

# Chemicals Event Summary of Findings

## Background

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A chemicals inventory check within the Sellafield site Analytical Services laboratories identified a part-filled bottle containing a potentially hazardous chemical requiring safe disposal. The appropriate disposal methodology was controlled detonation by the army's Explosives Ordnance Disposal team (EOD).

The site was moved to *Operational Alert* status and the Sellafield Emergency Control Centre (SECC) was established to focus resource on managing the disposal.

Sellafield Ltd immediately initiated a site-wide review of potentially hazardous chemicals. Those requiring controlled detonation were appropriately disposed of.

Sellafield Ltd established an investigation to understand the causes and gain learning from the event. These are its findings.

## Chemicals involved

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The chemicals disposed of were used in the analytical services department as part of chemical analysis. The chemicals were not currently in use and were considered 'redundant'.

The chemicals have the potential to degrade into peroxides which have the potential to become unstable.

## Root causes

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The investigation found two root causes.

1. There was a lack of priority given to the disposal of redundant chemicals due to them not being visible and out of conscious awareness to the majority of people within Analytical Services.
2. The organisational resource and capability to support the duty holder in conventional safety is not tailored in recognition of the risks and hazards of individual facilities. (The 'duty holder' in this context is taken as the internally accountable person within the facility i.e. the Head of Operations.)

## **Summary conclusions**

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- Historically, the methodology for disposal of redundant chemicals has been inconsistent.
- More than 1,000 bottles of chemicals with provenance have been disposed of and there is positive evidence for the segregation of incompatible redundant chemicals.
- However, the 'redundant chemicals' category has very low visibility. The investigation also recognised that the knowledge that certain chemicals can degrade to form potentially unstable peroxides is not widely held, both inside and outside the organisation.
- The investigation considers that, as a site, there is a focus on the hazards to health aspect of chemical control, but these chemicals were of low visibility and there was no risk of exposure to the workforce. As such, the opportunity to identify the potential risk associated with these redundant chemicals in respect of their cradle-to-grave storage was missed.
- Compartmentalisation, in addition to a lack of time dedicated to self-evaluation, has meant that, as an organisation, we have not self-evaluated on the weak and strong cues that may have indicated weaknesses with the cradle to grave storage of these chemicals.

## **Improvement recommendations**

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1. The investigation will link in to the site-wide review of potentially hazardous chemicals which is currently in progress. This review is set up to validate, categorise and safely dispose, via a risk-based approach, those chemicals which have been identified as requiring non-immediate action following this event. The review will also clarify accountabilities and implement a new set of norms / processes for onward chemical disposal including governance and routes for escalation.
2. We will also undertake external benchmarking for the management of complex chemical inventories throughout their lifecycle of storage, use and disposal in order to understand best practice for chemical safety.
3. We will review existing contracts with external chemical expertise in order to ensure specialist chemical advice and ongoing site support is secured. This support will be publicised and made visible to all internal facility duty holders.

4. We will establish a “Chemical Safety Module” that provides a process / database for oversight and control / configuration management of site-wide chemical inventories. We will define the governance, ownership and competent support network for this and consider whether we can expand this approach to other areas of conventional safety e.g. asbestos control.