March 2009

Flood Damaged Regulators and Valves

Introduction

Periodic flooding of regulators, relief valves and other gas control devices can create a potentially hazardous condition in Natural Gas or industrial plant systems both during the flood and long after the floodwaters have receded. To prevent serious accidents and personal injuries, any equipment covered by floodwaters should be replaced. An accident could result if the product should eventually fail either during the flood or at some length of time after the floodwaters have receded.

Regulators

Floodwaters that cover regulators can result in potential hazards such as:

1. Increased pressure caused by the height of the water adding additional force to the topside of the regulator diaphragm and thus raising the outlet pressure. This can occur when the regulator is covered and the appliances are not flooded and thus still operational. This can also occur after floodwaters have receded and if the regulator is installed so that water inside the spring case cannot drain out.
2. Dirt and debris settling into the spring case and restricting diaphragm movement or preventing the relief valve from opening if needed.
3. Floodwaters that enter the atmospheric side of the regulator spring case or relief valve subject the elastomers and metal parts to a mix of water and unknown chemicals which can result in diaphragm and other rubber part deterioration and internal part corrosion. This ultimately can result in regulator failure months or years after the flood.

Internal damage will not be noticeable by looking at the exterior of the regulator. The regulator's outside appearance may not give any indication of the internal damage. Therefore it is safest to replace the regulator.

Relief Valves and Other Equipment

Other valves, such as relief valves, shutoff valves and regulator pilots, as examples, can be contaminated by the dirt and sediment that may settle into working parts, get trapped under caps and relief valve rain caps and stacks.

If this debris hardens it can prevent relief valves from opening.

Customer Gas Lines

When replacing regulators, the gas lines should be thoroughly cleaned and blown out to ensure that water and contaminants do not enter the regulator and customer appliance controls.

Product Repair or Refurbishment

While the best alternative is equipment replacement, at minimum, regulators, relief valves and other gas control equipment that have been exposed to flood waters must be disassembled, cleaned, and refurbished. For refurbishment all rubber parts, plastic parts, and springs must be replaced along with any metallic parts showing evidence of corrosion. Equipment that has been reconditioned in this manner must be placed on accelerated preventative maintenance schedules to monitor for corrosion from floodwater exposure. If corrosion is found at a later date, the refurbished equipment must be replaced.

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Flooded Equipment

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