

Safety Alert

Mines Inspectorate—Surface metalliferous mines and quarries

Safety Alert No. 284 | 18 January 2012

Severe acid burns to foot as drain collapses

What happened?

While working inside a bunded sulphuric acid storage area, a worker stepped on grid mesh covering a drain containing sulphuric acid. The grid mesh gave way and the worker's foot was submerged to above the boot line, sustaining acid burns so severe that skin grafts are being considered as treatment.

Why did it happen?

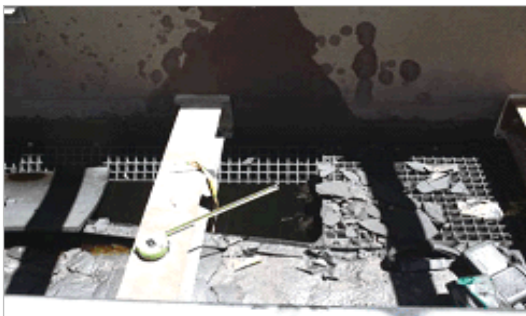
The incident is still under investigation but initial physical causes are:

- acid in the drain came from a leaking tank pipe flange, with the sump pump not operating at the time
- over time, the acid damaged the concrete substrate and the integrity of the fibreglass grid mesh
- the worker's boot type allowed acid ingress.

The incident highlights that lack of structural integrity is hazardous even at ground level. Attention is often given to high structures because the hazard of objects falling from heights is easily recognised. Ground-level flooring and drains, and the grid mesh covering drains, may not be so obvious a hazard and so can be overlooked.

Recommendations

1. Ensure that drains are included in structural integrity inspections.
2. Inspect the integrity of **all** drains, including the concrete substrate, particularly those drains in wet, corrosive or chemical storage areas.
3. Check the compatibility of the grid mesh material with substances contained in chemical storage compounds.
4. Check all requirements for PPE, and entry into chemical storage areas, and ensure that these requirements are adequate.



Condition of the drain



Condition of the fibreglass grid mesh

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