CCPS CENTER FOR CHEMICAL PROCESS SAFETY 20 YEARS
An AIChE Industry Technology Alliance

Process Safety Beacon

http: //www.aiche.org/ccps/safetybeacon.htm

Messages for Manufacturing Personnel

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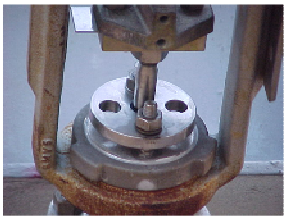
April 2006

Mechanical Integrity

BEFORE

The flange on the left is badly corroded and the bolts are in very poor condition - a leak waiting to happen. Fortunately, the poor condition was noted during a plant inspection and the flange was replaced (as shown on the right).

The picture on the left shows a corroded control valve. Could you count on this valve to operate when you need it? The picture on the right shows the replacement valve, which, if properly maintained and tested, is much more likely to function correctly when needed.



AFTER

This picture shows an improvised pipe support made from scaffolding, springs and clamps.

Did you know?

- In 2004, process safety incidents reported to the Canadian Chemical Producers Association indicate that 25% were caused by problems with process equipment mechanical integrity.
- Further analysis of the same data shows that mechanical integrity failure is a cause of up to 50% of the incidents in several years between 1998 and 2003.
- ALL OF US are the first line of defense for plant integrity issues like the ones shown here. We are in the plant every day and have the opportunity to see and report these problems.

What You Can Do

- Plan regular plant tours to look for mechanical integrity problems – such as corroded equipment, piping and valves, inadequate piping support, small drips or wet spots around flanges.
- Listen as well as look! For example, does that pump sound different? If so, perhaps maintenance should check it in case there is something wrong.
- But, don't wait for "official" plant safety tours and inspections. Be constantly aware of visual and other signs of equipment mechanical integrity problems.
- If you see or hear something that concerns you, report it promptly and follow-up to make sure steps are taken to correct the situation.

"You can see a lot just by looking!" (Yogi Berra, New York Yankees)

The Beacon is usually available in Arabic, Chinese, Dutch, English, French, German, Hebrew, Hindi, Italian, Japanese, Korean, Portuguese, Spanish, and Thai.