

Movement To Locate Laterals Gaining Strength

by Jeff Griffin ■ Senior Editor

Efforts to prevent accidental damage to underground utility infrastructures have accelerated over the past several years, bringing positive steps to reduce the number of costly and often dangerous strikes of buried pipe and cable.

Among recent achievements: improvements to one-call services and a new national 811 number to reach one-call agencies, progress in gathering data about causes of utility strikes and educational programs directed to utility providers and contractors and the general public. However, much remains to be done.

In the opinion of many, one of the most important initiatives currently under way is to require public and private operators of sewer systems to locate and mark sewer laterals.

"Unmarked sewer laterals pose the biggest safety risk to contractors and the general public," says Mike Kemper, president and chief executive officer of Arizona-based utility contractor Northern Pipe Line Construction Co. (NPL) which operates nationwide.

At the least, a damaged sewer lateral can disrupt service and pollute surrounding soil with raw sewage. However, that's not the primary concern of Kemper and others. The most serious problem comes when crews using trenchless procedures unknowingly install natural gas pipe or electrical cable or conduit through unmarked sewer laterals.

Accidents waiting to happen

Numerous instances have been documented in which a pipe being installed has passed through a lateral without personnel on the surface knowing it has happened. Such incidents often occur during installations made by horizontal directional drilling (HDD) and pneumatic piercing tools. In either case, the strike happens underground and out of sight, and the downhole tools easily pierce plastic pipe, often with no indication to construction crews that anything is wrong.

New gas or electric conduit then is routinely pulled into the bore hole and through the damaged lateral where it may go unnoticed for months or even years. When a blockage occurs (either caused by the intruding pipe or something else), a plumber is called to clean out the sewer line. His mechanical tool can rupture the gas pipe or electric conduit.

Hitting an electrical cable that has passed through a sewer line poses a deadly risk to the operator of a clean out tool, but lacks the potential for widespread destruction of a gas explosion which can occur when escaping gas migrates not only into the home or building served by the lateral, but into the sewer system, putting in place all the elements necessary for a major disaster when a pilot light or other source causes accumulated gas to ignite.

Accurately-marked sewer laterals would greatly reduce the chance of such accidents.

"Marking sewer laterals has become the clear, number one opportunity our industry has to improve public safety," says Kemper. "And we need to take action now to prevent more incidents. Let's not wait for more accidents to be the reason to solve the problem; let's take the correct preventive measures now."

Historically, sewer laterals and water services have not been located prior to construction as are power and communications cable and gas lines. Typically, incidents such as those just described did not begin happening until trenchless procedures were introduced. Previously when an excavation crew hit an unmarked lateral, they knew it immediately because the damage was visible. The pipe was repaired and work resumed.

Never been done

So why aren't laterals located? It's just never been done and the issues being raised now did not exist until the advent of trenchless construction.

"On one hand, unlocated laterals lead to explosions," says Walt Kelly, former director of pipeline safety for the state of Minnesota, now a consultant and advocate of marking laterals. "And on the other hand, many sewer operators simply don't have good records of lateral location, even when the law has required those records. In that case, there has to be some kind of accommodation that requires sewer operators to provide the information it has, but not hold them to the usual standard of accuracy. It really calls for cooperation between the sewer operator and the excavator."

One justification sometimes presented for not locating laterals is that sewer and water systems are exempt from one-call legislation in most states. But for the most part, that is not true, says Kelly.

"About eight states specifically exempt or do not include sewer laterals in their lists of underground facilities," he said. "One-call legislation in the other 40 states generally makes 'owners and operators' of utilities responsible for locating and marking buried facilities, and owners and operators includes cities and other public works organizations. But most sewer system operators have never marked laterals, and they resist efforts to require them to do so. Most often efforts to require laterals to be marked come after a serious accident."

For example, says Kelly, successful efforts to require lateral markings in Minnesota came after a plumber was severely burned when the sewer cleaning equipment he was operating struck a gas line inside a sewer pipe. Changes in enforcement policies in Arizona and Virginia also followed incidents in which gas lines in sewer lines were hit. Wisconsin changed its law, even though no serious incident had occurred.

