How often have you heard the phrase, "Time will tell," when someone questions the long-term outcome of current actions? And we have all had experiences in which time did tell, either proving our actions to be correct or incorrect. Performance over time is often the toughest test to complete successfully.

System owners and design engineers sometimes express opinions that PVC pipe cannot be installed below a certain depth. Indeed, the cut-off depth for PVC are sometimes specified in the 12- to 15-feet deep range. These arbitrary restrictions are simply unnecessary. PVC piping systems, when designed and installed correctly, will operate successfully at burial depths of 50 feet and more.

To investigate the performance of PVC pipe in deep burial applications, let's revisit some projects that were presented in earlier editions of the PVC Pipe News and see how they have stood the "Test of Time." The first installation we'll visit was installed by the City of Arlington, Texas, in 1985. Arlington, located in the fast-growing Dallas - Forth Worth Metroplex, installed over 18,000 feet of 12-inch through 27-inch pipe to expand its sewer system. A total of 9,400 feet, or about one-half, of the pipe installed was 27-inch diameter. Due to the topography of the Lynn Creek Cut-Off Sanitary Sewer area, the average depth of installation was 25-feet deep with some areas as deep as 35 feet. Arlington's City Officials had used PVC in other applications and chose it over clay for this demanding application based on their experience.

We visited with Antone Cepak, the Utilities Engineering Supervisor. He said, "I have not heard of any problems, and no news is good news in this business. You should check with Doug McCullough, though. He is our Inflow/Infiltration Coordinator." When discussing the matter with Mr. McCullough, he first described Arlington's Inflow/Infiltration (I/I) program: "Tests are conducted basin-by-basin. The I/I testing consists of flow monitoring, smoke testing, and dye testing." He told us that the line we were interested in was in the Lynn Creek Basin, and the I/I testing had already been conducted. After checking his records, Mr. McCullough reported no problems with the line.

Now let's move forward in time to 1989 and north to the Village of Mokena, Illinois, which is about 40 miles from downtown Chicago. In the late 1980’s, the Village of Mokena, expanding rapidly, required new sewer capacity. After reviewing their options, city officials chose to install a deep burial gravity sewer system rather than a force main, which would require more maintenance. The installation, at depths up to 42-feet deep, included 200 feet of 18-inch and 2,300 feet of 15-inch radially-ribbed PVC sewer pipe manufactured to ASTM F794-88 specifications.

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personnel spent in the deep trenches and to obtain suitable compaction of the embedment material around the pipe easily, the contractor, Steve Speiss Construction, used crushed stone. City engineers closely monitored the installation, performing both low-pressure-air and deflection tests on the installed pipe.

Almost a decade and a half after installation, what has time told about PVC pipe's ability to withstand deep burial? For the answer we went to Craig Heim, Utilities Superintendent for the Village of Mokena, and inquired about the line's performance. Mr. Heim thought a minute and replied, "We haven't experienced one problem."

The next deep burial project takes us to Monroe Township, New Jersey, where 10,700 feet of 30-inch ribbed PVC sewer pipe was installed at depths from 20 feet to 52 feet in 1995. Tom Switalski, of KTM Associates, worked closely with Monroe Township personnel when the project was originally installed and continues to do so today. The criteria for the original project were very demanding: (1) The pipe had to withstand 50-foot-deep burial in silty-sandy soil that varied from loose, wet soil to hard sand. (2) The pipe had to be corrosion resistant and withstand corrosive sewer gases. (3) And, the pipe was required to have tight joints. Zero infiltration was permitted because the pipe was passing through protected wetlands. Mr. Switalski reports the line has met all of Monroe Township's expectations and that the Township continues to specify PVC pipe for its deep burial projects.

Finally, we return to Texas and its capitol, Austin. The City installed 8,000 feet of 48-inch PVC pipe in the late 1990's. It was installed at depths up to 45 feet in the Pioneer Crossing area. The City Engineer, Ted Naumann recalls, "I almost had to run a class on flexible pipe design to convince everyone PVC could be used in this project." When asked how the pipe is performing, Naumann replied, "I haven't heard anything." Which, considering the high profile of the project, is a strong positive statement and certainly another example of the old adage, "No news is good news."

These stories told by the test of time are significantly different than the stories you may have heard from some of PVC's competitors. The benefits PVC pipe provides are not limited to shallow burial depths only. The initial savings from installing a PVC system - and the long-term-operating savings - are available to system owners in both shallow and deep burial installations ... as "Time Has Told."