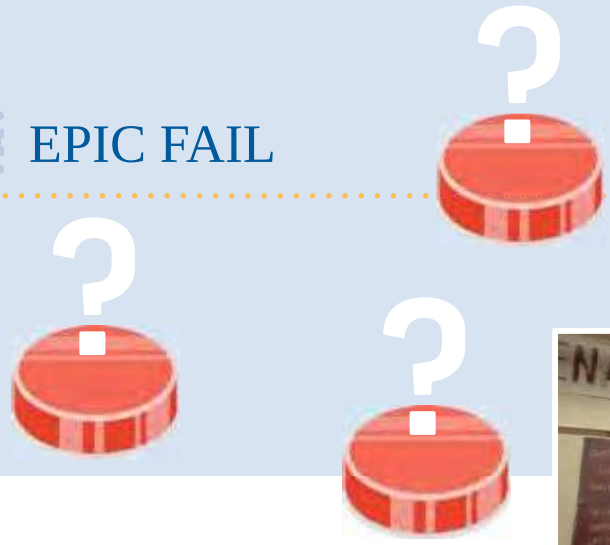

UNKNOWN CONTROLS

FIGURE 1

FIGURE 2

FIGURE 3

Awhile back, I was helping a facility prepare for an upcoming OSHA audit. During a tour of their facility, I stopped outside the maintenance shop and observed some control switches as shown in Figure 1. The one on the left indicated that it was the Emergency Ammonia Shut Down. The one on the right was unmarked.

I enquired as to the function of both switches. The facility manager THOUGHT that the left button shut down the refrigeration system, but had no idea what the one on the right did. So, we arranged to test them. Upon testing them, we discovered that the break glass switch to the right of the door actually shut down the ammonia system, while the push button switch on the left side of the door merely closed the automatic King Solenoid Valve. After determining this, we made a quick labeling change as shown in Figure 2.

"Now," I said, "What about the break glass switch panel outside of the Boiler Room adjacent to the opposite side of the Machinery Room?" Their response? "What Break Glass Panel?" The panel in question is shown in Figure 3. When we opened up the panel, no wires had ever been pulled to it, much less connected.

So, the moral of this story is that IIAR6, the Standard for Inspection, Testing, and Maintenance of Closed-Circuit Ammonia Refrigeration Systems from the International Institute of Ammonia Refrigeration (IIAR) states in Chapter 12 that The following must be checked on a semi-annual basis:

1. Visually inspect the emergency shutdown switch for damage
2. Visually inspect for proper installation of signage

On an annual basis, the following is to be checked:

1. Functionally test the emergency shutdown switch

Based on the results of our little inspection and testing, it is safe to say that none of these were being done. Now you might ask, "When was this discovered?" It was discovered in 2014, well before IIAR6 was published. However, Bulletin 110, Start-up, Inspection and Maintenance of Ammonia Mechanical Refrigerating Systems, also from IIAR, states in Appendix D.5 that "regular tests of the effectiveness of detection and isolation systems should be made at intervals not exceeding three months." If one were to argue that that was referring to electrical isolation systems that were called out in Bulleting 110, one only has to look to Section 6.6.4 of Bulletin 110 to see that it called out that "at least annually, safety cutouts shall be tested." So we can see a number of epic fails with this one:

1. No documentation of the function of the safety switches
2. Lack of training on the proper operation of the safety switches
3. Lack of proper labeling of the safety switches
4. Lack of inspection and testing of the safety switches

This particular set of Epic Fails is low hanging fruit for an auditor or a regulator. However, avoidance of fines should not be our primary reason for avoiding these Epic Fails. We should be avoiding these Epic Fails in order to keep our employees and the public safe. I encourage everyone who is responsible for operating or maintaining an ammonia refrigeration system to look at the above list of Epic Fails and honestly evaluate how well your facility has done addressing them.

If you have photos of an Epic Fail please pass them on to nh3isB2L@gmail.com.

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