

<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 #35 VINEYARD WORKER CRUSHED BY METAL STAKES CDHS(OHB)-FI-94-005-35

Summary

Three vineyard workers were just about done replacing metal stakes in a vineyard. These metal stakes support grape vines. They are six feet tall and weigh three and one-half pounds each. One worker drove a tractor that pulled a small flatbed trailer loaded with stakes. The two other workers rode on the trailer.

The tractor driver pulled out of one vineyard row and started to turn down the next. He turned too sharply and hit a mound of dirt, causing the trailer to tilt. One worker jumped off the back of the trailer. The other worker tried jumping off the right side, but was pushed onto the ground by a rolling bundle of stakes. This bundle, weighing 1760 pounds, pinned and crushed the worker.

The tractor driver quickly moved the bundle of stakes off the injured worker using a large piece of wood. In doing so, he hurt his back. The farm owner called 911 from his truck phone. Medical care began 25 minutes later when the ambulance arrived.

In surgery, internal cuts and tears were repaired in the injured worker's abdomen. His pelvic bones were broken in three places. Three months later he was still in too much pain to return to work.

How could this injury have been prevented?

-Workers should be trained not to ride on trailers that are not designed for worker transport.

-Trailers should be equipped with a way to secure the load, including strong sides to prevent the load from rolling out.

-Employers should train workers in the safe operation of tractors.

CASE 194-123-01 July 21, 1994

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 April 26, 1994, NURSE staff received a written report of an agricultural injury from a Regional Trauma Center. On April 14, 1994, a vineyard worker was pinned to the ground and crushed by a bundle of metal stakes that rolled off a trailer on which the worker was sitting. The bundle rolled off the trailer when the tractor driver turned too sharply and the trailer tilted.

On April 26, 1994, a nurse from the NURSE Project interviewed the injured vineyard worker by telephone. On May 19, 1994, a safety engineer and nurse from the NURSE Project met with the injured vineyard worker's employer, a farm labor contractor, and the worker's supervisor to discuss the incident. Nurse staff also reviewed medical records, Emergency Medical Services (EMS) ambulance records, and obtained information from an agriculture equipment supplier.

The safety engineer noted the farm labor contractor did not have a written injury and illness prevention program 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 farm labor contractor showed the safety engineer the lists of safety and conduct rules in both English and Spanish, given to workers when hired.

The injured vineyard worker was hired by a farm labor contractor as a casual worker three months before the incident. However, he did have experience working in vineyards doing various jobs, such as tying vines, pruning grapes, installing stakes, etc. The farm labor contractor employs two full-time workers (working 38+ weeks per year), 250 casual workers (working 1-12 weeks per year), and 12 seasonal workers (working 13-37 weeks per year). Farm labor contractors are used by some farm owners and operators of large corporate farms in California to recruit, train, and manage workers. The incident took place on a 480-acre farm that grows several varieties of grapes.

INCIDENT

At 7:00 a.m. on April 14, 1994, a 20 year-old Hispanic male vineyard worker and two co-workers began the day replacing metal stakes that support grape vines. The stakes are six feet tall and weigh approximately three and one-half pounds each. A tractor pulled a small flatbed trailer containing stakes and two workers up and down the vineyard rows. When they came to an area where a stake was missing or broken they stopped and replaced it. One worker jumped off the trailer with a new stake and held it in

place, while the other worker stood on the trailer and hammered it into the ground. The trailer was approximately 4 feet wide and 12 feet long. Only the front end had a wall, the other three sides were open. However, steel bars, roughly two feet tall, were in the middle of each long side, and in each back corner. Also, two steel bars, roughly five feet tall, were in each front corner of the trailer. (See diagram 1.) Loose metal stakes and a new bundle containing 500 stakes laid lengthwise on the trailer.

By 8:00 a.m. the job was almost finished. The tractor driver pulled out of one row and started to turn down the next. He turned too sharply and hit a mound of dirt, which caused the trailer to tilt. One worker sitting on the back of the trailer jumped off. The vineyard worker sitting on the right side of the trailer began jumping off, but was pushed face down onto the ground by the rolling stakes. The bundle of stakes, weighing approximately 1720 pounds, pinned the vineyard worker at his lower back.

