

<h1 style="text-align: center;">NURSE REPORT</h1>	<p style="text-align: center;"><b>OCCUPATIONAL HEALTH BRANCH DEPARTMENT OF HEALTH SERVICES STATE OF CALIFORNIA</b></p>
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## NURSE REPORT #14 IRRIGATOR WORKER IN ATV CRASH ON DAIRY FARM CDHS(COHP)-FI-92-005-14

### Summary

The irrigators on a dairy farm use *three-wheel ATVs* (All Terrain Vehicle) to move around the farm. An irrigator is someone who supplies land with water by artificial means. An ATV is a motorcycle with a three-wheel tricycle carriage and large tires for off-road use. An irrigator was driving an ATV down a dirt road on the dairy farm when an insect flew into his eye. He was blinded by the insect and did not see a "windrower," a large agricultural machine, which was parked in the middle of the road. The worker drove directly into the windrower. The driver was thrown off the ATV and hit a bar running along the front of the windrower, breaking his thigh, knee and ankle. The front of the ATV was completely destroyed.

The irrigator did not have anyone periodically checking on him. He laid on the ground with a broken leg for two hours until the workday ended and co-workers leaving work noticed he was missing. After they found him, he was taken by helicopter to an emergency department where his broken leg was operated on.

How could this injury have been prevented?

-If the irrigator had been wearing safety goggles the insect would not have temporarily blinded him.

-Do not leave equipment so it blocks a road.

-Use safe equipment. Three-wheel ATVs are known to be less safe than four wheel ATVs equipped with a seat belt and Roll-over Protection Structure (ROPS).

CASE 192-110-01 August 11, 1992

*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.*

### **BACKGROUND**

On May 19, 1992, while reviewing records at a Level 1 Regional Trauma Center, a nurse from the NURSE Project identified a report of an irrigator injured while working on a dairy farm. He sustained fractures of the left femur, knee, and right ankle after being thrown off a three-wheel All Terrain Vehicle (ATV) on May 12, 1992. A three-wheel ATV is a motorcycle with a three-wheel tricycle carriage and large tires, designed for off-road operation. It is capable of speeds in excess of 60 miles per hour. The worker was riding the ATV on a dirt road when he collided head-on with a windrower which had been left in the middle of the road. A windrower is a large piece of equipment used to cut alfalfa. It is a combination of a tractor and an auger, sickles, and knife. This equipment weighs approximately 8,000 pounds and is about 11 feet high and 20 feet wide.

A nurse from the NURSE Project interviewed the injured irrigator on June 2, 1992. The NURSE Senior Safety Engineer and the nurse discussed the incident with the farm manager on June 17, 1992, and conducted an on-site investigation on June 23, 1992. The local California Occupational Safety and Health Administration (Cal/OSHA) district compliance office was notified of the injury by the dairy farm manager that day, but did not investigate the incident.

The incident occurred at a dairy and alfalfa farm with approximately 3,000 dairy cattle and over 650 acres of alfalfa. The farm has 67 employees, of whom 65 are full-time employees and 2 are casual (1 to 12 weeks per year) workers. The injured irrigator was a full-time employee. ATVs are provided to the irrigators as a means of transport from field to field. The dairy farm had a written safety program. The program was reviewed by the Senior Safety Engineer from the NURSE project and was found to address all seven points included in the 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. a health and safety program.)

The dairy farm conducts safety training every two weeks and keeps written safety records. Routine monthly safety inspections are conducted by members from the farm's health and safety committee and other workers. All corrections of safety hazards are documented and reviewed at monthly safety committee meetings. At the time of this incident, five of the field management staff were trained in Community First Aid (which includes cardiopulmonary resuscitation), and the employer planned to have more employees trained. Workers who drove ATVs received information on safe operation, including rate of speed.

