

Pumping Related Hazards – Part 2

As previously mentioned in this series of articles, pumps are not considered to be dangerous pieces of equipment but they become hazardous if operating guidelines are not followed. In Part 1, we looked at an incident where a pump running in an Ammonium Nitrate service exploded due to overheating in the seal chamber.

Incident #2

A slurry pump had the habit of clogging up with sand from time to time. When this happened, the operators would shut it down, clear out the inlet lines, and start it back up. In this case, the operator was not paying attention fully, and allowed the lines to clog completely, so that there was no fluid entering the pump. He allowed the pump to continue to run while he cleared the inlet line of sand.

What he didn't know was that while the pump was allowed to run, the impeller was spinning in a significant volume of sand which had built up inside the case. The friction of the impeller running in sand caused the pump case to get extremely hot. When the operator restored the flow of fluid into the pump, the water hitting the overheated case flashed to steam, and blew the case off the front of the pump. The errant case hit a building I-beam, denting it, before rolling off. Luckily, no one was hurt.

Lesson to be learned

When the process is running, conditions should be constantly monitored, and upsets need to be addressed before they become problematic. Also, any time work needs to be performed on a pump or on the process, make sure to shut down the process equipment.

Incident #3

One customer had been using a pair of pumps in a parallel configuration to pump a hot caustic solution for years. Normally, when one pump was running, the other was isolated from the process piping by closing a valve on the discharge piping. In this instance, the isolation valve was inadvertently left open by the operator when he turned the system on.

This would normally not cause a problem other than pressurizing the unused pump and inlet line. As later investigation would show, when the pump had been previously rebuilt, a sealing o-ring had not been properly placed in its o-ring groove, crushing the o-ring, and compromising the seal. As the pump case pressurized, the hot caustic solution began to spray from the damaged o-ring area. The operator was hit by the hot caustic solution, and required medical attention.

Lesson to be learned

In this case, two mistakes were made: not properly installing the o-ring and failing to close the isolation valve. Either condition on its own would not have resulted in a hazard, but the combination proved dangerous. When working on pumps, take care to insure that all components are properly installed and in the correct location; it's worth taking the time to double-check before moving on.

These incidents illustrate the importance of following proper guidelines for operating and maintaining industrial process pumps. For official Wilfley recommended procedures, please review the IOM manual for your pump.

Wilfley prides ourselves on almost 100 years of pump knowledge and expertise. Contact your local Wilfley representative today to learn more about how we can help tackle your difficult pumping applications.