NJ FACE

INVESTIGATION REPORT

Fatality Assessment & Control Evaluation Project

FACE 05-NJ-003 **February 22, 2006**

Worker Killed in a Fall in a Bakery Fermentation Tank

On January 10, 2005, a 34-year-old male Hispanic worker was killed when he fell in a seven-feet-deep fermentation tank at a wholesale bakery. The worker was cleaning the lid and outer portion of the top of the tank with a cleaning pad when the pad apparently fell to the bottom of the tank. It is unknown what specifically caused the fatal incident. The worker may have reached too far into the tank and fell to the bottom, or he may have climbed into the tank to retrieve the pad and fell as he descended or as he attempted to climb out. The worker was found inside the tank when he failed to appear for the change-of-shift report.

NJ FACE investigators recommend following these safety guidelines to prevent similar incidents:

- **Existing tanks should be retrofitted with devices that prevent entry into the tanks.**

- **Employers should conduct a job hazard analysis of all work activities with the participation of the workers.**

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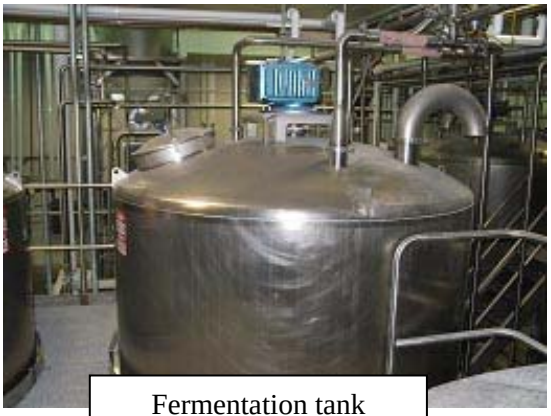
INTRODUCTION

On January 12, 2005, NJ FACE staff learned of the death of a 34-year-old Hispanic man who had received fatal injuries from a fall in a tank at a wholesale bakery. Information about the incident had been announced by the print and radio media. That day, a FACE investigator contacted the OSHA compliance officer and arranged to conduct a concurrent investigation, which took place on January 25, 2005. During the visit, FACE investigators viewed and photographed the site of the fatal injury and interviewed company officials, but were not present during employee interviews. Additional information was obtained from the police report, the county prosecutor's office, the medical examiner's report, and the OSHA investigation file.



Fermentation tank

The victim's employer was a wholesale bakery with facilities in several countries. The facility in which the incident occurred was three years old, and the company employed approximately 250 workers at the site. The non-unionized company operated 24 hours a day, seven days a week. Most of the production employees were Hispanic. Supervisors spoke English and Spanish. According to the company manager, employees could work and be promoted without being able to speak English. Posted signs were printed in English and Spanish and training was provided in English and Spanish.

The victim's job title was Senior Operator and he worked in the ingredient preparation area. An immigrant from Guatemala, he reportedly spoke Spanish and English. He had been a full-time employee at the bakery for 15 months and had no prior experience in the industry. His surviving wife and children lived in Guatemala. The company also employed two of his siblings.

INVESTIGATION

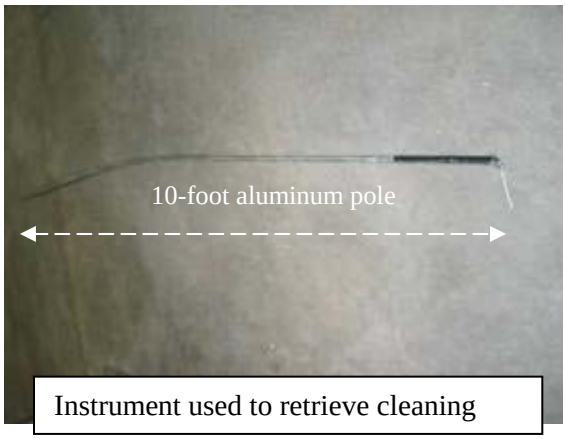
The incident occurred at a large wholesale bakery located in an industrial park in a suburban area of New Jersey. The fatal injury occurred on an elevated platform, where 14 stainless steel dough fermentation tanks of various sizes were located. All equipment was new when installed in the facility. The tank involved in the fatal injury was one of four of the same size and design, all operated by computer control. It had a capacity of 1,750 gallons, with a normal load of

