OR-FACE Fatality Alert

November 2003

OHSU OREGON HEALTH & SCIENCE UNIVERSITY

Truck mounted pile driver presents fatal electrocution hazard

Incorrectly spotting for overhead power lines can result in fatal electrocution

Case 2003-36-01. (Photo 1) On October 30, 2003 at ~2PM a 34-year old laborer was electrocuted when the boom of a truck mounted pile-driver came into contact with an overhead power line. The victim was part of a three-man crew subcontracted to remove approximately 300 feet of guardrail posts on a US Forest Service access road. The power line was clearly marked in plans and the crew was aware of its approximate location. Just before truck mounted equipment came into contact with the powerline, the victim and his supervisor discussed the proximity to the power line and the need to maintain a 10 ft. safety zone. There were actually two power lines, approximately 6 feet apart. The employer believes that the victim may have seen the second of the two lines, through the tree foliage and thinking he had sufficient safety clearance, he moved the truck forward. The pile-driving tower struck the first of the two lines and was also in contact with the ground. With the equipment now in contact with the power line, the operator jumped from the vehicle. The operator lacked sufficient clearance to prevent the current from arcing from the vehicle to him completing the circuit to ground. He died of injuries associated with an electrocution.

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Case OR2003-37-01. (Photos 2 & 3). On November 3, 2003 at approximately 1PM a 20-year old laborer was electrocuted as he removed bolts holding guardrail to guard rail posts. The crew was removing/replacing guardrail. The vehicle in the lower photo on the left moved forward and contacted an 8kV line with its pile-driving tower, energizing the guardrail (Photo #3), and electrocuting the young worker.

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NOTE: Both of these incidents occurred within 4 days of each other, to separate companies that were doing nearly the same work. The work was performed in unmarked work zones on publicly traveled roads. The equipment and the work performed, as well as the electrical distribution lines were nearly identical.

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Be aware of workplace hazards and take necessary actions to minimize the potential for injury.

Stay in the safety zone

The following practices could save your life:

When working on or near a public road:

- Conduct a hazard assessment of the worksite.
- Be aware and mark the location of overhead or buried power lines and other utility equipment
- Use a spotter
- Use a flagger to help direct traffic through a construction work zone
- Place work zone warning signs along the road, and
- Let power companies assist or install electrical safety devices if contact with power lines is likely.

Conduct a hazard assessment of the worksite.

The job-site coordinator (supervisor or foreman) should make a thorough assessment of potential worksite safety hazards. Make certain there is a plan for work being conducted in close proximity of an overhead power lines on or near the highway and for the safe handling or moving of equipment around or under the power lines. Plan the entry and exit to and from the worksite to reduce exposure to potential electrical hazards. All workers on site should have a site-specific safety and operations orientation.

Do not put yourself at risk of being in contact with high voltages.

Place markers or barriers in the path of moving vehicles well in advance of power lines or other overhead hazards. Mark or paint the ground so that the driver or operator will know not to progress to the next posthole, without lowering the pile-driving tower. Use a spotter from the crew, when working in close proximity and/or moving equipment in or around power lines.

Use a Spotter.

Use a spotter to help construction equipment or vehicles with maneuvering near overhead power lines or other hazards.

Use a flagger to help direct traffic through a construction work zone.

Consider using trained traffic flaggers to direct vehicles through a road construction work zone and to keep the workers safe. Trying to informally direct traffic, even if it is "just for a minute", could put you at risk of serious injury or death.

Place warning signs along the road.

Signs give motorists warning of work ahead. Depending on the work being done, warning signs such as GUARDRAIL WORK AHEAD, ELECTRICAL WORK, or ROAD MACHINERY AHEAD should be used. If a flagger will be used, a FLAGGER AHEAD sign should also be used. These signs should tell motorists what to expect, what they should do, and whether to expect a flagger.

Let power companies install electrical safety devices or otherwise assist when contact with power lines is likely.

Power companies have special equipment and techniques that can be used where contact with overhead power lines is possible. Electrical safety equipment must be used and maintained properly to protect workers from the electrical hazard. Pinhole leaks, cracked rubber, out of date barricades or moisture can put the worker in danger of contact with electrical power. High voltage only needs to be close to initiate an arc that will kill.

> ***Danger! Construction workers are routinely exposed to electrical hazards in Oregon.***

Getting Help

- ✓ If you are working on or near a road: Manual on Uniform Traffic Control Devices (MUTCD) 2000, Millennium Edition, Part 6 Temporary Traffic Control, U.S. Department of Transportation, Federal Highway Administration, Office of Transportation Operations, HOTO, Room 3408, Washington, DC 20590. More information available online at: http://mutcd.fhwa.dot.gov/.

- ✓ Highway work zones. Injury prevention recommendations from the National Institute for Occupational Safety and Health (NIOSH) report entitled Building Safer Highway Work Zones: Measures to Prevent Worker Injuries from Vehicle and Equipment, DHHS (NIOSH) Publication No. 2001-128. http://www.cdc.gov/niosh/2001128.html or available free from: Publications Dissemination, EID, National Institute for Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, OH 45226-1998.

- ✓ National Work Zone Safety Information Clearinghouse. http://wzsafety.tamu.edu/ or call (888) 447-5556.

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The Center for Research on Occupational and Environmental Toxicology of The Oregon Health & Science University performs Fatality Assessment and Control Evaluation (FACE) investigations through a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR). The goal of these evaluations is to prevent fatal work injuries in the future by studying the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

Additional information regarding this report is available from:

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World Wide Web (WWW) links:

OR FACE Program http://www.ohsu.edu/croet/face/

OHSU Center for Research on Occupational and Environmental Toxicology http://www.ohsu.edu/croet/