

Be responsible and make sure your crews aren't digging their own graves.

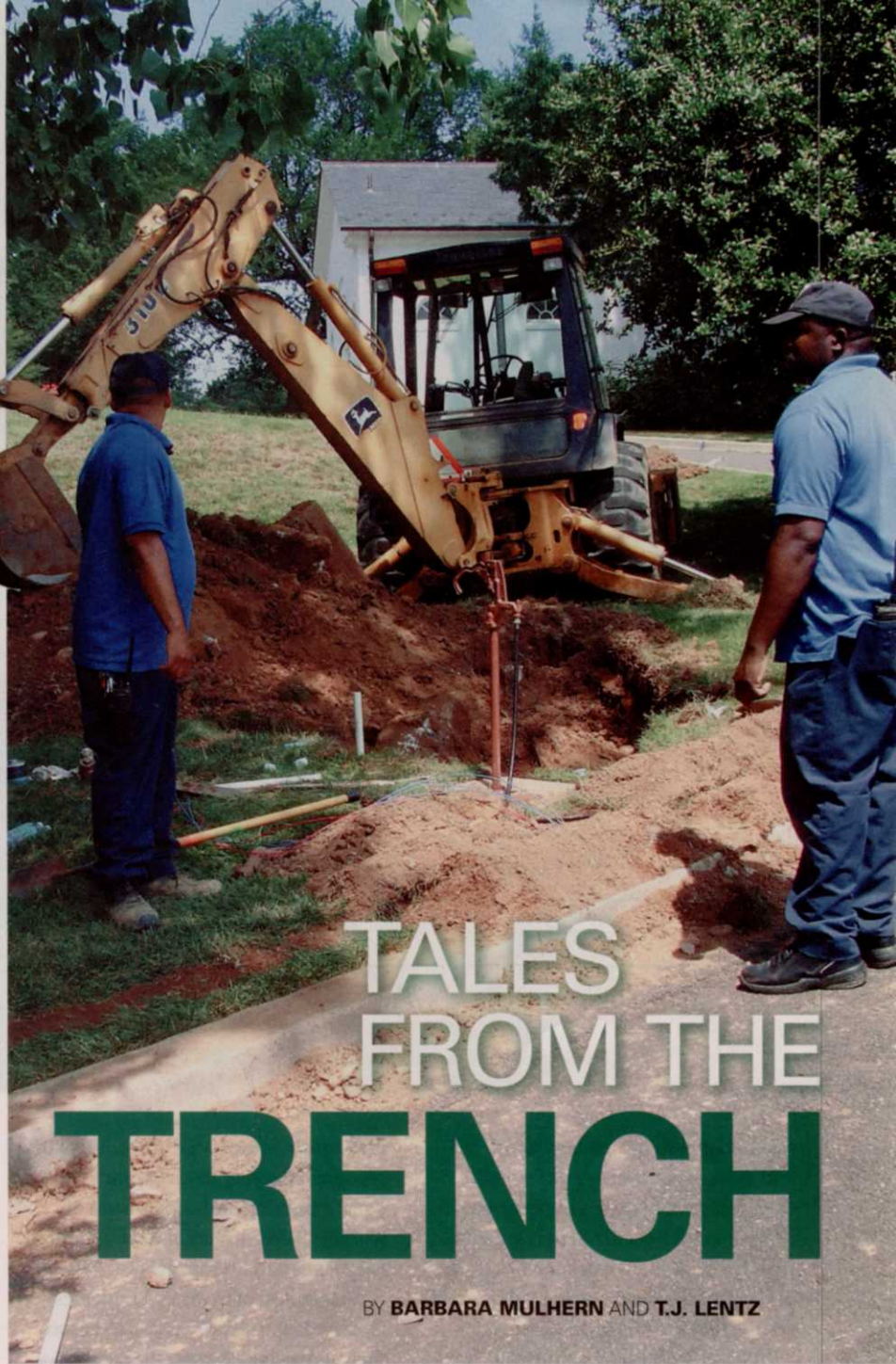
IN GREENWICH, CT, a 59-year-old groundskeeper installing a drainage pipe in a trench at a country club died after a portion of the trench collapsed. Occupational Safety and Health Administration (OSHA) inspectors found that the walls of the 6-ft.-deep trench had not been shored, sloped or otherwise protected against collapse. The country club paid \$20,250 for seven violations of OSHA standards.

In Reno, NV, a 20-year-old man and his 39-year-old co-worker died following the collapse of a 12-ft.-deep trench at a golf course. OSHA investigators found a number of safety violations, including lack of a protective system to prevent a cave-in, inadequate means of access or egress, failure by the employer to require head protection, and failure to adequately train employees in the recognition of hazards. Among those the 39-year-old worker left behind were three children, ages 12 to 15.

These deaths are among the many that occur each year in trenching and excavation cave-ins throughout the United States. Landscape contractors and grounds maintenance employers whose workers are engaged in trenching and excavation activities must ensure proper training and safety precautions are in place.

### Industry at risk

The landscape services industry is a high hazard industry. A single traumatic injury or death can put a small company out of business. According to a National Institute for Occupational Safety and Health (NIOSH) fact sheet, titled "Fatal Injuries Among Landscape



# TALES FROM THE TRENCH

BY BARBARA MULHERN AND T.J. LENTZ

Services Workers" (NIOSH Publication No. 2008-144), workers in the landscape services industry make up less than 1% of the total U.S. workforce — yet they experience approximately 3.5% of all of the occupational fatalities.

In addition to potential OSHA investigations and legal fees, a traumatic injury or fatality will result in increased insurance premiums; downtime; lost management and administrative time; the need to recruit, train and replace workers; poor employee

morale; and even the potential loss of good customers.