One co-worker, when he saw the crushed worker, became motionless at the scene. The tractor driver acted promptly and pried the bundle of stakes off the injured vineyard worker using a 4x4 piece of wood that was on the trailer. In doing so, he immediately developed a pain in his back. The farm owner just happened to be driving by the incident area. He quickly called 911 on his cellular phone, and contacted the farm labor contractor. The farm labor contractor called the supervisor, who was on a prearranged errand at the time of the incident. Neither the farm owner nor the work crew had any training in first aid or cardiopulmonary resuscitation (CPR). Emergency Medical Services (EMS) arrived approximately 25 minutes after 911 was phoned. They assessed the injured vineyard worker's injuries and called for a helicopter. They also administered oxygen and started an IV. The vineyard worker was transported, via ambulance, to a nearby airstrip where a helicopter airlifted him to a Regional Trauma Center.

Approximately one hour after the incident, emergency exploratory surgery began at the Regional Trauma Center. The eight-hour surgery revealed internal cuts and tears in the wall of the colon, and one tear in the small bowel. The bleeding was stopped and the cuts and tears repaired. X-rays revealed three bone fractures in the pelvic area. On April 19, 1994, five days after being admitted, the injured vineyard worker was discharged. He was given a cane to use until his fractured bones healed.

The nurse from the NURSE Project spoke with the injured vineyard worker three months after the incident. The injured worker was medically cleared to go back to work on June 27, 1994; however, after working for the same farm labor contractor for three days, he had to quit because he was experiencing too much abdominal pain when bending over.

The tractor driver, who experienced back pain while moving the bundle off the vineyard worker, requested that his supervisor take him to a chiropractor the day of the incident. One month later, when the safety engineer and nurse met with the farm labor contractor, he was still out of work for this injury.

PREVENTION STRATEGIES

1. Workers should not ride on moving equipment that is not designed for worker transport.¹ This is the fourth incident in three years of NURSE surveillance in which a worker was severely injured from riding on a trailer not designed to carry workers. If this worker had not ridden on the trailer, this injury may have been prevented.
2. Equipment should be designed with safety in mind. In this incident, the trailer was a flatbed with no way to secure the metal stake bundle and loose stakes. The trailer also had only one side on the front end. Employers should assess equipment before it is used for a certain task. If the trailer had a securing mechanism (e.g., straps) to secure the metal stakes, and had sides, this incident could have been prevented.

3. Employers should have a comprehensive Illness and Injury Prevention Program (IIPP). As part of their IIPP, employers should:

- Train workers in the safe operation of equipment.² In this incident, if the tractor driver was properly trained in safe driving techniques, such as avoiding sharp turns, dirt mounds, rocks, etc., this incident may have been prevented. Employers should also document this safety training as required in the IIPP.
- Have a comprehensive emergency medical response plan for field crews. This would include training workers in how to react to emergencies, and insuring that a person certified in first aid and cardiopulmonary resuscitation (CPR) is always present at the work site.³ In this incident, one crew person became motionless at the scene and so offered no assistance. Additionally, none of the crew persons nor the absent supervisor was trained to give first aid in the field. If the workers had had emergency response training, they may have reacted in a more capable and safe manner resulting in less injury to everyone involved in the incident. If a person certified in first aid and CPR had been present, the injured worker would have received first aid more quickly and the risk of complications may have been reduced.
- Train workers and supervisors to recognize and avoid hazards associated with specific tasks. In this incident, workers rode on an open flatbed trailer not designed for worker transport along with an unsecured load. If the hazards of this arrangement had been recognized before starting this task, this injury may have been prevented.

4. Work crews should have a cellular phone or radio available to call the Emergency Medical Services (EMS). In this incident, the supervisor had the only portable communication device, and he was three miles away. Fortunately, the farm owner just happened to be in the area and knew to call 911 on his cellular phone. Without the farm owner's assistance, locating a communication device to call 911 might have been difficult, resulting in an even longer delay of first aid and medical treatment for the injured worker.

1. Title 8 California Code of Regulations 3441(a)(2): "Permit no riders on agricultural equipment other than person required for instructions or assistance in machine operation."

2. 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..."

3. Title 8 California Code of Regulations 3400(b): "In the absence of an infirmary, clinic or hospital, in near proximity to the workplace...a person or persons shall be adequately trained to render first aid."

Title 8 California code of Regulations 3439(b): "There shall be at least 1 employee for every 20 employees at any remote locations with training for the administering of first aid."

DIAGRAM 1 TRAILER HOLDING BUNDLE OF METAL STAKES