

United States Government

Department of Energy

memorandum

DATE: March 15, 1996

REPLY TO:
ATTN OF: EH-53 (R. Sastry, 301-903-4664)

SUBJECT: Chemical Safety Concerns / Search of Occurrence Reporting and Processing System (ORPS)

TO: Distribution

Significant Occurrences

February, 1996**Class 1:**

None

Class 2:

[Los Alamos National Lab.](#) - employee potentially exposed to HCl fumes in excess of threshold limit value ceiling

Additional:

Two chlorine gas leaks were noted: one at the INEL and the other at LLNL. Evacuations took place at the Nevada Test Site (carbon monoxide) and at PANTEX (unknown acrid odor). Additionally, at the INEL, water sprayed on employees due to gas build-up in nuclear fuel storage canisters. There was also a potential USQ at the INEL involving an overheated storage drum containing uranium and nitrates.

These occurrences are further described below with additional information, including Occurrence Report (OR) numbers, provided in [Table 1](#).

. A search of ORPS for occurrences having chemical safety relevance conducted for the month of February 1996 produced 30 reports representing potential chemical safety concerns. These occurrences are listed in Table 1. Six occurrences were categorized as "Unusual" with the remainder identified as "Off-normal." The Office of Environmental Management (EM) was Cognizant Secretarial Office (CSO) for 11 occurrences as was the Office of Defense Programs (DP), Nuclear Energy (NE) and Uranium Enrichment (UE) each reported three, and Energy Research (ER) had two. The three UE occurrences and one of the NE occurrences took place at the Paducah Gaseous Diffusion Plant. In recent months there has been some confusion as to whether or not Paducah and Portsmouth are required to report to ORPS and are reporting consistently. There is also a question as to whether NE or UE is the CSO responsible for these facilities. The information presented in this report is based entirely on ORPS and the designated CSO is taken directly from the occurrence report. This CSO designation may change after the distribution of this monthly memorandum, and this change will be reflected in Quarterly and Annual Reviews.

In order to determine which chemical safety occurrences represent more important (significant) Levels of Concern, a classification scheme has been developed. The definitions of these Classes are as follows:

Class 1 Occurrences characterized by an injury or exposure requiring hospital treatment, or confirmed, severe environmental effect; also occurrences that had the potential to cause these effects with all safety barriers down, except, for example, that no one was nearby to be injured or exposed, or escaped in time, or the climatic conditions were favorable;

Class 2 Occurrences characterized by minor injury (first aid) or exposure, or minor environmental damage; also occurrences that were near misses (where one additional safety barrier remained to prevent consequences) to those in Class 1;

Class 3 Potential precursors to the occurrences in Class 1 or 2;

Class 4 Minor occurrences such as leaks, spills, or releases, which may be significant in their frequency of occurrence though not in their consequences.

There was one Class 2 reported during February. There were 17 Class 3 occurrences. Among the Class 3 occurrences, in addition to those noted previously, was a shutdown of NaK treatment at Argonne National Laboratory - West due to high transfer line temperature and pressure. PNNL reported a fire in a fume hood where flame sterilization was underway using ethanol. At Savannah River, potassium carbonate sprayed on an employee during a linebreak. Two UF₆ releases were discovered at Paducah. .

Summary of Class 2 Occurrence:

Possible Exposure to HCl Fumes (DP):: (ALO-LA-LANL-RADIOCHEM-1996-0004) On February 22, 1996, at Los Alamos, an employee may have been briefly exposed to airborne hydrochloric acid in excess of the threshold limit value ceiling of 5 parts per million (ppm). Preliminary medical evaluation indicates no impact to the employee's health. The incident began when a researcher who was heating a concentrated hydrochloric acid solution to dryness placed a 2-liter beaker containing the HCl solution on a hot plate in an ultra clean air work station with exhaust capability, and then left the room. A Radiological Control Technician (RCT) went into the room to perform radiological monitoring. He detected a strong chemical odor, and immediately exited the room. The RCT was transported to Occupational Medicine. An industrial hygienist obtained preliminary sample results indicating airborne HCl levels greater than 20 ppm in the room; the threshold limit value ceiling (TLV-C) for HCl is 5 ppm. The operation was secured. A critique was held. Following the critique, facility personnel inspected the sub-floor ventilation system that draws air down from the work station through a scrubber and to the stack. Preliminary indications are that the fan for the system is not operating properly.

Additional information regarding these occurrences and others will be discussed in an upcoming Quarterly Review. As occurrence reports are finalized, lessons learned will be communicated.

[Signature of]

Rama Sastry
Office of Field Support

Attachment: [Table 1](#)

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