

Guidance for Chemical Occurrence Reporting

Chemical occurrence reporting covers all accidents and incidents that result from the use, storage, transportation, and disposal of chemicals. Where a chemical incident occurred as a consequence of a non-chemical precursor accident or incident, the chemical occurrence reporting should focus on the chemical portion of the event. For example, during repairs a heavy wrench along with a 5 ft section of 3-inch pipe fell 20 ft to the ground and 2 quarts of oil discharged to the ground. It's a "near-miss" as far as worker safety goes, but not for chemical safety. As with past reporting practices, criticality and nuclear safety occurrences*, radioactive contamination, and radiation exposure incidents are not included under chemical reporting. Safety violations and minor events that contribute to potential radiological exposure and contamination and near misses in those areas are also unreported*. However, the "chemical effects" of radioactive elements or compounds need to be considered. For example, uranium powder self-igniting or uranium nitrate reacting with combustible materials are chemical in nature and should be reported. Chemical occurrences include exposures to common carcinogens like asbestos, toxic substances such as pesticides, and caustic and corrosive materials, e.g., liquid bleach. They include releases of other everyday materials, e.g., petroleum oil, diesel fuel, and gasoline.

The following set of criteria is used for categorization of chemical accidents and incidents:

Class 1: Occurrences characterized by a serious energy release, an injury or exposure requiring medical treatment beyond first aid, or by severe environmental damage. Subclasses: 1A - chemical injury, 1B - chemical exposure, 1C - environmental, 1D - serious energy release

Class 2: Occurrences characterized by minor injury (first aid), exposure above DOE limits (i.e., PEL, TLV), or reportable environmental release (i.e., notification required to appropriate City, State and/or Federal Agency). Subclasses: 2A - chemical injury, 2B - chemical exposure, 2C - environmental

Class 3: Occurrences that were near misses from being classes 1 or 2. No one was nearby to be injured or exposed or escaped in time. Spills/releases of chemicals which did not escape from a building/secondary containment to affect the environment because the environmental / operating conditions were favorable. Occurrences where there were potentials for asphyxiation from inadvertent releases, e.g., from large fixed carbon dioxide and Halon systems and for explosion, e.g., from unwanted combustible gas, vapors or shock sensitive chemicals. Included would be violations of authorization bases / technical safety requirements (TSRs) / operational safety requirements (OSRs) involving chemicals, inadequate analysis for chemical safety, un-reviewed safety questions (USQs) due to potential chemical and explosive hazards in facility or process operations, and non-conformance to OSHA/EPA RMP requirements for threshold quantities of chemicals. Subclasses: 3A - chemical injury, 3B - chemical exposure, 3C -

environmental, 3D - energy release, 3E - other. A class 3 incident may incorporate multiple subclasses.

Class 4: Minor occurrences that are contributors to possible injury, chemical exposure, environmental threat, and energy generation such as non-conformity with chemical safety practices / regulations, e.g., storage requirements, and non-compliance with environmental procedures. Included would be occurrences such as small leaks, spills, or releases, which may be significant in their frequency of occurrence, though not in their consequences and other issues not addressed by the other classes. Subclasses: 4A - chemical injury, 4B - chemical exposure, 4C - environmental, 4D - energy release, 4E - other. A class 4 incident may incorporate multiple subclasses.

** Nuclear safety, criticality safety, and incidents involving lost nuclear sources, improper packaging or transportation of nuclear/radioactive waste/materials, spills of radioactive wastes to outfalls, etc. have been included as these types of occurrences may be thought of as 'specialized' chemical occurrences. Those incidents are included under subclass E and denoted by "N".*

Examples of chemical occurrences with combinations of subclasses:

3AD – Rupture of a pressurized natural gas line.

3BC – USQ involving tanks of hydrochloric acid and trichloroethane.

3ABCD – A near-miss occurrence where a chemical reaction ruptured vessel spilling its contents.

4AD – Procedure violation for handling small quantity of explosives or discovery of small amount of shock sensitive chemicals.

4BC – 8 pounds mercury spill on ground.

4ABCD – Prohibited flammable and hazardous materials on truck delivering inert gases to facility.