

SEALING THE DEAL

Marketing-savvy contractors can educate municipalities on the value of chemical grout and in the process build a profitable new line of business

By Richard Schantz, P.E.

When it comes to sewer pipe rehabilitation, cured-in-place pipe (CIPP) lining and pipe bursting get most of the headlines. Yet another trenchless method, chemical grouting, plays an equally important role.

Grouting has been proven for more than 40 years as an effective and lasting way of stopping groundwater leaking through joints into sewer pipes. More recently, it has gained favor as a way to stop infiltration at main-to-lateral connections after sewer lining and lateral reinstatement.

Chemical grout is a potent weapon against groundwater infiltration, a major drain on wastewater treatment budgets. Performed properly, grouting can deliver measurable and long-lasting I&I reductions.

In the process, it can open a profitable line of business for contractors who understand its benefits and can explain them effectively to municipal managers. It is a technology that deserves a place among mainstream trenchless methods.

Grouting is simple, quick and relatively inexpensive. Its main limitation is that it cannot repair broken pipes, as pipe lining and pipe bursting can. It is highly effective, however, on sound pipes that are admitting groundwater through the joints.

Sealing the soil

Today's grouts are essentially the same type of chemical used from the beginning. Sewer pipe grouts are two-part, water-based acrylamides with very low viscosity. Grout is applied from inside the pipe and is forced through the pipe joint into the surrounding soil. The two components combine to form a gel-like material that fills the soil spaces and stops the flow of water into the pipe.

(Manhole grouts are typically urethanes injected into holes drilled in the structure. These materials are more viscous and set up after contact with moisture; they are not suitable for pumping long distances in manhole-to-

manhole joint sealing.)

Grouting is simple, quick and relatively inexpensive. Its main limitation is that it cannot repair broken pipes, as pipe lining and pipe bursting can. It is highly effective, however, on sound pipes that are admitting groundwater through the joints.

Grout is applied in a simple process, working through the main, from one joint to the next, from one end of the pipe to the other, manhole to manhole. The fix is lasting: There are documented cases of grout lasting 30 years or longer.

Dealing with objections

In general, cities that have used grout successfully maintain regular programs. However, some municipalities remain wary of grouting. Some simply reject it on the simplistic premise that it is "not a structural repair" like lining or bursting.

Many rely on consulting engineers to design their I&I control programs, and engineers often question the viability of the grouting process. For any rehabilitation, they prefer to be able to tie the contractor to an industry-standard material specification for which compliance can be tested after the fact. Today, there are ASTM Standard Practices for chemical grouting to seal sewer mains (ASTM F2304-03), manholes (ASTM F2414-04) and lateral connections and lines (ASTM 2454-05).

Another potential barrier is that some city inspectors do not have a good understanding of chemical grouting. Much depends on the contractor's ability to form a relationship with the city personnel and demonstrate quality performance. When the city develops confidence in the process and believes in the contractor's integrity and skill, the foundation is built for a long-term grouting program.

Creating opportunity

Somewhat ironically, growth in newer trenchless methods has created more opportunities for the older practice of grouting. In particular, sewer lining has opened a large niche for grout.

While lining provides effective and lasting replacement for broken pipes, it does not stop (although it reduces) groundwater infiltration. The annular space (known as the annulus) between the old pipe and the new one creates a potential conduit for clear groundwater

to flow back into the sewer line, especially after holes have been cut in the liner to reinstate lateral services.

The lateral-to-main connection is an especially troublesome spot. Lining companies have devised solutions for sealing those leak points. Grouting provides an alternative that is effective and cost-competitive, so long as both the main and lateral pipes at the connection are in sound condition. The grouting process forces material not only into the soil surrounding the pipe connection but into the annular space, effectively cutting off the flow of clear water into the line.

By many accounts, this application is the fastest-growing segment of the chemical grouting sector. In fact, for the past several years, the majority of new grouting rigs have been outfitted for both mainline and lateral grouting.

Making the case

To sell a municipality on a comprehensive grouting program takes time, energy and a little creativity. The key is to prove the value of the procedure. The best opportunities to do that are in cities that run regular sewer cleaning and inspection programs and, ideally, have I&I reduction initiatives in place.

