Texas FACE
Fatality Assessment and Control Evaluation

Occupational Fatality Report

Front-end loader operator dies when crushed between the front bucket of the loader and a low-boy trailer at a cattle feed lot in Texas.

Investigation # 98 TX00401
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SUMMARY

On December 17, 1997, a 44-year-old front-end loader operator (the victim) died after he was crushed between the bucket of a front-end loader and a low-boy trailer. The victim and five coworkers were preparing to unload pipe off of a low-boy trailer. The victim, operating a front-end loader, had been instructed by the job superintendent to remain in the loader's cab while coworkers went to retrieve small pieces of pipe. The small pieces of pipe were going to be used to brace the larger pieces of pipe stacked on the trailer once the chains securing them were released. As the coworkers were walking to the storage area, the victim exited the cab of the front-end loader and walked in front of the raised bucket. He was facing the trailer when the loader drifted forward and pinned him between the loader's bucket and the pipe on the trailer.

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

**** Establish procedures that will ensure that mobile equipment such as front-end loaders are blocked to prevent movement when the operator is not in the cab;***

**** Perform a job safety analysis (JSA) for tasks which lack specific instructions;***

**** Develop a system of successively heavier penalties for violation of safe work practices;***

**** Develop in depth training outlines for operation of mobile equipment such as front-end loaders, which include the various cautions stated in the operators manual.***

INTRODUCTION

On December 17, 1997, a 44-year-old operator of a front-end loader (the victim) died when he became pinned between the bucket of the loader and a low-boy trailer. The TX FACE program officer was made aware of the fatality by the area OSHA office. On February 3, the TWCC FACE program officer along with a safety engineer from the National Institute for Occupational Safety and Health (NIOSH) visited the incident site, interviewed the employer, photographed the front-end loader and incident site and took measurements of the incident site location. On February 4 the area OSHA office was visited where the OSHA case file was reviewed, a video which re-created the positioning of the loader was viewed and one of the incident case officers was interviewed.

The employer in this incident was a beef cattle feeding company. The employer had been engaged in this business for 30 years and had 50 employees at the time of the incident. The victim had worked for the company for ten years. He was present when the company took delivery of the loader and received instruction in its operation. This was the company's first fatality.

The employer had a written safety program. Safety policies were written. A brief section on front-end loader operations was contained in the vehicles/heavy equipment operation section of the company's employee guide for health and safety. The employer provided task training. This training was conducted by employees experienced in the task. Personal protective equipment for the task to be performed was not required.

INVESTIGATION

The incident occurred at approximately 7:30 a.m. on December 17, 1997. The work crew had been assigned to unload large sections of pipe six inches in diameter from a low-boy trailer. After they had arrived at the site the job superintendent instructed the victim to remain in the cab of the loader while coworkers went to obtain small pieces of pipe. The smaller pieces of pipe were to be used as stanchions that would prevent the pipe from rolling off once the binder chains were released. The stanchions were going to be place vertically through metal rings attached to the side of the trailer. The job superintendent along with other employees proceeded to walk the short distance to a pipe storage rack. They had their backs to the victim as he sat in the loader with the motor running.

The victim had positioned the loader perpendicular to the trailer approximately 15-20 feet away. The road surface was hard packed dirt approximately 27 feet wide. The road sloped slightly down and away from the victims left as he sat facing forward in the loader. The front tires were initially resting on the edge of the dirt road.

As the other employees were walking to the pipe rack, the victim for an unknown reason exited the cab of the loader while the engine was running and the bucket was raised to about chest height. The forward neutral reverse (FNR) lever was left in the neutral position and the parking brake was not fully set. The victim proceeded to the front of the loader and positioned himself between the bucket and the pipe stacked on the low-boy trailer. While his back was toward the

loader, it drifted forward and the bucket pinned him against the pipe.

CAUSE OF DEATH

The medical examiner determined the official cause of death to be cardiac and respiratory arrest and massive internal hemorrhage.

RECOMMENDATIONS/DISCUSSION

Recommendation #1 **- Employers should establish procedures that will ensure that mobile equipment such as front-end loaders are blocked to prevent movement when the operator is not in the cab.**

Discussion: The operator's manual for this front-end loader includes several caution statements, "Caution: Prevent possible injury from unexpected machine movement. Never rely on the FNR lever alone to keep machines from moving. The machine can unexpectedly roll or move under power, resulting in the death or serious injury. Always engage the parking brake to hold the machine." In addition, another caution read: "To prevent roll away, always make sure machine is properly secured before leaving the operator's seat."

To avoid roll away:

- Park the machine on level ground when possible.
- Place transmission controls in neutral move FNR lever to neutral, and engage parking brake.
- Lower all equipment to ground.
- Stop the engine.
- Block all wheels if you park on a grade. Position the machine to prevent rolling.
- Read and understand the operating instruction in this operator's manual.

A caution plate located on the operators instrument panel states: Caution: Read and understand operator's manual before operating the machine.

Before leaving the operator's seat:

- lower bucket or forks to ground
- lock the transmission selector in neutral
- set the parking brake

- stop the engine (turn key switch to OFF)

The incident was reenacted by OSHA officials to determine if the parking brake was functioning properly. Their test revealed the loader would not move with the parking brake completely set and the FNR lever in the neutral. The loader would move if the brake was not completely set and the FNR lever in neutral. The company who performed maintenance on the loader performed a test to determined if the parking brake was functioning properly. They determined there was no malfunctioning of the parking brake.

Recommendation # 2 **- Employers should perform a job safety analysis (JSA) for tasks which lack specific instructions.**

Discussion: A JSA forces those conducting the analysis to view each operation as part of a system. In so doing, each step in the operation is assessed while consideration is paid to the relationship between steps and the interactions between workers and equipment, materials, the environment, and other workers. Other benefits include: identifying hazardous conditions and potential accidents, providing information with which effective control measures can be established, determine level of knowledge and skill as well as the physical requirements that workers need to execute specific tasks, and discovering and eliminating unsafe procedures, techniques, motions, positions, and actions.

Recommendation #3 **- Employers should develop a system of successively heavier penalties for violation of safe work practices.**

Discussion: Safety should be more cooperative then enforced. Employees should be willing to act in the interest of their own safety. This was not the first time the victim was observed by management improperly parking the front-end loader. It must be made clear to all employees by supervisors and top management that all safety regulations and instructions are expected to be followed just as seriously as any other company directive. Safety measures are part of the requirements for performing jobs.

Recommendation # 4 - Employers should develop an in depth training outline for the front-end loader. Include the various cautions stated in the operators manual.

Discussion: Some form of continuation training is necessary if employees are to do their jobs efficiently and safely. This is an inescapable requirement regardless of how carefully employees are selected or how much aptitude and experience they may have for the jobs to which they are assigned. No matter how thorough the original training may have been, as time passes, new and sometimes bad work habits are acquired. The progress of the deterioration of good work habits is very slow and may not be noticed promptly. It is necessary to check continually the work habits of employees and then retrain whenever it is observed that faulty habits are being used or are developing. It is important, therefore, for the supervisor to maintain frequent contact with close observation of the employees under their direction.