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Massachusetts Steel Company Field Superintendent Dies in Thirty Foot Fall From Ladder

MASSACHUSETTS FACE 94-MA-004-01

SUMMARY

On November 4, 1993, a 47 year old, male steel company field superintendent died from injuries received in a thirty foot fall from an access ladder to a gantry crane. The victim was on the upper rungs of the ladder, which was equipped with a cage designed to help prevent falls, surveying the crane system which was soon to be dismantled and moved. A co-worker saw the victim hanging head first, apparently unconscious, from the top of the ladder just prior to his fall to the ground. Although no burn marks were found in the autopsy, it appears that the victim was electrocuted by the still energized crane system. The victim was tended to by his co-workers until emergency medical services arrived. Emergency responders transported the victim to a regional hospital where he was pronounced dead approximately forty minutes after the fall. In order to prevent future similar circumstances, MA FACE recommends that employers:

- **ensure that electric power circuits are deenergized, tested to verify that they have been deenergized, and locked out/tagged out prior to allowing employees to work in close proximity to the circuits**
- **develop, implement, and enforce a comprehensive safety program which includes worker training in recognizing and avoiding potential safety and health hazards**
- **ensure that personal protective equipment is provided and used to include, but not be limited to, head protection**

INTRODUCTION

On November 5, 1993, the Massachusetts Department of Labor and Industries notified the MA FACE Program that a 47 year old male steel company worker had died from injuries received in a fall the previous day. An investigation was immediately initiated.

On November 11, 1993 the MA FACE Program Field Investigator interviewed the responding municipal police officials, the victim's employer, other employer representatives and co-workers. The Field Investigator also assessed the incident site, accompanied by the

municipal police chief, the responding municipal police officer and a police department appointed forensic photographer. The photographer offered MA FACE a professional pictorial account of the incident scene. The death certificate, police report, co-worker/witness statements, information from OSHA and the Massachusetts Office of the Attorney General, employer provided employee safety and health handouts, multiple photographs, and newspaper clippings were obtained during the course of the investigation.

The employer was a regional steel erection, dismantling and crane service company, in business approximately twenty-eight years. It employed an average of twenty employees in various steel company related occupations. The company had a designated safety officer, who reported to the company owner, but devoted less than 25% of his time to safety. The company had written comprehensive safety policies and procedures, and safety educational materials; however, it did not have specific procedures for the task performed by the victim at the time of the incident.

The victim was a union iron worker with more than twenty-five years of steel construction experience. He had worked for the employer for twenty years. The victim worked his way through the ranks to become the company's sole field superintendent. His training was primarily on the job, but included classroom, manual and video training as well.

INVESTIGATION

On November 4, 1993, a Massachusetts steel erection, dismantling and crane service company dispatched a crew of three men to survey and assess the cost of dismantling and removing a massive gantry crane system from the yard of a company which had shut down. The crew consisted of the field superintendent (the victim) and two other workers.

The men arrived at the site at approximately 2:40 p.m. and, finding the chain link fence gate unlocked, they entered the yard. Soon after entering the yard, the three men split up to conduct their own assessments of the proposed project.

One of the workers reported that he returned to an area of the yard to meet up with the others at approximately 2:55 p.m., but found only one of his co-workers standing in the field. The same worker then asked his co-worker where the field superintendent was, and the co-worker responded that the superintendent had climbed up onto the crane system to take a look around. The two men then began walking towards the ladder which accessed the crane's upper section to seek the whereabouts of their field superintendent.

The men called out to the victim, but did not receive a response. As they moved closer to the ladder, which was welded to a vertical steel crane member and enclosed with a steel ladder cage, they saw the victim hanging upside down from the ladder inside its cage, exhibiting no visible signs of life. As one of the co-workers ran towards the ladder, the victim fell approximately thirty feet down through the ladder cage and onto the packed dirt, landing on his head and shoulders.

One of the two co-workers immediately administered CPR to the victim, who lay motionless with a significant laceration to the head. Emergency medical services arrived and transported the victim to the regional hospital where he was pronounced dead upon arrival.

The medical examiner concluded that the most likely reason the victim lost consciousness and fell is that he was exposed to electrical current and suffered a heart arrhythmia. Although the crane had not been used for quite some time, it was still energized when the victim ascended the ladder. In addition, its switch box was unlocked and accessible to the general public. When the victim reached the top of the ladder, he would have come in perilously close proximity to the bare electrical conductors which powered the massive

crane. There were, however, no burns on the victim at the time of autopsy to confirm electrocution as a contributing cause of death. (The victim's gloves and boots were apparently discarded at the hospital prior to autopsy.)

There is also a possibility that the victim suffered a significant head injury **prior** to the fall witnessed by the co-workers, and that this is what caused him to lose consciousness and fall to the ground.

CAUSE OF DEATH

The medical examiner listed the cause of death as multiple trauma due to fall from ladder and probable contact with electric current.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that electric power circuits are deenergized, tested to verify that they have been deenergized, and locked out/tagged out prior to allowing employees to work in close proximity to the circuits.

Discussion: The gantry crane was not deenergized before it was assessed for dismantling and removal purposes. OSHA standard 29 CFR 1926.416 specifies that employees shall not be permitted to work in close proximity to electric power circuits unless the circuits have been deenergized and grounded or effectively guarded with insulation. OSHA standard 29 CFR 1926.417 further requires employers to lockout and/or tagout deenergized electric circuits. Employers should develop specific job procedures for tasks that are performed by employees, including de-energizing electrical circuits before beginning work near them, and verifying that the system has been de-energized. These procedures should detail the various safety hazards associated with each task. Once these specific procedures have been developed, employers should ensure that they are implemented and enforced by a qualified person at each jobsite. If the electrical conductors of the crane had been deenergized and tested for deenergization by a trained individual, the victim's death may have been prevented.

Recommendation #2: Employers should design, develop and implement a comprehensive safety program that includes, but is not limited to fall protection and electrical safety.

Discussion: Although the company had written safety rules and procedures, these procedures did not cover the task performed by the victim. Employers should develop, implement, and enforce a comprehensive safety program that includes, but is not limited to, routine job site hazard surveys, lockout tagout procedures, worker training in the recognition and avoidance of fall and electrical hazards, and the use of appropriate protective equipment. Employers should also appoint an individual with safety knowledge, and the authorization to take corrective measures to eliminate hazards, to be the designated safety officer, or competent person, on site.

Recommendation #3: Employers should ensure that personal protective equipment, in particular head protection, is provided and used.

Discussion: Although less likely, it is possible that the victim suffered a serious head injury while he was ascending the access ladder, and that this is what caused him to fall to the ground. The victim was not wearing any head protection, and the employer did not have a head protection program, as required by OSHA Standard 29 CFR 1926.100(a),(b)and(c) for

employees working in areas where there is a danger of head injury from impact or from falling objects. Employers should develop, implement, and enforce head protection programs as critical components of their overall comprehensive safety programs.

LIST OF REFERENCES

Office of the Federal Register: Code of Federal Regulations, Labor 29 Parts 1926.100(a),(b) (and(c), 1926.416, and 1926.417 (1993)

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