approximately 500 gallons of product. The tank was 76 inches in diameter with an 88-inch-deep straight wall, a domed top, and a bottom with a slope of approximately 15 degrees. The access opening on the top of the tank was 19 inches in diameter, and was fitted with a hinged hatch. The height from the platform to the tank opening was approximately 36 inches. The only entrance or exit from the tank was the access opening at the top; there was no ladder, door, or hatch at the bottom.

Horizontal blades viewed through newly-installed bars across hatch

The interior of the tank contained two stationary vertical rods at the walls of the tank with attached horizontal blades, each of which was fixed at an angle of approximately 30 degrees. In the center of the tank was an agitation device with attached horizontal blades that rotated at 8 revolutions per minute to prevent settling of the contents of the tank.

A fixed spray nozzle located near the top of the tank sprayed water to clean the tank after it had been emptied. Once each week, workers used a cleaning pad to wipe excess product off of the hatch and its rubber seal that was not removed by the regular spray cleaning process. Each fermentation tank was a confined space, and maintenance of the interior of the tank was performed exclusively by the manufacturer's representative using confined space entry procedures. According to the employer, workers were not permitted to enter the tanks.



Instrument used to retrieve cleaning

In the event of a cleaning pad dropping into a tank, it could be retrieved by using a 10-foot-long aluminum pole with a wire hook attached, fabricated by the company.

If that was not successful, a supervisor could arrange to have the 6-inch drain at the bottom of the tank opened and the item retrieved. The pattern of tank use could also be altered so that a tank with the cleaning pad at the bottom could be bypassed and another tank used for production.

The fatal injury occurred on Monday, January 10, 2005, at an undetermined time during his 11 a.m. to 7 p.m. shift. He apparently used a cleaning pad to wipe residue from the inside of the tank hatch and its rubber seal. It was customary for workers to discuss operations when turning over work to the next shift, and when he failed to meet his replacement, he was paged. When he still did not respond, workers searched for him. The day-shift worker who was conducting routine inspections of all of the tanks found the victim at the bottom of the fermentation tank. Also found at the bottom, in approximately one foot of product fluid, was the cleaning pad. The worker summoned his supervisor, who called 911. The police department received the call at 7:17 p.m. Local emergency responders tested the tank for oxygen deficiency, and found it to be within acceptable limits. No information is available on exact measurements. Their confined space rescue team removed the victim from the tank using confined space entrance equipment and a hoist. The victim was pronounced dead at the scene at 10:30 p.m.

The company gave workers and supervisors access to grief counseling, conducted in English or Spanish, with the option of continued counseling.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Existing tanks should be retrofitted with devices that prevent entry into the tanks.

Discussion:

Although there were no witnesses to the incident, there are several theories about what may have occurred to cause the fatal injury. The worker may have reached too far into the tank and fallen, to the bottom, or he may have climbed into the tank to retrieve the cleaning pad and fell either as he descended or when he attempted to climb out. The police investigation noted an imprint of the sole of the worker's shoe on one of the horizontal blades.

The top of the tank was approximately 36 inches above the platform and the worker was 5 feet, 4 inches, tall. It is unlikely that he could have tripped and fallen into the 19-inch opening on top of the domed tank. Although emptied of bakery product, there was fluid at the bottom and product residue on the sides and blades of the tank. Since the incident, the company management has evaluated the area for hazards and retrofitted the tank with two stainless steel rods that were welded to form a cross across the tank opening. Other similar tanks have also been retrofitted.

The company has also attached "Danger: Confined Space" signs on the tanks, in English and Spanish, to alert workers that no one should attempt to enter the tanks. Federal OSHA issued no citations to the company for violations of OSHA standards regarding this fatal injury.