That water and sewer operators are resisting efforts to have them locate services and laterals is not surprising – there is no question that abruptly being forced to mark these lines is perceived as a hardship by most; many already are confronted with problems of aging systems, are understaffed and short of money.

Even though most one-call laws hold system owners and operators responsible for marking, some sewer system operators claim it should not be their responsibility. And because most state one-call legislation requires marking utilities only in public right-of-way, some public works operators take the position that sewer laterals and water services extending to homes and businesses belong to the property owners, making them responsible for locating and marking.

However, Kelly points out that in states with enforcement, telephone, cable television and power companies locate services to private residences, and making homeowners responsible for locates and marking utilities on the property is considered unreasonable by courts that have addressed the issue.

Focusing efforts

Perhaps one reason efforts to encourage marking of sewer laterals lags behind routine marking of other buried infrastructure is that there has been no coordinated na-

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tional effort advocating the practice. But that appears to be changing.

Independent efforts by NPL and other contractors, often working closely with utilities, are attracting increased attention within the industry and among other contractors and service providers who face liability issues any time any subsurface utility accident occurs. Other contractors involved in the effort include Miller Pipeline Corporation, Indianapolis, IN; Michels Corporation, Brownsville, WI; Pilchuck Contractors Inc., Kirkland, WA;

and Snelson Companies Inc., Sedro-Woolley, WA.

Kelly frequently makes presentations regarding sewer lateral marking and often is called to provide expert advice to various groups that both favor and oppose making the procedure a requirement.

Dr. Samuel T. Ariaratnam, associate professor at the Del E. Webb School of Construction, Arizona State University, is a respected expert in underground construction technologies who is co-author of numerous papers. He frequently makes presentations to industry groups and at trade shows about

the need to mark sewer laterals.

"A natural gas cross-bore in a sewer lateral can be catastrophic," says Ariaratnam. "This is a serious issue that needs to be dealt with immediately in the interest of public safety. Currently, there are potentially hundreds of utility lines bored through sewer service laterals, many of them natural gas."

Citing information contained in a presentation he made at the 2006 American Society of Civil Engineers (ASCE) Pipelines Conference, Ariaratnam says the lack of locating with regard to sewer laterals was

Legislative Focus

States are addressing the need to mark sewer laterals. The information below is summarized from a presentation made to the American Society of Civil Engineers Pipelines Conference in August in Chicago titled "Minimizing Public Exposure to Cross-Bores in Unmarked Sewer Service Laterals," co-authored by Dr. Samuel T. Ariaratnam, Michael Kemper and Dan H. Weaklend:

"Numerous states have either adopted or proposed legislative changes to address locating and marking of sewer service laterals. The State of Georgia Utility Facility Protection Act was revised through Senate Bill 274 that called for an amendment of Chapter 9 of Title 25 so as to comprehensively revise provisions relating to utility facility protection; to add provisions regarding sewer laterals. In Oregon, the excavation laws make it clear that system operators are responsible for marking laterals within the public right-of-way. As stated in Section 1(10) of ORS 757 in the State of Oregon, 'operator' means any person, public utility, municipal corporation, political subdivision of the state or other person with control over underground facilities. 'The intention here [said a state official] was the operator of the sewer main (city or service district) would have the best knowledge of where the lateral would be (they controlled the installation) and they would have the expertise and equipment to perform the locate. If it is an unlocatable facility, they could

provide the best information available to assist in its location.'

"In Arizona, State Statute ARS 40-360.28(C) states that if the owner or operator fails to locate or incorrectly locates the underground facility, pursuant to this article, the owner or operator become liable for resulting damages, costs, and expenses to the injured party. Per House Bill 2256, any underground facility installed after December 31, 2005 shall be locatable above ground without potholing. In this context, underground facility means any item of personal property that is buried or placed below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephonic, or telegraphic communications, electric energy, oil, gas, or other substances, and shall include but not be limited to pipes, sewers, conduits, cables, valves, lines, wires, manholes, attachments and those portions of poles and their attachments below ground except cross culverts or similar roadway drainage facilities and landscape irrigation systems of two inches in diameter or less [passage of H.B. 2222 this year requires landlords of mobile home parks and apartment communities to locate laterals].

