EMERGENCY RELEASE REPORTING REQUIREMENTS FOR ANHYDROUS AMMONIA REFRIGERATION FACILITIES.

Most facilities that utilize anhydrous ammonia for their refrigerant are aware that they must report emergency releases of anhydrous ammonia to various regulatory agencies. However, they are often confused as to the specific requirements to which they are subject.

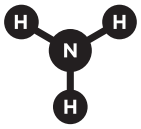
THIS article will try to clarify these requirements and offer some guidance for compliance with these regulations. The two primary regulations that govern release reporting are the Emergency Planning and Community Right to Know Act, otherwise known as EPCRA, and the Comprehensive Environmental Response, Compensation, & Liability Act, otherwise known as CERCLA.

EPCRA was passed in 1986, as part of the Title III Superfund Amendments and Reauthorization Act (SARA) in response to concerns that were raised by the methylisocyanate release in Bhopal, India, that killed several thousand people. These concerns centered on the potential safety and environmental hazards that could result from the storage and handling of toxic chemicals. It includes requirements for annual reporting (EPCRA Section 312) of the

locations and the amount of hazardous chemicals present at your facility during the previous calendar year to state and local emergency officials. These requirements, known as Tier II submissions, were detailed in an article in the Breeze last year. It also includes annual requirements for reporting releases and usage (EPCRA Section 313) of toxic chemicals at your facility during the previous calendar year to state and local emergency officials. These requirements, known as Form R submissions, are outside the scope of this article. The section of EPCRA that this article will focus on is Section 304, which details the emergency notification requirements upon discovering a reportable release of toxic chemicals.

Before we look at the EPCRA reporting requirements, it is important to discuss CERCLA. CERCLA, otherwise known as Superfund, was enacted by Congress in late 1980. The law allowed the Federal Government to tax chemical and petroleum facilities as a result of chemical releases to provide funding for cleaning up abandoned or uncontrolled hazardous waste sites. It was passed in response to the national attention received when toxic waste dumps such as Love Canal and Valley of the Drums came to light. In addition to the compensation and liability regulations, CERCLA also includes provisions for emergency response to hazardous chemical releases. With the passage of SARA, CERCLA was amended to align with the newly created EPCRA regulations regarding emergency notification of releases.

So, what is required for emergency notification of chemical releases? First, the facility needs to identify any chemicals that they use or store on-site and determine if they are listed under EPCRA and CERCLA. These lists of chemicals are found in Appendix A or B of 40 CFR part 355 for EPCRA and in Table 302.4 in 40 CFR Part 302 for CERCLA. Ammonia is listed in both regulations as having a reportable quantity of 100 pounds. Note that the threshold planning quantity of 500 pounds for ammonia under the EPCRA regulation sets the threshold for submitting Tier I & Tier II information.



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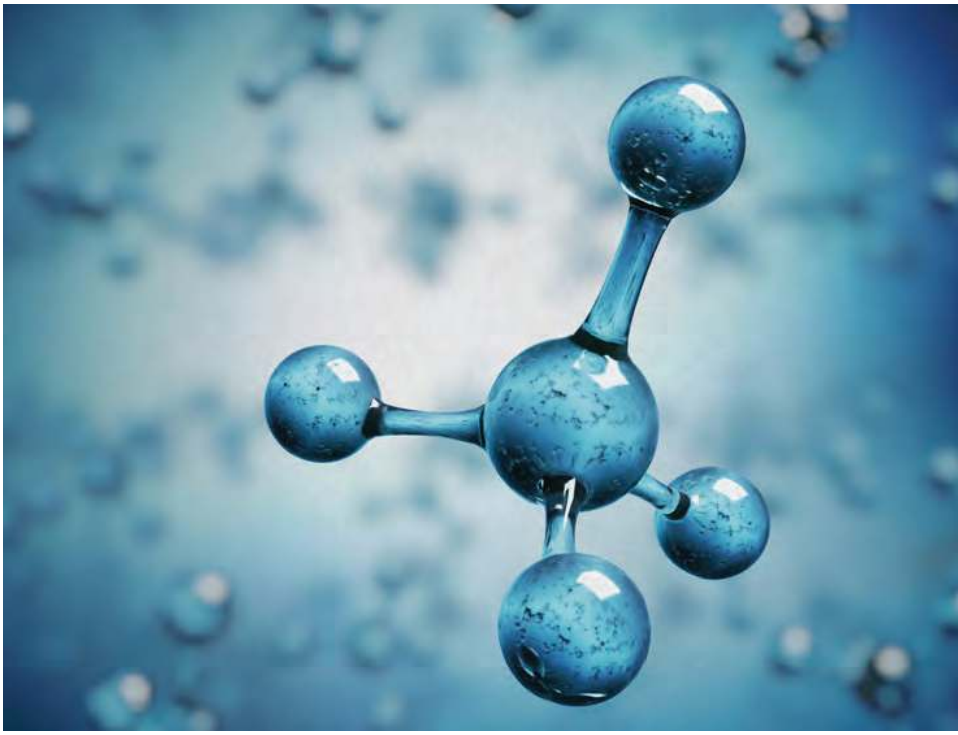
Now that we have the threshold quantity for reporting releases, we have to determine if this is the total released, or within a certain time frame. Section 302.6(a) under CERCLA states that "Any person in charge of a vessel or an offshore or an onshore facility shall, as soon as he or she has knowledge of any release (other than a federally permitted release or application of a pesticide) of a hazardous substance from such vessel or facility in a quantity equal to or exceeding the reportable quantity determined by this part in any 24-hour period, immediately notify the National Response Center (1-800-424-8802; in Washington, DC 202-267-2675; the facsimile number is 202-267-1322)." Section 355.33 under EPCRA states that the release of a reportable quantity (RQ) of an EHS or CERCLA hazardous substance within any 24-hour period triggers the emergency release notification requirements. So, the 100 pound release is actually a rate of 100 pounds in 24 hours under both regulations.

