

Please Post



Naval Facilities Engineering Command Northwest

Safety Lessons Learned Accident Abstract

Accident Type: Worker crushed by Front end loader.

Injury: Fatality

Damage: No property damage

Type of Work: Backfilling and site cleaning

DESCRIPTION OF THE ACCIDENT:

A 47 Year old subcontract 3 year sheet metal apprentice worker on-site for a month was crushed under the right front and rear wheels of a Catepillar Model 966 articulating front end loader. Loader operator was hauling 3/4minus rock down a 10%-12% grade to a soil build-up area. The apprentice was walking upgrade from his job site to one of two conex boxes located midway up the incline on a flat grade that separated the incline. He was carrying oxy/acteylene welding hose on his right shoulder and a regulator in his right hand. The loader and the apprentice met at mid grade of the first incline (see picture below).

DIRECT CAUSE:

- ◆ Inattention to detail. From all accounts, the victim and the FEL operator were both unaware of the impending collision.
- ◆ Failure to employ basic traffic management. The requirements of the EM385 for an Access/Haul Road Plan address these controls.
- ◆ Failure of any contractor employee (prime or sub) to act on what was recognized as a hazardous situation.

INDIRECT CAUSE:

- ◆ Equipment blind spots.
- ◆ Centralizing the Intermech conex boxes thus requiring pedestrian traffic to transit an active haul road from multiple, uncontrolled entry points.
- ◆ No spotter.
- ◆ Changes in activities throughout the day/week without coordinating with impacted crews or formally reassessing the hazards
- ◆ Government failure to fully enforce the safety requirements of the contract likely led to the Contractor having a false sense of confidence in his safety program's effectiveness. The government did not provide the incentive for the contractor to correct an underlying failure to translate the program from paper and policy into full practice, a culture of safety—no contractor personnel stepped up to correct a hazard recognized by several of the employees.
- ◆ It was apparent that clear or consistent guidance on what constitutes a safety deficiency NOV was not provided and may have been minimized.
- ◆ Inexperienced personnel. The victim was on the job site less than 2 months and his job did not entail routine interface with heavy equipment operations in a congested area.
- ◆ Mixed activities in a congested area without adequate prior coordination. The earth work crew did not interface with the Intermech crew to discuss hazards and procedure for transiting site work operations or movement around heavy equipment.
- ◆ ET attempted to communicate hazards on 18 March 2010 when observed. Action on this communication may have reduced the likelihood of the accident, the contractor bears the responsibility for site safety and any input from the ET would have required follow-up action by the contractor. Additionally, the activities in the area, though similar, changed from Thursday to Friday and therefore warranted at least a review of the AHA.

ROOT CAUSE:

- ◆ Human error is the root cause of this accident. On the part of the operator for failing to identify the victim in his path of travel; on the part of the victim for failing to avoid the FEL or use generally known precautions around heavy equipment (inexperience with this type of operation was a likely contributor); and on the part of the contractor employees, supervisors, foreman, and SSHO for failing to recognize the high hazard/risk associated with the activities and site layout or to properly act on the hazard/risk if they did.

LESSONS LEARNED:

- ◆ Construction safety training and contract enforcement training for Engineering Technicians. Failure to provide/require the necessary training or clear consistent guidance on what constitutes a safety violation reduces our effectiveness and is a serious deficiency in our project management and safety program/posture.
- ◆ Define the threshold for an NOV for safety deficiencies, communicate it, and stick to it.
- ◆ Execute an approved Access/haul Road Plan. This is a specific requirement of the contract.
- ◆ Institute a program to ensure crews that are working in the same areas are communicating and cooperating in hazard/risk mitigation. This is beyond the superintendent and foreman meetings—encourage communications between the folks that will actually be in contact with each other on the ground.
- ◆ Consider installing proximity alarms on heavy equipment to indicate by audio and/or visual means obstructions in the direction of travel. This could be a motion sensor/detector on the equipment or an RFID device the worker wears.
- ◆ Consider installing cameras to reduce or eliminate blind spots for heavy equipment operators. This is already a common practice in the automotive industry on vehicles that cost much less.
- ◆ Require spotters/flag persons in congested work areas with traffic hazards. Required per EM385-1-1, 16.B.02.
- ◆ Reschedule heavy equipment operations around other activities to reduce interference. This mitigation measure could result in zero risk.
- ◆ Consider the cost/benefit of a policy of honking when transiting into restricted view areas.
- ◆ Employ a feedback method/process for identifying, correcting, and following-up on safety deficiencies that all employees are aware of and know how to use.
- ◆ Review and modify the AHA to address changing site conditions, operations, or change of competent/qualified person(s).



YOUR SAFETY CONTACT IS...