

<h1 style="text-align: center;">NURSE REPORT</h1>	<p style="text-align: center;">OCCUPATIONAL HEALTH BRANCH DEPARTMENT OF HEALTH SERVICES STATE OF CALIFORNIA</p>
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NURSE REPORT #30 HOT RADIATOR FLUID SCORCHES FORKLIFT OPERATOR CDHS(OHB)-FI-93-005-30

Summary

A forklift driver was moving boxes at a raisin packaging plant. The forklift he was driving was rented. It kept losing radiator fluid out the radiator overflow hose, so every few hours he added water.

Suddenly, the radiator cap blew off his forklift. Hot radiator fluid scorched the skin on his back and arm. He jumped off the forklift and bruised his right leg. A co-worker quickly poured cold water over the burned forklift driver. Then a supervisor drove him to the doctor.

An ambulance immediately moved him to the burn unit at another medical center. He spent 13 days in the hospital with 20% total body burns.

How could this injury have been prevented?

-Employers should provide ongoing forklift safety training to workers. This training should include how to handle mechanical problems.

-Workers should report equipment malfunctions to supervisors.

-Workers and employers should call 911 if someone has a burn injury.

CASE 193-378-01 November 29, 1993

The NURSE (Nurses Using Rural Sentinel Events) project is conducted by the Occupational Health Branch of the California Department of Health Services, in conjunction with the National Institute for Occupational Safety and Health (#U06/CCU906031-04). 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.

BACKGROUND

On August 31, 1993, NURSE staff received a written report of an agricultural injury from a Regional Trauma Center. On August 27, 1993, while a forklift operator was moving boxes he received first and second degree burns to his left arm and back from hot radiator fluid. The radiator cap blew off the forklift he was operating. The skin on his back and left arm was sprayed with hot radiator fluid, leaving them red and blistering.

A nurse from the NURSE Project interviewed the forklift operator by telephone on September 13, 1993. On September 16, 1993, the safety engineer discussed the incident with the personnel manager, also responsible for plant safety, and conducted an on-site investigation on September 17, 1993.

The California Occupational Health and Safety Administration (Cal/OSHA) was not notified and did not investigate this incident.

This incident occurred at a raisin processing and packaging plant. This plant employs approximately 150-160 full-time workers (working 38+ weeks per year) and, at most, 40 seasonal workers (working 13-37 weeks per year) during the peak summer harvest season. The injured forklift operator was employed as a forklift operator for the past twenty years at this plant.

The safety engineer reviewed the employer's written injury and illness prevention program and noted that it did address all points as required by 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: 1. designated safety person responsible for implementing the program; 2. mode for ensuring employee compliance; 3. hazard communication; 4. hazard evaluation through periodic inspections; 5. injury investigation procedures; 6. intervention process for correcting hazards; and 7. provide safety training and instruction.) The safety engineer also reviewed specific written safety policies addressing forklift operation. Videos are also used for forklift safety training.

However, the forklift operator stated the last forklift safety training he had was five years ago.

INCIDENT

On August 27, 1993, at approximately 2:15 p.m., a 52 year-old male Hispanic forklift operator was moving boxes inside a raisin processing and packaging plant. Suddenly, the radiator cap blew off the forklift he was operating and sprayed his back and left arm with hot radiator fluid.

The forklift operator turned to see what sprayed him, then jumped over the right side control levers and bruised his right leg. He ran to a nearby co-worker who poured cold water over him and helped him to the office. A supervisor transported the injured forklift operator by private vehicle to a medical office, arriving approximately 17 minutes after the incident. The medical office immediately called an ambulance to transfer him to the burn unit at a Regional Trauma Center. They injected the injured forklift operator with pain medication.

The injured forklift operator was admitted to the burn unit, where his burns were cleaned, dressed, and he was given pain medication. Due to him developing pneumonia he was hospitalized for 13 days, with 20% total body first and second degree surface burns to the left arm and back. After release from the hospital he was to return to the burn unit for follow-up. The nurse from the NURSE Project visited the

forklift operator at his home one month after the incident. At this time he still did not know when he would return to work.

To keep up with the packaging demand at peak harvest times, some forklifts are leased at this raisin processing and packaging plant. The forklift involved in this incident was leased approximately ten days before the incident. The lease company was responsible for the upkeep on the forklift. The plant personnel manager reported there had been no mechanical problems with the forklift prior to the incident.

However, the forklift operator reported that earlier in the day the forklift was losing radiator fluid out the radiator overflow hose, so he added water every 2-3 hours. Adding water was an effort to prevent overheating because radiator fluid was being lost. Although a light on the dash of the forklift is supposed to shine when it gets too hot, the forklift operator stated this light never came on.

The safety engineer from the NURSE Project was unable to inspect the cap because a private investigator, hired by the plant's workers compensation insurance, had possession of it. However, she reported there were no visible defects to it. The cap's rating was 16 pounds per square inch (PSI). This is a safety mechanism which forces the cap to slowly release pressure if it exceeds 16 PSIs. The private investigator stated she was unsure if a pressure check would be completed to determine if the cap performed at its specified rating. Consequently, it is unclear why the radiator cap blew off.

PREVENTION STRATEGIES

1. Workers should report equipment malfunctions to supervisors. If the forklift operator had reported the loss of radiator fluid to the supervisor, the forklift may not have been used until it was repaired. If so, the operator may not have been burned by the hot radiator fluid.¹
2. Employers should provide ongoing forklift safety training to workers. Although the plant had a written safety program and training specific to forklift operation, the injured worker had not received training on safe forklift operating procedures for at least five years. In this incident, if the operator had received ongoing training that addressed forklift maintenance and how to handle malfunctions, the injured worker may have not continuously added water.²
3. Forklift manufacturers should design equipment with safety in mind. If this forklift had a hinged, metal latching door covering the radiator hole leading to the radiator cap, the hot coolant would be deviated away from the operator even if the cap blew off. A rubber seal could also be placed around the metal guard to provide a waterproof barrier, while still providing easy access to the radiator cap. In this incident, if the forklift was equipped with this safety feature, the forklift operator may not have been burned.³
4. Work crews, including supervisors, should have an adequate emergency medical response procedure. Crews should be trained to immediately call 911 in an emergency. In this incident, the supervisor should have called 911 before transporting the injured worker. Also, calling 911 may have expedited medical treatment to the injured worker.

1. Title 8 California Code of Regulations 3664(a)(7): "Drivers shall check vehicle at least once per shift, and if it is found to be unsafe, the matter shall be reported immediately..."

2. Title 8 California Code of Regulations 3203: Injury and Illness Prevention Program.

3. Title 8 California Code of Regulations 3664(b)(32): "Every employee who operates an industrial/agricultural truck or tractor shall be instructed in the following procedures..."