

It's a bird, it's a plane, it's.....A PUMP!**The Incident**

A 75 HP centrifugal pump was operated with both suction and discharge valves closed for about 45 minutes. It was believed to be completely full of liquid. As mechanical energy from the motor was transferred to heat, the liquid in the pump slowly increased in temperature and pressure until finally - the pump failed catastrophically. One fragment weighing 5 pounds was found over 400 feet away. Luckily, no one was in the area so there were no injuries.

Why would events such as this happen?

- This situation is different than operating a pump “deadheaded” – where the suction valve is open but there is no flow through the pump. Here, pressure relief occurs back through the pump suction line.
- In the past, this event likely would have ended with a seal failure - seal leakage would have been sufficient to relieve the pressure. New seal designs are significantly improved. This older “relief system” can no longer be counted upon.
- As processes have become more automated it is now much easier to accidentally start a pump or operate the wrong valve.
- Spare pump arrangements can also be a problem if the “incorrect” pump is started. For example, the “north pump” has valves aligned for operation but the “south pump” is started.

What can I do?

- If you discover a “blocked in” pump in operation, use extreme caution. Shut the pump down remotely; keep people FAR away until it has cooled.
- Use care when starting pumps. Communication about which pump is valved for operation must be very clear.
- Some plants try to have an individual near the pump when it is started. This may not be possible in all situations, but it can eliminate many problems.
- If possible, open the casing drain on a pump that will be out of service for an extended period. But, check to make sure you are not creating another problem (environmental, cost, etc) by doing so!
- And, a routine tour of a manufacturing area can identify many things – a blocked in pump operation is just one of them!

Pumps move liquids for us everyday, but they can also generate heat – a significant hazard if it has no place to go!