

Case 289. 57-year-old excavating crew supervisor died when he was crushed by a moving Volvo EC 360 excavator.

A 57-year-old male excavating crew supervisor died when he was crushed by a moving Volvo EC 360 excavator. The operator of the excavator had been moving dirt and rocks restoring a creek bed. The excavator cab was facing south while the engine/crawler was moving back and forth grading the area (tracks were oriented to move east and west). The decedent had been standing to the north of the excavator. He left this area while the excavator was moving and positioned himself near the excavator's northernmost track to retrieve a basketball size rock, which had been uncovered in the construction process. The rocks were being saved to be used for remediation of the creek bed at a later time in the construction. The decedent was positioned in the operator's blind spot. The excavator operator began to move the excavator to the west. A coworker, who was acting as a spotter on the north side of the excavator and was a substantial distance away from the incident area, witnessed the incident. He yelled to the decedent to get out of the way. The decedent was apparently unable to hear him and was knocked to the ground and run over by the excavator track. The excavator operator observed the spotter waving to him and the operator stopped the excavator's movement. A coworker called for emergency response. The decedent was transported to a nearby hospital where he died. MIOSHA found that the excavator had multiple defects, such as leaking hydraulic/oil fluids under the body, missing mirrors, broken horn, broken proximity alarm, obscured right side window and a missing front window. The right side window was constructed of Plexiglas, not safety glass and had been held in place by duct tape.

MIOSHA Construction Safety and Health Division issued the following Serious and Other-than-Serious citations as well as Safety and Health Recommendations to the firm at the conclusion of its investigation.

SERIOUS CITATIONS

GENERAL RULES, PART 1, RULE 114(1):

An accident prevention program was not developed, maintained, and coordinated with employees.

Employees are performing excavation work.

LIFTING AND DIGGING EQUIPMENT, PART 10

- **RULE 1006a(4):**
An employer shall maintain a crane or derrick or excavation equipment and its accessories in a condition that will not endanger an operator or other employees.

Volvo EC 360 excavator being operated with functional defects of safety equipment installed on excavator.

- RULE 1006a(7):
An equipment operator shall be familiar with the equipment and its proper care. If adjustments or repairs are necessary or if any defects are known, the operator shall report the needed adjustments or repairs or the defects to the responsible supervisor and, upon changing shifts, notify the next operator of the defect.

Employees are operating a Volvo EC 360 with defects and are not reporting damages and defects to a supervisor or person who could perform the repairs. Employees are performing excavation work.

- RULE 1012a(3):
All of the following items on a crane, a derrick, or boom-equipped excavation equipment shall be inspected at frequent intervals:
 - (a) All control mechanisms, which shall be inspected daily for misadjustments that interferes with the proper operation of the equipment and for excessive wear of components and contamination by lubricants or other foreign matter.
 - (b) All chords and lacing, which shall be visually inspected daily.
 - (c) All safety devices, which shall be inspected daily for malfunction.
 - (d) Air or hydraulic systems, which shall be inspected daily for deterioration or leakage.
 - (e) Hydraulic and pneumatic hose, fittings, and tubing, which shall be inspected for all of the following:
 - (i) Evidence of leakage at the surface of the flexible hose or its junction with the couplings.
 - (ii) Blistering or abnormal deformation to the outer covering of the hydraulic or pneumatic hose.
 - (iii) Leakage at threaded or clamped joints that cannot be eliminated by normal tightening or by recommended procedures.
 - (iv) Evidence of excessive abrasion or scrubbing on the outer surface of a hose, rigid tube, or fitting. Means shall be taken to eliminate the interference of components with each other.
 - (f) Hooks, which shall be inspected daily in compliance with the provisions of R408.41032a of deformation or cracks.
 - (g) Electrical apparatus, which shall have a frequent inspection for malfunctioning, signs of excessive deterioration, and dirt or moisture accumulation. See subrule (2)(a) of this rule.
 - (h) Guy cables, which shall be inspected daily for tension.
 - (i) The plumb of the mast, which shall be inspected daily.

Frequent inspections are not being performed on Volvo EC360 excavator.

- RULE 1012a(6):
Any structural or functional defect or other hazard that would adversely affect the safe operation of a crane, derrick, or excavation equipment shall be corrected before operations begin or continue.

Employees are operating a Volvo EC 360 excavator with defects and damages or continuing excavation work operations. Employees are performing excavation work.

- **RULE 1025a(5):**

Windows of any crane, derrick, or excavation equipment shall be equipped with safety glass or its equivalent. Visual distortions which are caused by broken or defective glass and which would affect the safe operation of the equipment when in use shall be corrected.

Employees are operating a Volvo EC 360 excavator that has broken, obscured and missing windows. Plexiglas being used in window frame is not safety glass. Employees are performing excavation work.

SIGNALS, SIGNS, TAGS, AND BARRICADES, PART 22, RULE 2221(1):

An employee who might be, or would likely be, injured if not alerted to the hazard, signs, barricades, and tags were not provided, installed, and signals were not maintained.

Employees performing excavation work were exposed to serious hazards due to the lack of barricades around excavating equipment.

OTHER-THAN-SERIOUS: LIFTING AND DIGGING EQUIPMENT, PART 10

- **RULE 1006a(8):**

The manual provided by the crane manufacturer shall be readily accessible for the crane operator's reference at the work site.

Employees are performing excavation work with Volvo EC 360 excavator.

- **RULE 1012a(1):**

A thorough, annual inspection of a crane, derrick, or excavation equipment shall be made by a qualified person. The employer shall maintain, on the jobsite, a copy of the records of the date and results of the latest inspection for each piece of equipment.

Employees are operating a Volvo EC 360 excavator without an annual inspection report on the work site. Employees are performing excavation work

- **RULE 1025a(3):**

A portable fire extinguisher that has a rating of not less than 10 BC, shall be kept in the cab or operating enclosure or where there is not cab or enclosure, shall be kept on the jobsite within a 200-foot radius of the equipment and shall be readily available. The operator and maintenance employees shall be trained in the use of the fire extinguisher.

Employees are operating a Volvo EC 360 excavator without a fire extinguisher on board. Employees are performing excavation work.

SAFETY AND HEALTH RECOMMENDATIONS

An inspection/investigation of your worksite revealed the following conditions which may constitute a threat to the safety or health of your employees. It is recommended that your firm:

1. Employees should wear head protection while working around or adjacent to moving Mobile or Lifting and Digging equipment.
2. Employees should wear reflective vests while working around or adjacent to moving Mobile or Lifting and Digging equipment.
3. Employees should read and understand and follow the equipment manufacturer's safety recommendations and the operating manual while operating Mobile and Lifting and Digging equipment.