

# Centre for Chemical Process Safety: CCPS Process Safety Beacon

*As most of us know, CCPS is an important part of the American Institute of Chemical Engineering. The Beacon is published monthly. Below is some essential information about it. If you are not yet a registered reader, we recommend that you become one.*

## ***What is the Beacon?***

The CCPS Process Safety Beacon is a resource aimed at delivering process safety messages to plant operators and other manufacturing personnel. The Process Safety Beacon is sponsored and produced by [CCPS](#). The monthly one-page *Process Safety Beacon* covers the breadth of process safety issues. Each issue presents a real-life accident, and describes the lessons learned and practical means to prevent a similar accident in your plant. With an estimated distribution of around a million, the Beacon is CCPS' most widely read publication. To see a sample edition of the Process Safety Beacon, [click here](#).

# Register for the Beacon

Help us bring a process safety message to an even larger world wide audience each month by encouraging your colleagues to register at <http://www.aiche.org/apps/ccps/safetybeaconfrm.asp>. Registration is quick and easy. After you register, the Beacon will be sent to you FREE each month via email. During the registration process, you may choose to receive the Beacon in as many of the available languages as you wish.

Teng Chong Seng has provided us information from the May, August and September 2009 issues of the Beacon.

To give you some idea of what the Beacon looks like, here is the May issue in half-size.



Center for Chemical Process Safety

## Process Safety Beacon

<http://www.aiche.org/CCPS/Publications/Beacon/index.aspx>  
Messages for Manufacturing Personnel

Sponsored by  
CCPS Process  
Safety Incident  
Database (PSID)

May 2009

### Mechanical Integrity





A compressed air tank failed, blowing the bottom off of the tank (1) and sending fragments flying into a concrete wall, puncturing the wall (2). Investigation following the incident revealed several serious problems with the condition of the tank, including severe corrosion and rust at the bottom of the tank (3), where it failed, and an improper weld repair (4) which had been made to the tank at some time in the past. Although the weld repair did not contribute to this incident, it is a symptom of improper maintenance and inspection, and could have caused a tank failure. Fortunately, nobody was in the area when the tank failed, and there were no injuries.

### What can you do?

- Look at vessels, piping, and other equipment as you walk through your plant, and report anything which appears to be corroded or improperly maintained. Include visual inspection of piping, vessels, compressed gas cylinders, and other equipment in routine safety inspections. Follow up and make sure that problems are corrected.
- Understand the equipment inspection and maintenance program in your plant, and understand your role in ensuring that all activities are completed as required.
- When you do mechanical work that requires removal of insulation from equipment, take the opportunity to look at the condition of the equipment and report any corrosion or other problems that you observe. Corrosion under insulation may be hidden, but mechanical work which requires removal of the insulation provides an opportunity to observe problems.
- Make sure that all welds and other repairs follow all required standards, and meet the original design specifications for the equipment.
- Assure that all pressure vessels in your plant, including portable tanks and tanks which are a part of "packaged systems" (for example, compressors, refrigeration units, compressed air systems, etc.), are included in the plant mechanical integrity inspection program and are being inspected by qualified pressure vessel inspectors. This may include inspection for internal corrosion at an appropriate frequency.
- Make sure that compressed air tanks and other portable compressed gas cylinders are stored in dry locations to prevent external rust and corrosion.

**Watch out for damaged or corroded equipment!**

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The Beacon is usually available in Afrikaans, Arabic, Chinese, Danish, Dutch, English, French, German, Greek, Gujarati, Hebrew, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Malay, Marathi, Norwegian, Persian, Portuguese, Russian, Spanish, Swedish, Tamil, Thai, Turkish, and Vietnamese.

The May article is about the failure of a pressure vessel – a compressed air tank. It reported that several serious problems existed with the tank, including severe corrosion and rust at the tank bottom. In addition, the article illustrates what can happen when a good mechanical integrity program is not in place.

The article in the August issue highlights the danger of underestimating chemical hazards even when a chemical is used in small quantities. It describes an accident in a lab. Initial investigation of the incident found that the student had not been properly trained on the transfer procedure, and was not wearing the proper clothing and personal protective equipment. The chemical that was released, splashed onto the student, caught fire and burned her clothing. She suffered serious burns and died of her injuries several weeks later.

In September the article focused on a tank farm fire. It was traced to a tank overflow of a flammable material that was then ignited. The lesson here is that operators had to be alert to the hazards around them and for systems to be in place to minimize the risks. For instance, both the tank level gauge and the high level alarm had failed. Questions, about the correct balance of instrumentation redundancy, instrumentation reliability and using administrative control in combination with automatic systems to increase the protection level, had to be answered.