### **INCIDENT**

On May 12, 1992, at approximately 3:25 p.m., a 37 year-old Hispanic male irrigator was riding a three-wheel ATV down a dirt road adjacent to an alfalfa field. The irrigator was returning from checking the irrigation water in an alfalfa field and was on his way to another field to pick up his lunch box. The injured irrigator told the nurse from the Nurse Project that an insect had flown into his eye and, as he was trying to get the insect out, he ran head-on into a windrower which had broken down and been left in the middle of the road. The ATV stopped on impact and the worker was thrown forward, striking his upper leg on a horizontal bar on the windrower and fracturing his femur. He then fell to the ground. The worker said he did not strike his head or lose consciousness. He was working alone and no one witnessed the incident.

The irrigator thought he was injured at approximately 3:25 p.m. and no one found him until about two hours later. Co-workers noticed that the irrigator did not arrive in the parking area at the end of his shift, so they began searching for him. When they found the injured irrigator, co-workers notified the field foreman, who contacted the farm manager by radio. The farm manager then called 911 from his car phone at 5:23 p.m. Co-workers did not move the injured irrigator or the equipment. The Emergency Medical Services (EMS) arrived four minutes after the 911 call. EMS paramedics evaluated the injured irrigator, started an IV, immobilized the worker's leg and gave him oxygen. At 5:35 p.m., they transported him to the junction of a state highway and requested air evacuation to the Level 1 Regional Trauma Center. The injured irrigator was transported by helicopter and arrived at the trauma center at 5:47 p.m.

The irrigator was hospitalized at the trauma center for ten days. He had orthopedic surgery including reconstruction of the broken left knee and femur. At the time of the interview with the nurse, he was still in a cast and convalescing at home.

### **PREVENTION STRATEGIES**

1. This incident occurred because the irrigator driving the ATV had an insect fly into his eye, became temporarily blinded, and drove the ATV head-on into a windrower. If the irrigator had been wearing safety eye goggles he would not have gotten an insect in his eye. The dairy farm employer now requires all irrigators to wear wraparound safety goggles when riding an ATV. He also provides these at no cost to his employees.
2. Employers should require and provide helmets to employees who are required to operate off-road motor vehicles, including ATVs. In this incident, the dairy irrigator denied hitting his head, suffering a headache, or any loss of consciousness. Because this incident was unwitnessed, it is unknown whether any loss of consciousness occurred. If he had struck his head, he could have sustained brain injury in addition to the leg fractures.
3. Employers should have a method to track employees working in remote work sites. In this incident, the injured irrigator was not found for several hours, which delayed his receiving emergency medical treatment. If his injuries had been more severe or if he had had severe bleeding, this delay could have resulted in death. Foremen should have a method to monitor workers who are in remote work sites or who change work sites throughout a shift, either by radio or other means. If the foreman had been checking on the injured irrigator on a regular basis, he would have learned of the irrigator's injuries sooner and emergency medical treatment could have been initiated more quickly.
4. The work environment should be free of hazards, or, if present, hazards should be identified and corrected. In this incident, a large piece of non-operating equipment (the windrower) was left for two weeks in the middle of a heavily traveled dirt road. This equipment should not have been left in an area where it created a hazard. If it was necessary to keep the equipment in this location, it should have had

an energy absorbing barrier around it. If the windrower had not been left in this location, the irrigator would not have driven his ATV into it and would have avoided injury.

5. Employers should provide the safest equipment available for employees. This irrigator was using a three-wheel ATV (manufactured in 1987) which had no Roll-over Protection Structure (ROPS) or seat belt (and was reported by the injured irrigator as having no brakes). Three-wheel ATVs are no longer sold in the United States because they are inherently less safe than four-wheel ATVs. If the irrigator had been riding a four-wheel ATV with a Roll-over Protection Structure (ROPS) and wearing a seat belt, his injuries might not have been so severe. After the collision, the dairy farm owner decided to repair the ATV (which was essentially destroyed) instead of purchasing a four-wheel drive ATV for the dairy workers to use.