A canal rider working for an irrigation district in Texas, died when he fell into a standpipe four feet in diameter and 16 feet high.

Investigation # 98TX19701
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SUMMARY:

On March 19, 1998, a 47-year-old canal rider (the victim) died when he fell into a standpipe four feet in diameter and 16 feet high. The victim was dispatched to the standpipe location to shut off the flow of water in an underground water line. Shortly after dispatching the victim to the site, the victim's supervisor tried to contact the victim via portable radio. When he did not get a response he drove to the location and found the victim's truck. Another worker, who had arrived after the victim had fallen, climbed to the top of the standpipe and saw the deceased at the bottom of the standpipe. Emergency Medical Services (EMS) were notified. When they arrived on the scene they removed the victim and the coroner pronounced him dead at the scene.

The TX FACE investigator concluded that to reduce the likelihood of similar occurrences, employers should:

**** install fixed ladders with safety climb devices on the inside and outside of standpipes and a platform equipped with rails for workers to stand on when they cannot reach the control valve from the ground.***.

****periodically inspect all fixed ladders and safety climb devices.***

INTRODUCTION

On March 19, 1998, a 47-year-old canal rider (the victim) died when he fell into a standpipe four feet in diameter and 16 feet high. The TX FACE program officer was made aware of the fatality through a fatality database maintained at the Texas Workers' Compensation Commission. On August 25, 1998, the TX FACE program officer visited the job site and met with the safety manager. A sheriff's department report was obtained. The justice of the peace was contacted. An autopsy report was prepared. Pictures were taken of the standpipe.

The employer is an irrigation district that had been in business for 81 years. There were 32 employees, seven of whom were in the same occupation as the victim. There were no witnesses to the incident.

The safety program is managed by a designated safety manager. However, there was no written safety program and no written safe work procedures in place specific to the victim's task.

New hire training depended on the supervisor's determination of the new worker's knowledge and skills. Refresher training and task specific training was conducted on the job (OJT). Safety meetings were conducted on a monthly basis.

The employer conducted pre-employment physicals but not drug screening in hiring new workers. The victim had been employed for six months as a canal rider. His job was to monitor the water level in the water system and open and close standpipe valves. He had performed similar work for another irrigation district. For this reason, he was considered an experienced worker.

INVESTIGATION

Standpipes are incorporated throughout the district to control the flow of water. (See fig. 1) They are similar to a concrete sewer pipe and are mounted vertically in the ground. They are connected at the bottom to an underground water line. They vary in height depending on where they are located in the water system. This particular standpipe was 16 feet high and four feet in diameter.

A metal rod ran down the inside to a shutoff valve in the water line. The metal rod extended 21 inches above the top of the standpipe where a wheel was attached. Turning the wheel opened and closed the valve. Also inside the standpipe were metal rungs so workers could descend to the valve to perform maintenance. The rungs inside the standpipe involved in this incident were either bent (second rung), broken (third rung) or missing. (It could not be determined when the damage occurred to the rungs.)

On the outside were metal rungs leading to the top. They were located a quarter of the way around instead of directly underneath the wheel. There were no covers on the top of the standpipe.

On the day of the incident, the lead canal rider received a call that a residence was being flooded due to a break in a water line. He dispatched the victim to close the water line valve nearest to the residence. A short time later, the lead canal rider tried to contact the victim on the radio. When he was unable to do so, he proceeded to the victim's location. He saw the victim's truck parked near the standpipe but did not see the victim. He first thought the victim may have gone into an adjacent orchard. When he found no one in the orchard, a fellow worker climbed up to the top of the standpipe where he saw the foot of the victim sticking up above the water level. A rope was attached to the victim's foot, however, they were unable to lift him out. Emergency Medical Services personnel removed the victim and the coroner pronounced him dead at the scene.

CAUSE OF DEATH

The coroner determined the cause of death was asphyxia by drowning.

RECOMMENDATIONS/DISCUSSION

<u>Recommendation #1</u> - Employers should install fixed ladders with safety climb devices on the inside and outside of standpipes and a platform equipped with rails for workers to stand on when they cannot reach the control valve from the ground..

Discussion: In this incident, the wheel used to open the water valve extended 21 inches upwards from the top of the standpipe. It was positioned a quarter of the way around the pipe from where the rungs, used to climb to the top, were located. The victim had to climb to the top of the standpipe, work his way over to where he could reach the wheel and then balance himself on the top edge of the pipe while he turned the wheel.

A platform with railings will provide a safe work surface for workers to stand on when they have to operate the control valve and step into the inside of the standpipe when inspection and maintenance is required inside.

Fixed ladders and platforms should be installed using the design requirements in American National Standard A14.3-1984, *Safety Requirements for Fixed Ladders*. Where fixed ladders are installed on the side accessible to the public, the bottom 7 to 8 feet must be excluded from public access. One method would be to make the bottom portion removable and used only as needed.

Safety climb devices designed for use with fixed ladders are intended to prevent the ladder user from falling. A sleeve or collar slides up and down a rail or wire rope fixed to the ladder without hindrance. If a climber falls, however, a locking trigger or friction brake is activated to automatically stop the fall.

<u>Recommendation #2</u> - Employers should periodically inspect all fixed ladders and safety climb devices.

Discussion: Before general use is permitted, an inspection must be made of every new fixed ladder installation to determine that it has been installed in accordance with the provisions of the American National Standards Institute. All ladders should then be inspected regularly. Intervals between inspections should be determined by use and exposure. Some hazards to look for during inspections are:

- loose, worn, and damaged rungs
- damaged or corroded parts
- corroded bolts and rivet heads
- damaged or corroded handrails and brackets on platforms
- deteriorated masonry where fixed ladder anchorages are secured
- defects in climbing devices, including loose or damaged carrier rails

The rungs located on the interior of the standpipe the victim fell in were bent (2nd), broken (3rd) and missing the remainder of the way down to the bottom.

REFERENCES

American National Standards Institute, 11 West 42nd Street, New York, NY 10036. *Safety Requirements for Fixed Ladders, A14.3-1984*

National Safety Council, 1121 Spring Lake Drive, Itasca, IL. *Fixed Ladders and Climbing Devices, Data Sheet I-606 Rev. 92*.

29 CFR 1910.27 Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.