Now that we know the release rate that triggers the emergency notification, we have to determine whom we have to notify and within what time frame. CERCLA is clear. If 100 pounds or more of anhydrous ammonia is released within 24 hours, then the National Response Center (NRC) must be notified (800-424-8802) immediately upon becoming

aware of the release. The challenge is coming to grips with the word "immediately." While there is no definition of immediately in the regulations, it has been determined through litigation that immediately is accepted as "within 15 minutes of becoming aware of the release."

Under EPCRA, if the RQ of ammonia is exceeded, then the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC) for the facility location must be notified. Section 355.43(a) states, "You must provide the required emergency release notification information described under §355.40(a), immediately." Note that the EPCRA regulation also uses the term "immediately." The challenge to the EPCRA rule is that the creation and administration of the SERCs and LEPCs were delegated to the states. What this means is that each state has differing requirements for notification. Some even have lower thresholds for notification.

For instance, the state of California requires that the Local Emergency Response Agency, often the local Fire Department or 911, the Local Unified Programs Agency, or UPA, and the California Governor's Office of Emergency Services be notified of all significant spills or threatened releases of hazardous materials. It is up to a facility in California to work with their UPA to determine specifically what releases need to be reported at the local level. In Minnesota, notifications are made to 911 if there is danger to life or property and all reportable spills (MN uses the Federal threshold of 100 pounds in 24 hours) must be reported to the Minnesota Duty Officer. In Massachusetts, the threshold for reporting an ammonia release is 10 pounds released in 24 hours. If this threshold is exceeded, then the facility must notify 911 and the Massachusetts Department of Environmental Protection. These examples serve to reinforce the need to perform some legwork and develop proper reporting procedures BEFORE a release occurs.



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So, how does one determine if the release has exceeded the threshold? Often, this is extremely difficult, and with the immediate notification requirement, there is no time to measure parameters and perform calculations. Many facilities choose to report ALL releases of ammonia to the regulatory agencies. While this will ensure that no fines will be levied for not reporting required releases, it will potentially increase regulatory scrutiny. Often, facilities will choose to create criteria to minimize over reporting of small releases that do not meet the threshold, but ensure that virtually all reportable releases are reported properly. For example, the following criteria could be used to cover the Federal threshold for reporting:

- Is there a measured PPM over IDLH or PPE limits, whichever is lower (around the filter cartridge)
- Is there a pool or spray of liquid NH3?
- Is there a visual vapor cloud of NH3? (Note that wisps from a valve packing do not constitute a cloud)
- Did a safety relief valve lift, releasing NH3 to atmosphere? (This is often the most likely cause of the public reporting a smell of ammonia, and if is often very difficult to gauge the release amount unless someone was standing in view of the safety relief valve when it lifted.)
- Did the leak of NH3 occur in a condenser? (This type of release is usually well over 100 pounds but it is often difficult, if not impossible to determine a rate of release.)

- Did the leak of NH3 last longer than 30 minutes?

The time that a leak would have to continue to be reportable would be determined by the typical release rate seem through leaking flanges, valve packings, and pinholes that are most likely to occur in our system. A rate of more than 0.07 pounds per minute will exceed 100 pounds in 24 hours, so the longer the leak goes on, the more likely it will exceed the threshold. For example, a 1/16" diameter pinhole in a hot gas line at 150 psig will exceed 100 pounds in just over 4 hours. A 1/16" diameter pinhole in a high pressure liquid line at 100 psig will exceed 100 pounds in just over 1 hour, even when flashing occurs. When flashing does not occur on the 100 pound liquid line described above due to sub-cooling, it will only take 15 minutes to exceed 100 pounds.

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There is another, relatively new, regulation that potentially triggers an additional reporting requirement for emergency releases of anhydrous ammonia. 40 CFR Part 1604 was published in the Federal Register on February 21, 2020. It details reporting requirements of significant releases of toxic or flammable chemicals to the U.S. Chemical Safety Board (CSB). This regulation applies to any substance that may cause death, serious injury, or substantial property damage. The facility, upon experiencing a release that causes death, inpatient hospitalization, or property damage in excess of $1 million, must notify the CSB. If the NRC is notified of the release, then the facility must notify the CSB within 30 minutes of contacting the NRC. If the NRC is not notified of the release due to not meeting the CERCLA threshold for the chemical, but death, serious injury, or significant property damage has occurred, then the facility must notify the CSB within 8 hours of the accidental release.

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