**Chemical Occurrences - January, 1998**

**Class 1:**

None

**Class 2:**

**Sandia National Labs** - Four drums containing sodium hydroxide spilled off of a forklift. One drum ruptured releasing 350 pounds of NaOH. Apparently, the forklift operator was neither injured nor exposed.

**Other Occurrences of Note:**

Picric Acid at Hanford ** Perchlorate Salts at LANL ** Acid Fumes at Savannah River **

**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 will be 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. Only one report is included in this month's data with a "Discovery Date" in December 1997.

A search of ORPS for occurrences having chemical safety relevance conducted for the month of January 1998 produced 29 reports representing potential chemical safety concerns. These occurrences are listed in Attachment 1. There was one occurrence categorized as "Emergency" and two as "Unusual" with the remainder identified as "Off-normal". The Office of Environmental Management (EM) was Cognizant Secretarial Office (CSO) for 17 occurrences, Defense Programs (DP) had six, Nuclear Energy three, Energy Research (ER) two and Rad. Waste (RW) one. The CSO designation may change after the distribution of this monthly memorandum, and this change will be reflected in Quarterly and Annual Reviews.

There was one Class 2 occurrence reported during January. There were nine Class 3 occurrences. **(Class definitions)**

Among the Class 3 occurrences, in addition to those noted previously, was the discovery of a bulging waste container at Hanford. A painter may have been exposed to airborne lead at LBNL due to the fact that he was wearing his respirator over a full beard.

# Summaries of Class 2 Occurrences:

**Ruptured Drum of Sodium Hydroxide (DP):** (ALO-KO-SNL-1000-1998-0001) On January 26, a spill resulting in a release to the environment of approximately 350 lb. of sodium hydroxide occurred. Four 55-gallon drums of 50% sodium hydroxide solution were being transported on a pallet on a forklift and fell off the forklift. The containers fell when the forklift drove into a depression (~3" deep) in the pavement. The driver, who was aware of the road conditions, assessed the situation and drove the forklift in reverse to minimize the shifting of the load. However, all of the drums fell onto the ground. One was punctured and lost approximately half of its contents. A second drum had a slow drip from its cap, and two did not sustain damage. The liquid was contained within the recessed area of hard-packed

dirt. Though there was a significant potential for worker injury or exposure, there was no mention of any in the occurrence report.

# Other Occurrences of Note:

Hanford reported an "Emergency" occurrence (RL--PHMC-327FAC-1998-0002) when an Alert Level Emergency was declared after the discovery of a bottle labeled "Picric Acid" with dry solid material in it was discovered in a crawlspace off the basement of the 327 facility. The facility was evacuated. An Alert level Emergency was declared, and appropriate notifications were made. An incident command post was established and protective actions were initiated. An entry plan was developed and approved. Total quantity of dry picric acid is estimated to be 35 - 50 grams. It was determined that this quantity of picric acid, if detonated, would not result in a large enough explosion to compromise the facility. There was no large crystalline growth; the material appeared to be in powder form. There were no visible crystals around the plastic bottle cap. The material has been safely neutralized and disposed of.

At Los Alamos (ALO-LA-LANL-CMR-1998-0003), management determined that a worst case accident scenario involving perchlorate salts that had recently been found inside exhaust ventilation ductwork had not been analyzed through authorization bases. Perchlorate salts may form percussion explosives when combined with impurities and they are strong oxidizers that may promote fast burning fires involving materials such as the HEPA filter media inside an exhaust plenum. A USQD was determined to be positive and a USQ addressed the perchlorate hazards. It was determined that although an analysis specific to perchlorates was not included in the operations basis, subsequent perchlorate fire analysis does fall within the existing bounds of the worst-case fire scenario. The existence of perchlorate salts from fuming perchloric acid operations is a legacy problem in some ventilation plenums at Los Alamos. A concerted study has begun to quantify the problem, possible accident scenarios and finally consequences of said accidents.

At Savannah River (SR--WSRC-HCAN-1998-0003), there was a timely and appropriate response to an acid fume release. As a line break was made around a valve, a small orange plume was observed coming from the immediate area. The line break was closed immediately when the acid plume was noticed, and work was subsequently stopped pending further evaluation. Maintenance personnel were in acid suits and fresh air hoods during the performance this line break. Industrial Hygiene and Radiological Control Operations personnel were notified, and follow-up surveys of the affected area were performed to determine if any contamination and/or permissible levels for nitric acid fumes had been exceeded. Access to the affected area was controlled by barricade pending dissipation of the acid fumes. Soda ash was applied to neutralize any acid that was present in the leaked solution.

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) 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/.