



SAFETY MATTERS

Safety Matters is intended to promote discussions of safety issues among underground construction professionals. You should always read and understand the operator's manual before operating any equipment. For additional information, please e-mail safety@ditchwitch.com.

TOPIC: WORKING IN TRENCHES/PITS

Potential Hazards

- Caught in
- Crushing
- Asphyxiation
- Falling objects
- Drowning
- Falling

Precautions

- Have a certified Competent Person onsite for trenches deeper than 4 ft (1.2 m).
- Use a protective system if trench is more than 5 ft (1.5 m) deep.
- Do not dig more than 2 ft (600 mm) beneath any protective system.
- Provide a means of access and egress within the trench if it's greater than 4 ft (1.2 m) deep. Provide ladders at least every 25 ft (7.6 m) for access and egress.
- Trenches greater than 20 ft (6 m) deep require a protective system designed by a professional engineer.
- Keep the surface near excavations clear of equipment, dirt and materials when workers are in the excavation.
- Ensure that water from drains and pipes is blocked.
- Loads should not be suspended above workers.
- Test the atmosphere of confined spaces before entering, and ventilate or provide suitable breathing equipment as necessary.
- Trench should be secured before entering, even for a rescue effort, as secondary cave-ins are common.
- Stay away from the edge of the trench if possible.

Information/Facts

- Tension cracks, which cause cave-ins, can occur at a horizontal distance 1/2 to 3/4 the depth of the trench. For example, if the trench is 10 ft (3 m) deep, a crack resulting in a cave-in can occur up to 7.5 ft (2.3 m) away from edge of the trench.
- Being caught in a trench is one of OSHA's top four construction hazards.
- Cave-ins are common, and dirt is heavy (approximately 115 lb/ft³).
- You don't have to be completely buried to suffer death or serious injury. Suffocation can occur from the weight of the earth, and limbs can be lost due to lack of circulation.
- OSHA requires a certified Competent Person on-site for any trenches deeper than 4 ft (1.2 m). A Competent Person is

someone trained in soils analysis, trench protection, and requirements of OSHA standards. Several types of soil exist, and there are numerous factors which can affect stability.

- Applicable OSHA standards are:
 - CFR1926.650 Excavations
 - CFR1926.651 Specific Excavation Requirements
 - CFR1926.652 Requirements for Protective Systems

Tales from the Trench

- ▣ After digging a 6-foot (1.8 m) deep trench with a backhoe, the operator intended to quickly enter the trench to remove a tree branch that had fallen into the trench. Just as he got into the trench, the side of the trench caved in, burying him to his waist. (Unknown to him, many years earlier a parallel trench had been dug and refilled, weakening the trench wall.) Coworkers came to the trapped worker's aid and pulled him from the excavation. He spent five days in the hospital and a long recovery period due to pulled ligaments in his feet and leg joints. He now suffers from acute claustrophobia.
- ▣ Four construction workers died in a collapsed trench after one of them fell in and his co-workers tried to rescue him. The four men were working on a drainage trench when part of it collapsed. A 24-year-old worker fell into the collapsing trench. The three others tried to rescue him, but also became trapped in the dirt and were also killed. Floodwaters appeared to have been seeping into the trench at the site of the collapse.