The best point of entry is to perform a paid demonstration. Work with city person-

Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column. Please direct them to editor Ted J. Rulseh, editor@cleaner.com.

nel to identify areas of the sewer system that carry heavy flows or are surcharged after rain events — and where the pipes are clean and in good condition. That indicates a sector where the joints are leaking and grouting will be effective.

Grout one or more sectors. Then take city personnel along on a follow-up inspection after the next storm event. You can document performance by opening manholes and observing flows, or by deploying a CCTV camera to show beyond a doubt that the grouted joints are not leaking. As further documentation, you can present a videotape or disc from the grouting process that includes data showing that each grouted joint passed an air-pressure test at 3 to 5 psi.

Learning the ropes

Contractors do not have to teach themselves how to perform chemical

Grout Boot Camp

The fourth Grout Boot Camp, sponsored by the Infiltration Control/Grouting Association, will be held Jan. 15-17 at the Aries Industries Service Center in Pompano Beach, Fla. The program includes three days of technical training for inspectors and operators of test and sealing systems. The program covers:

- Understanding sewer lines and infiltration.
- Test and seal system components and operation.
- Component maintenance and repair.
- Lateral and mainline packer operation and maintenance.
- Mixing and optimizing grout performance.
- ASTM and NASSCO test and seal standards review.

The lead instructor is Richard Schantz, P.E., who has 16 years of design, building and training experience in grouting technology. Also participating in training will be experts from Logiball Inc. and Avanti International.

Attendees will receive training documentation and product manuals, grout system and wiring drawings, and a personalized certificate of completion. Each attendee will also receive special equipment and tooling for calibrating and testing pressure transducers and grout chemical check valves. **For more information, call 800/234-7205.**

grouting or even how to talk to municipalities about the process.

A few years ago, grout suppliers, equipment manufacturers and contractors joined to form the Infiltration Control/Grouting Association (ICGA), a division of the National Association of Sewer Service Contractors (NASSCO). Each year, the ICGA holds two schools for current and prospective grouting contractors as well as rig operators, engineers and inspectors.

Class sections cover fundamentals such as the federal Clean Water Act and the impacts of I&I, as well as grouting equipment, grout characteristics, safe grout chemical material handling practices, applicable laws and regulations, and marketing practices. Participants received 20 CEUs.

They also walk away with a PowerPoint presentation that helps them make the case for grouting to municipal officials, whether in one-on-one sessions, in small groups, or at meetings of state or regional Water Environment Federation (WEF) chapters. ICGA members are available to support new and growing grouting businesses by giving presentations at local, state and national sewer-related events.

A worthwhile endeavor

I&I remains the bane of sewer sys-

tems. Even small leaks can impose substantial treatment costs on an annual basis. Many municipalities are so close to their treatment system capacities that state regulators will not allow them to approve new subdivisions or add new businesses.

Chemical grouting has the ability to reduce I&I and reopen the way for new development. It is a process that deserves to be examined and tried — rather than written off because it is “not a structural repair.” ASTM standards now cover the three main applications of chemical grouting. Those standards form a technical foundation that should make grouting more acceptable to cities and their engineering consultants.

Grouting is for contractors who want to move beyond simply bidding jobs for familiar technologies, in tough competition with many others. Those who take time to learn the process can find themselves leading in their markets — not just bidding but dictating what goes out for bid.

Richard Schantz, P.E., is a product manager and engineer with Aries Industries Inc., and chairman of the Infiltration Control/Grouting Association, a division of the National Association of Sewer Service Contractors (NASSCO). ■

© 2007, COLE Publishing Inc.

Reprinted with permission from Cleaner® / October 2007

COLE Publishing Inc., P.O. Box 220, Three Lakes, WI 54562

800-257-7222 / www.cleaner.com

The logo for Logiball inc. features a stylized yellow swoosh above the word "Logiball" in a large, dark blue, serif font. The word "inc." is written in a smaller, italicized font to the right of "Logiball".

Logiball^{inc.}

Tel: 800-246-5988

Tel: 418-656-9767

Fax: 418-653-5746

www.logiball.com