

## Chemical Occurrences - May, 1998

### Class 1:

None

### Class 2:

**LLNL** - An employee received chemical burns from an acid/oil mixture when a waste container ruptured. The minor burns became infected requiring ongoing medical treatment of the employee.

### Other Occurrences of Note:

[Pressurized Containers](#) \*\* [Legacy Chemicals at LANL](#)

**Note:** A minor change has been made in the way occurrences are date-sorted. In the past, reports were sorted into the month corresponding to "Discovery Date"; as of January 1998, reports have been sorted into months according to "Date of Notification Report". This minor revision will allow for quicker distribution of these Monthly Summaries without compromising comparison of report counts with past monthly values. Four (4) reports are included in this month's data with a "Discovery Date" prior to May 1998.

A search of ORPS for occurrences having chemical safety relevance conducted for the month of May 1998 produced 37 reports representing potential chemical safety concerns. These occurrences are listed in [Attachment 1](#). There were two occurrences categorized as "Emergency" and nine as "Unusual" with the remainder identified as "Off-normal". The Office of Environmental Management (EM) was Cognizant Secretarial Office (CSO) for 21 occurrences, Defense Programs (DP) had 13, and Energy Research (ER) three. The CSO designation may change after the distribution of this monthly memorandum, and this change will be reflected in Quarterly and Annual Reviews.

There were no Class 1 occurrences; there was one Class 2 occurrence reported during May. There were 21 Class 3 occurrences. ([Class definitions](#))

Among the Class 3 occurrences, in addition to those noted previously, was a report from Weldon Springs of a leak from a compressed gas cylinder with unknown contents. At Los Alamos, a gasoline spill during fueling led to a building evacuation due to concerns for vapors. A bottle containing bromine was dropped and broke at Livermore. At PNNL, a food preparation oven was inappropriately used as a research oven.

## Summary of Class 2 Occurrence:

**Worker Burned when Waste Container Ruptures (EM):** (SAN--LLNL-LLNL-1998-0025) On April 1, at Livermore, as an employee noticed a bulging container, the container ruptured, spraying an acid/oil mixture. The employee was sprayed, with a small amount of the mixture striking his face. The employee initially required only first aid and was released from Health Services within a few hours of the incident. On May 1, it was learned that the injuries had become infected. The employee had subsequently lost work time and required additional medical attention. Concentrated acid waste (sulfuric and nitric acids) from chemical digestion apparently was combined with acidified hydrocarbon oil samples. The materials were being collected for disposal as hazardous waste. The materials were mixed in a plastic

bottle that had originally contained hydrogen peroxide. The bottle had been emptied and rinsed prior to being used as a waste collection container. The old label had not been defaced, nor was new labeling applied to indicate the new contents. Apparently, one employee added the hydrocarbon/dilute acid mixture to the bottle, unaware that it contained concentrated acid residue added by another employee. The container was placed on a benchtop on 3/31. Overnight, the pressure accumulated in the plastic container, most likely from oxidation of the oil by the acid. This occurrence was the subject of an article in the [Operating Experience Weekly Summary \(OEWS\), 98-18](#).

## Other Occurrences of Note:

The Class 2 occurrence summarized above raises concerns of mixing of incompatible chemicals as well as pressurized containers. Two additional occurrences were noted this month involving pressurized containers. At the INEEL (**ID--LITC-SMC-1998-0004**), as restraints were being loosened, a 55 gallon drum (containing waste nitric acid) lid and its associated plastic liner lid unexpectedly "lifted" due to internal pressurization hitting the wall and ceiling of a cargo container. One of the lids slightly brushed the face of an employee, but she was not bruised or cut. An article in [OEWS 98-21](#) describes this occurrence and provides guidance and references on preventing injuries from container overpressurization. At Portsmouth (**ORO--BJC-BJCPORTS-1998-0006**), an engineer, performing a walk down of a PCB storage facility, discovered PPE lying on the floor. The engineer noticed one lid had become unsealed from a 55 gallon drum exposing the contents. The container was isolated, and loose PPE was placed into an empty drum, and new lids were placed on both drums. Other containers in the facility were checked for evidence of pressurization; none was discovered.

During legacy chemical and waste inspections at Los Alamos, several discoveries of hazardous materials were noted and reported this month. On May 13 (**ALO-LA-LANL-CHEMLASER-1998-0002**), an employee found a cardboard box with a wooden box inside. The wooden box was wrapped with tape labeled "explosive." The employee also found a metal tray with bottles of hazardous chemicals in the original manufacturer's bottles that had never been opened. On May 21 (**ALO-LA-LANL-CMR-1998-0022**), a facility was evacuated following the discovery of two bottles of crystallized legacy perchloric acid. Subsequently, another occurrence report (**ALO-LA-LANL-LANL-1998-0003**) was submitted to roll up the May 13 occurrence together with two other similar events. On May 20, an employee discovered a bottle of TNT during a walkaround to locate hazardous wastes. The amber glass bottle was the original manufacturer's package including a label that indicated the contents as 2-4-6 trinitrotoluene in water solution, with an expiration date of 8/95. Also on May 20, an employee discovered non-inventoried high explosives (HE) improperly stored in a refrigerator. In response to the discovery of explosives and hazardous chemicals improperly stored, a decision was made to stand down all operations involving high explosives until a physical inventory could be conducted.

Additional information regarding these occurrences and others will be discussed in an upcoming Quarterly Review; some are currently summarized on this website. As occurrence reports are finalized, lessons learned will be communicated.

This report approved by

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### Note:

A version of this report is distributed via e-mail either as a WordPerfect or a text file. Please

contact **John Usher** (516-344-2096, Fax: 516-344-3957, E-mail: [usher@bnl.gov](mailto:usher@bnl.gov)) at Brookhaven National Laboratory to be placed on e-mail distribution. If you want to receive hardcopy, please contact John Usher who will make every effort to accommodate you.

Please feel free to use the other resources available on the DOE Chemical Safety Program homepage. The Internet address is [http://tis-hq.eh.doe.gov/web/chem\\_safety/](http://tis-hq.eh.doe.gov/web/chem_safety/).