

PRESSURE VESSEL ENTRY – SCALDING INJURY

INCIDENT

Two gold treatment plant operators were scalded by hot solution when they opened an elution column to investigate the cause of a blockage leading to reduced carbon flow.

CAUSE

The immediate cause of the accident was the opening of a normally pressurised vessel without the use of a safe system of work to carry out this task. This resulted in hot solution, which was retained in the hung-up carbon, being released and striking both workers, causing burns.

Contributing factors included;

- The absence of a written procedure to perform this task.
- The lack of a closed vessel entry permit covering the opening of the elution column.
- The failure by the operators to get authorisation from supervisors to open the vessel.
- The absence of more experienced supervisors to approve and oversee the work.
- The lack of adequate competency tested training in the performance of this task.
- The fact that pressure gauges located on the elution column were inoperative.
- The lack of signage indicating the required settings for valves in order for the elution column to be safely opened; (ie not under pressure).
- The lack of adequate personal protective clothing used by the operators, given the hot and caustic nature of the solutions in use in the elution column.
- The failure by the operators to make use of safety showers in the immediate vicinity.

COMMENTS AND PREVENTATIVE ACTION

The absence of flow, or a mere trickle, emanating from a drain valve on a pressurised vessel may lead inexperienced or incautious personnel to assume that the vessel is empty or at least no longer under pressure. In fact this “no flow” condition is usually brought about by the presence of a blockage of some sort. Upon opening the vessel to investigate the cause of the blockage, the pressurised contents are then released, spraying those personnel in close proximity.

Clearly the main preventative action in this case is the existence of a safe system of work for opening the pressurised vessel. This should incorporate a Closed Vessel Procedure which adequately covers the safe isolation and depressurisation of the vessel prior to opening. The actual opening of the vessel should be carried out according to a written procedure which includes references to the required PPE needed to safely perform the task, and should be carried out only by personnel who have been previously trained and undergone competency testing.

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