



OPERATOR TRAPPED BY SUCTION HOSE

INCIDENT

A truck mounted vacuum suction unit was being used to clean up fine and lump material at an ore processing plant, with the truck at ground level and the hose operator on a floor some 20m above.

The 6 cylinder 187 kw diesel engine driven vacuum pump was capable of inducing up to 1 bar suction and 2500 litres/sec through a 100 mm diameter convoluted rubber hose. A force of some 80 kg is developed at the nozzle.

On hearing over the radio communication system that the vacuum system was not functioning correctly, the unit operator checked the hose line from the truck to the operating floor. As the end of the hose was passed back to the hose operator, that person's left hand and arm was sucked into the hose up to the shoulder. It took both persons up to 30 seconds to pull the hose off. The injured person suffered soft tissue internal damage requiring surgery and skin grafts.

IMMEDIATE CAUSES

- A job safety analysis was not conducted prior to carrying out what was considered to be the common industrial practice of vacuuming up dry/wet material.
- The hose operator had not been formally trained in the task.
- Vacuum suction was not recognised as a potentially hazardous energy source.
- There was no means of rapidly breaking the vacuum, (or of shutting down the pump), at the operating end of the hose.

COMMENTS AND RECOMMENDATIONS

The combination of arm size, hose diameter and disposable overalls worn apparently created an effective seal, thus making release extremely difficult, under vacuum.

A vacuum breaking device installed close to the end of the hose could prevent a recurrence, or provide for a quick release under any circumstance.

Use of a handle or holding device could assist in keeping the end of a vacuum hose clear of the operator. A vacuum break could be incorporated in this.

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