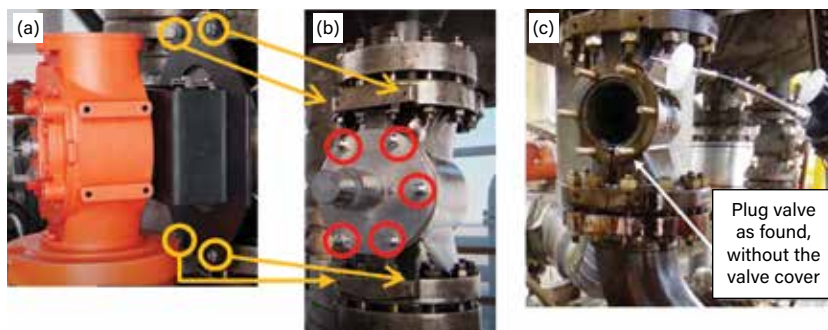


## Knowing “Why” Makes Tasks Safer

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**▲ Figure 1.** When three workers were removing a valve actuator (a), they inadvertently removed pressure-retaining components (b), shown here with the removed bolts circled in red. (The bolts that held the actuator in place are circled in yellow.) This caused a massive pressurized release of a corrosive mixture and the deaths of two workers. After the event, the valve was found without the cover or necessary bolts (c) (1).

In 2021, three contract workers at a facility in La Porte, TX, were removing the actuator from a plug valve (Figure 1a). This was being done so that the valve could be used as an energy isolation device for a piping repair job. When they removed the actuator, the workers inadvertently removed pressure-retaining components on the valve (Figure 1b), and the pressure ejected the plug from the valve body (Figure 1c). Approximately 164,000 pounds (74,390 kg) of a corrosive and toxic mixture of glacial acetic acid and methyl iodide erupted from the open valve body. All three contractors were sprayed with the mixture. Two of the workers were fatally injured. Another contract worker and a company responder were seriously injured. Twenty-nine other people were transported to medical facilities for further evaluation and treatment (1).

A similar incident occurred in Baton Rouge, LA, in 2016. That incident caused a release of isobutane, which ignited and severely burned four workers (see Process Safety Beacon, CEP, Dec. 2021, p. 18).

These incidents had three common factors:

- Contractors or operators did not have a procedure for removing the actuator.
- Contractors or operators were not trained on removing the actuator.
- Other workers were present and assisting with the removal who could have pointed out that the wrong bolts were being removed.

1. U.S. Chemical Safety and Hazard Investigation Board, “LyondellBasell La Porte Fatal Chemical Release,” CSB report No. 2021-05-I-TX, Washington, DC (May 25, 2023).

### Did You Know?

- All critical tasks require a procedure.
- Maintenance and operating procedures need to be written so that they are easily understood by those who will be using them.
- Critical procedures require the user to have the procedure with them at the location when performing the task.
- Training should require the trainees to demonstrate their understanding and prove that they can perform the task correctly.
- To increase the probability that a task will be performed correctly, it is important that the trainees understand why the procedure needs to be performed in the specified way.

### What Can You Do?

- If there isn't a procedure, stop work immediately and review how to complete the task safely.
- When you develop or review procedures for hazardous or critical operations, use diagrams and pictures to highlight key risk factors.
- Checklists with a sign-off make procedures more effective.
- Clarify questions with your supervisor when instructions are not clear.
- During training, ask questions to understand why a task is performed in a specific way.
- When training others, take the time to explain how a critical task should be performed and why. Be sure to patiently answer questions.
- When reviewing or revising procedures, take them to the work location to verify that the procedure matches the field conditions.

Combining training, procedures, and comprehensive process understanding equals success.