

Case 323. 56-year-old public works laborer died when an 8-foot excavation wall collapsed while working on a leaking water main.

56-year-old male township public works laborer died when an 8-foot excavation wall collapsed while working on a leaking water main. The township contracted an outside excavation contractor to dig the excavation. The 6-inch water main had been leaking for approximately 18 hours and was located approximately three feet from and parallel to a north/south roadway edge. The water main remained pressurized and continued to leak water because the crew could not locate a gate valve. A pump was used to control the water entering the excavation. The township-designated competent person, who was also the site foreman, directed the excavator operator to dig the excavation. After the incident, MIOSHA measurements of the excavation found it to be 17-feet long by 5-feet wide (at the top) by 8-feet deep and cut parallel to the roadway. The east side of the excavation (4-inches from the roadway edge) was cut vertically to 8.5 feet in height. The west side of the excavation was cut to 7 feet and was sloped to a 78-degree angle because the township's competent person noted the west side wall slough. The base of the excavation was approximately 4 feet wide. The soil type was backfill/clay and was water saturated because of the leak. The decedent and a coworker (Coworker 1) entered the excavation to clean the leaking water main and found that they needed a larger clamp than what was brought to the site. Both workers exited the excavation and, after discussion with the site foreman, it was decided that the foreman would procure the larger clamp. The decedent re-entered the excavation to continue the cleaning of the main. The foreman directed Coworker 1 and another township worker who was onsite to monitor the sides of the excavation. The decedent was facing west when a 13-foot long by 8.5-foot high by 3-foot thick section of the vertical east wall (including soil from under the roadway) collapsed into the excavation. The soil completely covered the decedent. One of the coworkers called for emergency response and the site foreman. Both coworkers entered the excavation to try to locate and dig out the decedent. The coworkers were able to find him and clear the area around his head. The excavator operator excavated soil from the north side of the trench to allow the water to drain to the north in an attempt to limit the rise of water in the trench. The foreman arrived and the three workers were able to uncover his upper body. Emergency workers were on scene. The decedent was removed from the excavation and transported to a local hospital. He died several days after the incident. A trench box was available but was not used at the time of the incident.

MIOSHA Construction Safety and Health Division issued Serious and Willful Serious citations to the employer at the conclusion of its investigation.

SERIOUS: GENERAL RULES, PART 1, Rule 114 (1):

An accident prevention program was not developed, maintained, and coordinated with employees.

There is no implemented/coordination of the Safety Program and Procedures with employees required to enter excavation while engaged in the repair of water mains.

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, PART 6, Rule 622(1):

A helmet, as prescribed in R408.40621, was not used to protect the employee where a hazard or risk of injury exists from falling or flying objects or particles or from other harmful contacts or exposures):

Employees without head protection working around operating excavation equipment and in an excavation that is 8.5 feet below the roadway surface.

SERIOUS: EXCAVATION, TRENCHING, AND SHORING, PART 9, Rule 933(2):

An excavation that an employee was required to enter did not have excavated and other material stored and retained not less than 2 feet from the excavation edge.

Employees are entering/working bent over within an excavation that is 7 feet deep (shallow side) with the spoils directly at the edge. Repair work is being done on an existing, leaking water main along the west side of Road.

WILLFUL/SERIOUS: EXCAVATION, TRENCHING, AND SHORING, PART 9, Rule 941(1):

The side of an excavation more than 5 feet deep was not sloped as prescribed in Table 1, unless supported as prescribed in this part.

Two employees were cleaning (prior to repair) a damaged “leaking” 6 inch existing water main in an excavation. The excavation was cut along the west side of Road. No trench box or shoring system was used.

The excavation measured:

- 17 feet long, by 5 feet wide (at the top) by 8.5 feet deep
- The east side (along Road) was cut vertically (90 degrees) from the edge of the pavement down
- The west side was cut to a 78 degree angle
- The bottom of the excavation was approximately 4 feet wide
- The soil consisted of water saturated backfill/clay

One employee re-entered the excavation and received injuries when a 6 feet by 6 feet X 4 feet section of the east side (under Road) collapsed onto him. Employee later died of the injuries.