



HIGH PRESSURE WATER JETTING

INCIDENT

A contractor and two of his employees were injured while operating high pressure water jetting equipment. The water lance broke free of its mounting, whipped around violently with the jet inflicting deep lacerations to various parts of the body of the two operators. The observer received minor injuries.

The men were removing mineral scale from the inside of a vertical vessel. They were beneath the vessel directing the jet through a cone at the base of the vessel. The lance was guided through and held in position by a gimbal mounting bolted to the cone assembly.

CAUSE

A conclusive reason for the lance becoming free from the gimbal mount was not identified. It is probable that loosened scale fell onto the unit and knocked the lance nozzle free. When this happened, the observer was required to activate an emergency button on the pendant control which he held. A malfunction apparently occurred with this device and the water jet had to be shut down at the pump unit some distance away.

COMMENTS AND PREVENTATIVE ACTION

The term 'High Pressure Water Jetting' includes jetting processes using additives or abrasives where the liquid pressure exceeds 6.9 MPa (1000 psi). However, elevated pressures below 6.9 MPa may, under a range of circumstances, present a serious hazard.

Codes of Practice for high pressure water jetting, prepared in Britain and United States of America, are commonly used by Water Jetting Associations. These Codes cover most issues, ie operator training, hose and valve specifications, care and maintenance of equipment, protective clothing etc.

The accident has highlighted the need to expand the codes to include:

- (a) A failsafe ('deadman') emergency dump control to provide for:
 - electrical malfunction;
 - operator or observer inattentiveness;
 - dump control being unattended;
- (b) Lance nozzles designed to prevent release from mounting by impact.

- (c) Mountings for the lance to vessel to be so designed that falling scale is deflected from the mounting.
- (d) Appropriate barricades be installed around the operation.
- (e) Observer to stand at least:
 - 10 m from operator for less than 69 MPa (10,000 psi) jetting;
 - 15 m from operator for greater than 69 MPa (10,000 psi) jetting.

Codes of Practice can not be written to cover every possible configuration of use or all operating circumstances which may arise. Each task where high pressure water jetting is involved must be comprehensively appraised by competent persons and all practicable precautions taken.

J M Torlach
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SAFETY AWARENESS SAVES LIVES