### Trenching hazards

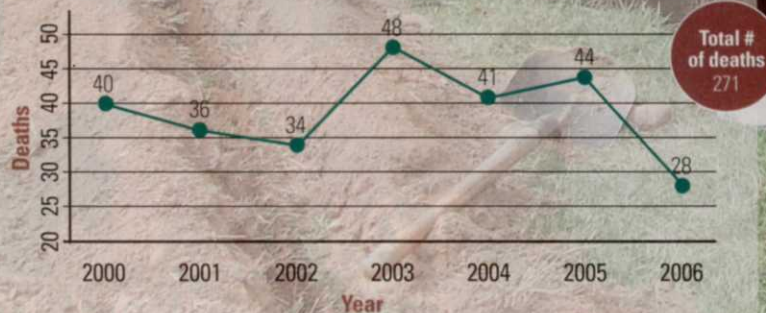
U.S. Bureau of Labor Statistics (BLS) data show that 271 workers died in trenching or excavation cave-ins from 2000 through 2006. (See "Deaths from Trenching or Excavation Cave-ins," next page.) A review of multiple national databases by NIOSH researchers found that trenching and excavation hazards during construction activities





TRENCH

### DEATHS FROM TRENCHING OR EXCAVATION CAVE-INS



Source: U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries

resulted in 488 deaths between 1992 and 2000 — an average of 54 fatalities each year. Sixty-eight percent of those fatalities occurred in companies with fewer than 50 workers. Forty-six percent of the deaths occurred in small companies with 10 or fewer workers.

The NIOSH research also showed that 19% of these workers who died were Hispanic — a fast-growing worker population in the landscape industry. In June 2008, the Centers for Disease Control (CDC) published a report noting that between 1992 and 2006, 11,303 Hispanic workers in the United States died from job-related injuries. The death rate for Hispanic workers was consistently higher than the rate for all U.S. workers. An editorial note in the report stated that factors contributing to higher numbers of work-related deaths among Hispanic workers include

inadequate knowledge and control of recognized safety hazards, and inadequate training and supervision of workers, often exacerbated by different languages and literacy levels.

Regardless of workers' ethnicities and primary language, it's critical to ensure they understand the specific hazards involved in trenching and excavation work. In a publication titled "Excavations," Oregon-OSHA (OR-OSHA) notes that a cave-in can trap a worker within seconds, and kill the person within minutes. Two cubic yards of soil may weigh 4,000 to 6,000 lbs., and a person who is buried will suffocate in less than three minutes, OR-OSHA says. *Note: The weight of the soil around the person is usually the cause of the suffocation, because the pressure from the soil against the chest prevents the lungs from expanding for breathing.*

Yet cave-ins aren't the only hazards

workers involved in trenching and excavation face. Among the other hazards are:

- › Electrical hazards from overhead or underground power lines.
- › Contact with underground natural gas lines or other utility lines. Be sure to call 811 before you dig. Each state has different rules and regulations governing digging, some stricter than others. 811 will connect you directly to your local one-call center. For more information on your state's notification requirements, visit [www.call811.com/state-specific.aspx](http://www.call811.com/state-specific.aspx).
- › Falling hazards.
- › Wet conditions.
- › Hazardous atmospheres (heat and cold stress, stinging or biting animals and insects, and poisonous plants). Refer to the NIOSH Safety and Health Web Topic Page for Outdoor Worker Hazards.
- › Confined space issues.



## BE PROACTIVE

What follow are some important steps to take to help protect your workers from serious injury or death in trenching/excavation activities:

› **Plan ahead.** Make sure all equipment is in good condition, that all utilities have been marked before digging, and that all electricity, gas and water pipes in the trench have been shut off.

› **Ensure that a protective system such as sloping, benching, shoring or shielding is in place.** The type of system used will depend on such factors as the excavation depth and width, the soil type, water content, nature of the work and any nearby activities that could increase the risk of a cave-in. Depths of more than 5 ft. require protective measures.

› **Designate a "competent person" to oversee all activities.** This person should have a greater level of training and experience than other workers. The competent person must be in the work area, must ensure that appropriate safety measures are in place before anyone enters the trench, and must act promptly to correct any problems.

› **Conduct daily inspections and document findings.**

› **Ensure an adequate means of entry and exit.** A ladder or other means must be no farther away than 25 ft. from any worker.

› **Keep heavy equipment and spoils at least 2 ft. from the edge of the excavation.**

› **Provide and require workers to wear hard hats and to use other appropriate safety equipment.**

› **Train all workers in a language and manner they understand.** Ensure that they are aware of all potential hazards and that they comprehend safe trenching and excavation work practices. Develop a checklist for employees as a quick and easy reminder. Follow up training with a test that can be administered orally for workers who cannot read or write. Reminder: When training your employees, be sure to take into account language issues, literacy level issues and cultural issues that could prohibit an understanding of your safety messages.

› **Know that some sites require tabulated data.** For this, you must enlist the assistance of a registered engineer and maintain documentation on site during construction.

Adherence to this guidance and following safe work practices during trenching and excavation activities can mean the difference between leaving the worksite safely to enjoy another day above ground ... or not.

A crew well-versed in trench safety can keep your business from becoming a statistic.

› **Heavy equipment/machinery hazards.** Exhaust fumes from nearby equipment can cause exposures to carbon monoxide and create hazardous atmospheres depriving workers of oxygen.

› **Ergonomic injuries** resulting from manual material handling.

Landscape contractors involved in construction activities, such as digging trenches, are subject to OSHA's construction standards. For more information on federal OSHA construction standards regulating this type of work, visit [www.osha.gov](http://www.osha.gov), then refer to these standards: 29 CFR 1926.650, 29 CFR 1926.651 and 29 CFR 1926.652. LHM

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