

Fatal Electrocution in Poultry Processing Plant¹

California NURSE Project²

SUMMARY : CASE 191-006-01

A self-employed electrician was hired by a turkey plant to install an icemaker. The electrician began the job a day before anyone at the factory expected him. The maintenance workers at the factory had not been told to turn the power off that morning, and the electrician did not report to anyone at the factory before beginning work.

The electrician took off the cover of an electrical junction box, where factory equipment can be connected to a 440 volt power supply. Without testing to see if the power to the box was shut off, and without putting on his insulated gloves and face shield, the electrician touched a live connection and set off an electrical flash so strong that he thought the box had exploded. He was burned on the face, neck, chest, arms, his hair was burned off, and his fingerprints were found burned to the panel box. He died five days later from the burns.

How could this death have been prevented?

- If the electrician and the factory had followed a schedule so that maintenance and safety workers at the factory would know when he was working;
- If the electrician had followed the factory's safety program, which includes rules for disconnecting power and making sure it cannot be reconnected;
- If the electrician had checked that the power was off at the junction box;
- If the electrician had his own written safety program and standard operating procedures.

BACKGROUND

A county coroner's office reported an electrical-related fatality at a poultry processing plant in California to NURSE staff in August, 1991. A Senior Safety Engineer from the NURSE project conducted an on-site investigation on January 23, 1992 and discussed the incident with the safety director of the poultry processing plant. Although officials of the plant had notified the California Occupational Safety and Health Administration (Cal/OSHA) of the incident, Cal/OSHA did not conduct an investigation because the injured worker was an independent self-employed contractor with no employees.

The incident occurred in a large poultry processing plant with a full-time safety supervisor. The plant's safety program had been reviewed by Cal/OSHA on September 12, 1991 and found to be in compliance with Title 8 California Code of Regulations 3203 -- Injury and Illness Prevention Program. (As of July 1, 1991 the State of California requires all employers to have a written seven point injury prevention program: designated safety person responsible for implementing the program; mode for ensuring employee compliance; hazard communication; hazard evaluation through periodic inspections; injury investigation procedures; intervention process for correcting hazards; and a health and safety program.)

The injured worker was an independent contractor who did not have a written injury prevention program, and as a sole proprietor was not required to have one. The employer did not ask to review the independent contractor's program prior to the contractor beginning work, nor was the plant's program discussed with the contractor. The plant program does contain a written

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electrical lock out procedure for plant maintenance personnel.

INCIDENT

On August 30, 1991 at approximately 7:45 a.m. a local county ambulance service responded to a 911 call from a poultry packing plant. Upon arrival five minutes after the call, a 54 year old Caucasian male was found to have sustained electrical burns over approximately 20% of his body. First and second degree burns were present on his face, neck, chest, and both arms. There were third degree burns on the index and middle fingers of his right hand. His facial and scalp hair was burned. The injured worker was an electrical contractor hired to install an ice maker. He was first seen that morning by plant employees who found him burned. He was in the process of picking up his tools and he denied that he had been electrocuted. During transport to the Level One Trauma Center (which had burn unit facilities) the injured worker stated that a transformer had blown up in his face. Moist sterile dressings were applied to the burns during transport to the hospital. The worker arrived at the hospital within 23 minutes of the ambulance's arrival on the scene. After hospitalization he developed sepsis, renal failure, respiratory failure, and finally cardiac failure. He died five days after receiving the electrical burns. The cause of death reported by the coroner was complications of thermal burns with early acute bronchopneumonia.

The incident occurred at approximately 7:30 a.m. This was one day prior to the agreed upon start-up day for his scheduled work. Since the work was not scheduled to begin that day the maintenance crew of the processing plant had not been notified to turn electricity off to the panel. The contractor removed the front of an electrical panel without disconnecting and locking out the power to the panel. The 440 volt panel box was fully energized at this time. Apparently the contractor touched the electrically live buss bar causing an electrical flash or arc to occur. The contractor was then thrown clear of the electrical contact by the explosion.

It is evident that the contractor was not wearing any protective equipment at the time of this incident, because his fingerprints were burned on to the panel box, his facial hair was burned off, and he suffered second degree burns on his face.

PREVENTION STRATEGIES

1. Electrical Lock out procedures should be complied with when an outside contractor is brought in (Title 8 California Code of Regulations 2320 (paragraph a) requires that power sources be disconnected). In this incident, the poultry processing plant had an electrical lock out procedure; if this procedure had been enforced by the employer, the contractor would not have come into contact with an energized box and his death would have been prevented.
2. The contractor should have had a written injury prevention program regardless of whether he was self-employed and had no employees. The program currently is not required of self-proprietary contractors by California law. However, if the contractor had had a written program which included lock out procedures prior to working on potentially energized systems, and if he had followed it, his death could have been prevented.
3. The employer should establish a standard operating procedure which ensures communication between all contractors and employees. The hiring company is responsible for coordinating contractor work with employee work. In this incident the employer's maintenance crew did not know the contractor was going to be working on the panel box, and therefore they did not turn off the electricity.
4. The injured worker was an electrical contractor with 33 years of experience, and should have been familiar with standard operating procedures for working around high voltage. His safety procedures should have included testing the electrical system to verify that it was de-energized, and wearing electrically insulated gloves and a face shield before touching a potentially energized panel box. If he had followed these procedures, his death could have been prevented.

FURTHER INFORMATION

For further information concerning this incident or other agriculture-related injuries, please contact:

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The NURSE (Nurses Using Rural Sentinel Events) project is conducted by the California Occupational Health Program of the California Department of Health Services, in conjunction with the National Institute for Occupational Safety and Health. The program's goal is to prevent occupational injuries associated with agriculture. Injuries are reported by hospitals, emergency medical services, clinics, medical examiners, and coroners. Selected cases are followed up by conducting interviews of injured workers, co-workers, employers, and others involved in the incident. An on-site safety investigation is also conducted. These investigations provide detailed information on the worker, the work environment, and the potential risk factors resulting in the injury. Each investigation concludes with specific recommendations designed to prevent injuries, for the use of employers, workers, and others concerned about health and safety in agriculture.