible cause. Blockage removal commonly calls for “two up/two down” cleaning once the blockage has been removed. This refers to the number of pipe sections above and below the stoppage point and any intersecting sewer lines that may be impacted. CCTV inspection should be a primary follow up tool to assess cause/cure elements of mechanical problems, root intrusion, or fats, oils & grease (FOG) that can be controlled.

REVIEW

In review of types of blockages, weeping blockages are typically found during routine maintenance or from customer odor complaints from bio-mass accumulation in the system. It is not unusual for a long term weeping blockage to have over two pipe sections holding materials that will need cleaning. This usually requires a brief investigation of manholes upstream from the clear manhole to assess the pipe sections that will need cleaning once the blockage is removed.

Blockages are a very visible failure of the system and should be managed in a professional and expeditious manner to maintain public confidence.

Stephen Tilson is a nationally known collection systems operations consultant, providing successful SSO reduction programs and equipment operation education. He can be reached by email at stilson@tilsonassociates.com.