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Process Safety Beacon
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Messages for Manufacturing Personnel

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Are your alarms alarming?

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Image 2 labels: From Process; To Scrubber; Vent Line to Roof; Weep hole; Rupture Disc

Image 3 labels: Vent line to roof; Rupture disc; Drain line; Weep hole
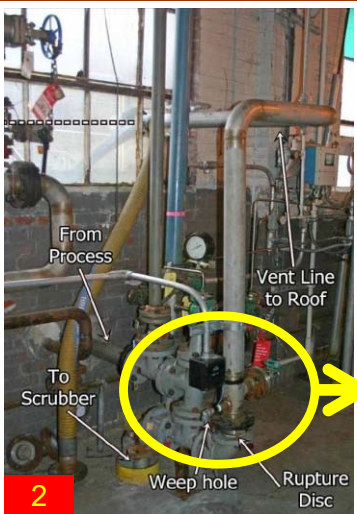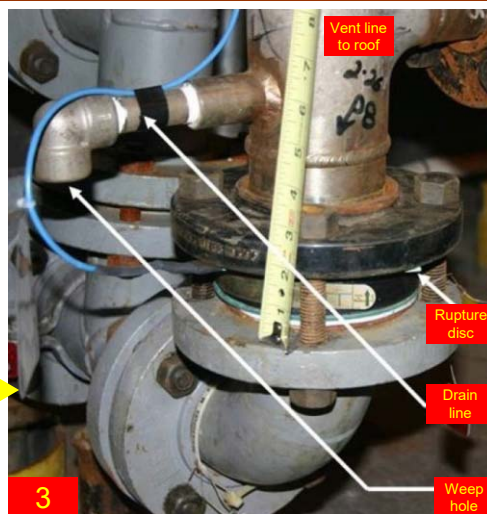
Do you know Aesop's Fable "The Boy Who Cried Wolf"? A shepherd boy repeatedly tricked villagers by calling for help because a wolf was attacking the sheep, when there was no wolf. After a while, the villagers ignored the boy. One day there really was a wolf (1). When the boy cried for help, everybody assumed it was another false alarm. Nobody came, and the wolf had a sheep dinner. In some English versions of the fable from the 15th century, the wolf also ate the boy – perhaps an appropriate analogy for the potential consequences of ignoring alarms in the process industries!

Do you have alarms in your plant which are unreliable, frequently giving a "false alarm" because of faulty sensors or because they are set too close to normal operating conditions? Would you notice if one of these unreliable alarms warned of a real, important deviation which requires action? Or, do you have "nuisance alarms" which indicate minor process deviations which do not require any response? If you get a lot of these, you might fail to notice a "real" alarm!

The US Chemical Safety Board (CSB) investigated a 2010 incident at a plant in West Virginia in which an alarm was ignored resulting in a chemical release into a process building (2 and 3). A rupture disc on a reactor containing methyl chloride, a toxic and flammable gas, burst releasing methyl chloride to a vent line. The rupture disc was designed to provide an alarm when it burst, and this alarm worked. However, there was a history of false alarms, signaling a burst disc when it was actually intact. Operators were not aware that the device had been upgraded, and assumed it was another false alarm. There was a drain line with a weep hole on the vent, inside the process building. Methyl chloride was released through the hole into an area of the process building where people were not frequently present. The release went on for 5 days before a gas detector designed for another chemical was triggered. It is estimated that about 2000 pounds (900 kg) of methyl chloride was released.

What can you do?

➢ Never ignore safety alarms. Safety alarms should have specific response procedures, and you should always follow these procedures. Make sure you understand the response procedures and have been trained on them.

➢ If you have nuisance alarms, especially safety alarms, which "chatter" or remain in the alarm condition, report the problem to your instrument and automation engineers and management and work with them to fix the problem.

➢ If you have alarms that do not require a response, work with your engineers and management to eliminate them. Do not change alarm set points unless authorized.

➢ Make sure that any changes to alarm design and equipment, alarm set points, or alarm response procedures, are thoroughly reviewed using your plant management of change procedure. This includes informing all affected people about the change, and training on any modified procedures resulting from the change.

Don't ignore safety alarms – there might really be a "wolf"!

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