"Similarly, the recently-adopted Minnesota Rules Chapter 7560 requires the underground facility operator to locate a service lateral before the start date and time of an excavation. After December 31, 2005, 'an operator of a sewage or

water facility, at a minimum, shall locate that portion of the service lateral within a public right-of-way installed after that date up to the point where the service lateral first leaves the public right-of-way.

"Additionally, the operator shall either locate or provide information as shown on maps, drawing, diagrams, or other records, on the location of sewer or water service laterals installed before Jan. 1, 2006. Additionally, all service laterals installed after Dec. 31, 2005, must be installed with a locating wire or have an equally effective means of marking the location of each nonconductive underground facility within a public right-of-way.

"Senate Bill 498 has been introduced in Wisconsin to address the marking and locating of water and sewer laterals. The Bill proposes to place the responsibility of marking the location within the public right-of-way of all service laterals on the system operator. However, the requirements suggest that laterals installed prior to Jan.1, 2007 require the local government unit to provide the contractor with maps, drawings, diagrams, or other records indicating the location of the lateral instead of performing the actual marking. For non-conductive laterals installed after Dec. 31, 2006, a locating wire or other equally effective means for marking the lateral location must be installed."

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identified as a major issue by contractors that participated in *Underground Construction* magazine's 2003 Annual Contractors Roundtable.

The presenters reported the need for making service laterals "locatable" by installing locator wire or an equally effective means of marking the location as imperative. Utility providers and contractors are being held liable for hitting unmarked lateral lines resulting in damages and subsequent increases in insurance premiums for trenchless projects.

Delicate issue

The Common Ground Alliance (CGA), the private, nonprofit organization that has emerged as a leading advocate for developing and implementing a comprehensive damage-prevention program to protect underground utilities, has a Best Practices proposal pending in the organization's Best Practices committee.

"The proposal regarding marking sewer laterals was submitted in 2004 and has been in discussion since that time," says Bob Kipp, CGA president. "The issue is very controversial, and the dialog continues about

whether to add it to CGA's recommended Best Practices. Consensus among all stakeholders is necessary to include a proposal in Best Practices, and committee members continue to work to develop something that satisfies everyone."

That said, Kipp points out that it usually takes at least two years for a new Best Practice to be adopted.

At its 2006 annual meeting, the Distribution Contractors Association (DCA), addressed the issue of trenchless installations around sewer lines and laterals collectively in business and committee meetings, said Ed Shannon, DCA president and senior vice president of the Snelson Companies.

Shannon said Grady Bell, Laney Directional Drilling, and chairman of the DCA Horizontal Directional Drilling Committee, and Ben Nelson, Pilchuck Contractors, Inc., chairman of the DCA Safety Committee, have agreed to have their committees collaborate to develop a model that the DCA and member companies can use to attain similar changes in state legislation throughout the United States.

"This is an issue that has collectively frustrated contractors who install underground

utilities," adds Shannon. "It will take some time to gain the necessary support needed state-by-state to assure that underground sewer laterals are locatable and can be safely identified before contractors install new gas lines and other utilities in their immediate vicinity.

"The DCA is ready and will cooperate with facility owners or contractor associations who are concerned and want to improve safe methods when installing underground systems around unknown or undetectable sewer laterals."

NPL's Kemper is optimistic.

"This is a problem we can and will solve," he concludes. "Years ago, no underground facilities were marked. One by one, they were required to be located. It wasn't that long ago that we didn't have any one-call centers. Now, we have one in every state. Unmarked sewer lines are our current and final challenge. Like the ones before, this industry will rise to meet it. It will take hard work to educate legislators and commissioners to pass laws and to enforce them, but we must and will prevail in the interest of safety.

"And the time is now." ■