

## **Construction Laborer Dies In Trench Cave-In At Oil Tank Removal Site in Massachusetts**

**Investigation: #97-MA-031-01**

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### **SUMMARY**

On August 4, 1997, a 17 year old construction laborer working with his father died of injuries sustained in a trench cave-in at an oil tank removal site. The victim was working in the trench cutting the rods which held the tank in the ground when the incident occurred. Without warning, the trench collapsed pushing the victim against the tank. He struck his head on the tank and was unconscious. The fire department was called and arrived immediately. They worked with bystanders in the trench to free the victim. The victim was transported to a nearby hospital emergency room, where he was pronounced dead on arrival. The MA FACE Program concluded that to prevent similar future occurrences, employers, and self-employed contractors, should:

*slope or shore all excavations which may be entered for any reason.*

*perform regular inspections of trenches for instability.*

And also that:

**owners should not allow their children under 18 years of age to perform tasks prohibited by the child labor laws.**

**government agencies should increase their efforts to inform the public about child labor laws.**

### **INTRODUCTION**

On August 5, 1997, the MA FACE Program was notified through an article in the city newspaper that a site worker had died of injuries received at an excavation site on the previous day. An investigation was immediately initiated. It was readily apparent through subsequent news articles that the victim was a teenager working with his father, an excavation contractor, at the site. After speaking to the owner of the site, no attempt was made to contact the employer, who was severely disturbed by the incident. The MA FACE field investigator did contact and interview the owner of the site and the OSHA

compliance officer on the case.

On August 7, 1997, the MA FACE Program Director traveled to the incident site where a review of the scene took place and pictures were taken. The trench had already been filled. The excavator used on the site was parked over the trench to keep the detached underground tank from floating up during a rainstorm. The **police report**, death certificate and multiple photographs were obtained during the course of the investigation.

The employer was a self-employed excavation contractor whose primary activity was operating a excavator. The victim, his son, worked with him during the summer months to earn money for college. They had worked together for years.

They had been on this particular jobsite for 2 weeks. The company had been sub-contracted to perform the excavation portion of the removal of seven empty fuel oil tanks from the grounds of a residential treatment center. The tanks ranged from 500 gallons to 15,000 gallons. Five tanks had already been removed. Once the tanks were emptied and cleared for removal by the fire department, the process consisted of digging in the area with the excavator, cutting the tank loose with a gas-powered saw, then rigging the tank to a crane. The crane would lift the tank onto a truck for delivery to a disposal site.

## INVESTIGATION

On the day of the incident, the victim and his employer as well as a crane operator from another company were at the jobsite. The tank on which they were working was the fifth of seven tanks to be removed. This particular tank was one of the larger ones, having a capacity of 15,000 gallons. It was approximately 21 feet long. In the previous week, the tank had been emptied of fuel oil and vented by another subcontractor. The fire department had just approved the tank for removal that day, as required by state environmental regulations.

The excavator operator had dug a trench approximately 12 feet deep and eight feet wide and the length of the tank. There was approximately 6 feet between the side wall of the trench and the tank. The victim entered that part of the trench with a gas-powered saw in order to cut the rods which held the tank into concrete embedded in the ground below. He had cut three rods when the sidewall of the trench let go. The force of the soil pushed him against the steel tank. He struck his head and was unconscious. The excavator operator, his father, rushed into the trench and attempted to dig him out of the soil which covered him up to his waist.

Rescuers and bystanders at the scene worked frantically to dig the victim out. The newspaper account indicated that one firefighter, noting that the trench may collapse further during the rescue, ordered all but emergency response personnel out of the trench. They were not able to move the victim until even his feet had been uncovered due to the weight of the soil.

The investigation revealed that no attempt had been made to shore or slope this or any of the excavations during the tank pulls.

## **CAUSE OF DEATH**

The medical examiner listed the cause of death as crushing injury of head.

## **RECOMMENDATIONS/DISCUSSION**

***Recommendation #1: Employers, and self-employed contractors, should slope or shore all excavations which may be entered for any reason.***

Discussion: OSHA requires that any trench greater than 5 feet deep which may be entered by a worker be sloped or shored in order to prevent cave-in. Shoring may be accomplished by the use of trench boxes or by construction of an adequate structure. More appropriate in many situations is the practice of sloping the trench to an angle at which the soil will not collapse back into the trench. In the absence of knowledge of the exact soil type or professional engineering advice, that angle should be no less than 1 1/2:1 which is an angle of 34 degrees from the horizontal.

When removing tanks, it may be perceived that entry into the trench will be of short duration and that it is not necessary to slope the excavation. OSHA regulations still require a protective system in this case, and it must be recognized that collapse of trench walls can take place at any time. In larger excavations, it may be possible to escape from a collapsing wall, but in this particular trench, which was typical of excavations for tank pulls, the work area is very small and there is no room to escape the collapsing soil. The safest procedure, as well as the legally correct one, is to provide protection against cave-in hazards.

***Recommendation #2: Employers, and self-employed contractors, should perform regular inspections of trenches for instability.***

**Discussion:** A “competent person” should inspect every working trench at least daily for signs of instability. Heavy machinery at the side of the excavation, whose presence is necessary in most cases, contributes to the instability of the trench. Other factors influencing the stability of a trench are location of spoils pile, water seepage, weather, vibration from other nearby traffic or construction, building foundations and the existence of previously disturbed soil. Checklists are available for these inspections.

A competent person is defined by OSHA as “one who is capable of identifying existing and predictable hazards in the surroundings or working condition which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them”. In regard to excavation and trenches, the competent person must have training in and knowledge of soils analysis, use of protective systems and the requirements of the OSHA excavation standard. Contractors

should avail themselves of OSHA training programs provided for this purpose.

**Recommendation #4: Owners should not allow their children under 18 years of age to perform tasks prohibited by the child labor laws.**

**Discussion:** Federal and state child labor laws are intended to protect children from hazardous working conditions. The federal law prohibits children under age 18 from performing certain tasks at work including operating dangerous machinery, working on roofing operations and working in excavations. While federal child labor laws do not extend to children in family run businesses, some state laws do apply. In Massachusetts, there is no exemption for family businesses. The list of prohibited occupations constitutes a list of tasks deemed too risky for children. Owners should become familiar with these laws and not allow their children to work in these occupations and industries until they reach the appropriate age. In states where family run businesses are excluded from the law, owners should be encouraged to consider the list of prohibited occupations as guidelines to be followed.

**Recommendation #5: Government agencies should increase their efforts to inform the public about child labor laws.**

**Discussion:** It is not known if the employer in this incident was aware that children under 18 are not allowed to work in excavations in Massachusetts. It has been reported, however, that employers, parents and teens are often unaware of child labor laws. Increased efforts to inform the public of these laws are essential to protect children from dangerous working conditions.

## **REFERENCES**

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