Retrofitted access opening

Fermentation tank, labels in English and Spanish.

Recommendation #2: Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

Discussion: The bakery employed a safety and health consultant to evaluate the facility for hazards and oversee training. In addition, most of the production processes were automated. However, to prevent incidents such as this fall, NJ FACE recommends that employers conduct a job hazard analysis (JHA), of all work areas and job tasks with the employees. A JHA is a procedure that breaks a job or task into specific steps, analyses each step for specific hazards, and uses this information to develop safe work practices to eliminate or reduce those hazards. A JHA should begin by reviewing the work activities for which the employee is responsible and the equipment that is needed. Each task is further examined for mechanical, electrical, chemical, or any other hazard that the worker may encounter. The results of the analysis can be used to design or modify a written standard operating procedure for the job. Additional information is available in the publication, *Job Hazard Analysis*, which is available on the federal OSHA website at www.osha.gov/Publications/osha3071.pdf.

RECOMMENDED RESOURCES

It is extremely important that employers obtain accurate information on health, safety, and applicable OSHA standards. NJ FACE recommends the following sources of information that should help both employers and employees:

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)

Federal OSHA will provide information on safety and health standards on request. OSHA has several offices in New Jersey that cover the following counties:

☎ Hunterdon, Middlesex, Somerset, Union, and Warren counties.....(732) 750-3270

☎ Essex, Hudson, Morris, and Sussex counties.....(973) 263-1003

☎ Bergen and Passaic counties.....(201) 288-1700

☎ Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester, Mercer, Monmouth, Ocean, and Salem counties.....(856) 757-5181

💻 Federal OSHA Website: *www.osha.gov*

New Jersey Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH act covers all NJ state, county, and municipal employees. Two state departments administer the act; the NJ Department of Labor and Workforce Development (NJLWD), which investigates safety hazards, and the NJ Department of Health and Senior Services (NJDHSS) which investigates health hazards. PEOSH has information that may also benefit private employers.

NJLWD, Office of Public Employees Safety

☎Telephone: (609) 633-3896

💻 Website: *www.nj.gov/labor/lsse/lspeosh.html*

NJDHSS, Public Employees Occupational Safety & Health Program

☎Telephone: (609) 984-1863

💻 Website: *www.nj.gov/health/eoh/peoshweb*

New Jersey Department of Labor and Workforce Development, Occupational Safety and Health On-Site Consultation Program

This program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards.

☎Telephone: (609) 984-0785

💻 Website: *www.nj.gov/labor/lsse/lsonsite.html*

New Jersey State Safety Council

The New Jersey State Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars.

☎Telephone: (908) 272-7712.

💻 Website: *www.njsafety.org*

Internet Resources

Other useful Internet sites for occupational safety and health information:

The CDC/NIOSH website: *www.cdc.gov/niosh*

USDOL Employment Laws Assistance for Workers and Small Businesses: *www.dol.gov/elaws*

National Safety Council: *www.nsc.org*

NJDHSS FACE reports: *www.nj.gov/health/eoh/survweb/face.htm*

CDC/NIOSH FACE website: *www.cdc.gov/niosh/face/faceweb.html*

REFERENCE

Job Hazard Analysis. US Department of Labor Publication # OSHA 3071, 2002 (revised). USDOL, OSHA/OICA Publications, PO Box 37535, Washington DC 20013-7535. This document can be downloaded from the OSHA Website at w*ww.osha.gov/Publications/osha3071.pdf.*

DISTRIBUTION LIST

NIOSH

Employer

NJ State Medical Examiner

County Medical Examiner

Local Health Officer

USDOL-OSHA New Jersey Area Offices (4)

NJDLWD Office of Public Employees Safety

NJDLWD Occupational Safety and Health On-Site Consultation Program

NJDHSS Public Employees Occupational Safety & Health Program

NJDHSS Occupational Health Service Internet Site

NJD Census of Fatal Occupational Injuries (CFOI) Project