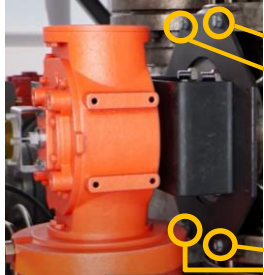
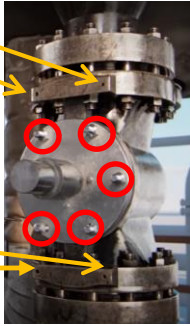


Ketahui “mengapa” membuat pekerjaan lebih selamat

April 2025



Gambar 1. Penggerak valve dengan kedudukan menggunakan baut



Gambar 2. Mur dan baut di valve bertekanan



Gambar 3. Valve setelah insiden

Pada 2021, tiga pekerja kontraktor di **La Porte, Texas**, sedang memindahkan penggerak (*actuator*) dari *plug valve*. *Actuator* perlu dipindahkan sehingga valve bisa diisolasi untuk pekerjaan perbaikan pipa. Ketika *actuator* dipindahkan, pekerja tidak sengaja memindahkan juga komponen penahan tekanan sehingga *plug* terlepas keluar. Sekitar 164,000 pounds (74,545 kg) campuran *glacial acetic acid* dan *methyl iodide* yang korosif dan beracun menyembur dari dalam valve. Ketiga kontraktor terpapar cairan tersebut. Dua orang meninggal dunia, dan satu lagi cedera serius. 29 orang lainnya memerlukan perawatan medis. (*referensi: CSB report No. 2021-05-I-TX*).

Insiden serupa juga terjadi di **Baton Rouge, LA** pada 2016. mengakibatkan pelepasan *isobutane* yang terbakar dan menyebabkan luka bakar serius kepada empat pekerja. (*referensi CSB report No. 2016-02-I-LA and CCPS Beacon, December 2021*).

Kedua insiden memiliki tiga kesamaan :

1. Kontraktor atau operator tidak memiliki prosedur untuk memindahkan *actuator*.
2. Kontraktor atau operator tidak dilatih untuk memindahkan *actuator*.
3. Pekerja lain ada di sekitar area kerja untuk mendampingi pemindahan *actuator* yang bisa menunjukkan baut mana yang seharusnya dilepas.

Tahukah Anda?

- Semua pekerjaan kritikal memerlukan prosedur.
- Prosedur pemeliharaan dan operasional harus tertulis sehingga mudah dipahami bagi yang akan melakukan eksekusi di lapangan.
- Prosedur-prosedur kritikal harus digunakan oleh pekerja di lokasi kerja ketika melakukan pekerjaan.
- Pelatihan sebaiknya mengharuskan peserta untuk menunjukkan pemahaman terhadap topik yang diajarkan dan mampu melakukannya dengan benar.
- Untuk meningkatkan kemungkinan sebuah pekerjaan dapat dilakukan dengan benar, penting bagi peserta untuk memahami mengapa ada prosedur yang perlu dilakukan di pekerjaan tersebut.

Apa Yang Bisa Anda Lakukan?

- Jika tidak ada prosedur- HENTIKAN PEKERJAAN dan tinjau kembali bagaimana cara melakukan pekerjaan dengan selamat.
- Ketika membuat atau meninjau prosedur untuk operasi kritikal atau berbahaya, gunakan diagram dan gambar untuk menyorot faktor risiko utama.
- Daftar periksa dengan kolom tanda tangan juga membuat prosedur lebih efektif.
- Tanyakan kepada Supervisor apabila instruksinya belum jelas.
- Selama pelatihan, tanyakan mengapa pekerjaan tersebut harus dilakukan secara spesifik supaya lebih paham.
- Ketika melatih orang lain, jelaskan mengapa dan bagaimana tugas kritikal dilakukan dan jawab setiap pertanyaan dengan lugas.
- Ketika meninjau atau memperbaiki prosedur, bawa ke lokasi pekerjaan untuk memastikan kondisi telah sesuai antara di prosedur dan lapangan.

Pelatihan + Prosedure + Memahami ‘Mengapa’ = Selamat

Knowing 'why' makes tasks safer

April 2025

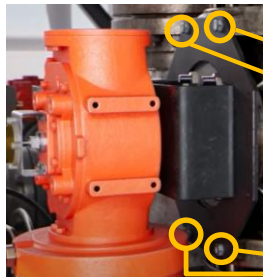


Figure 1. Valve actuator with mounting bracket bolts highlighted

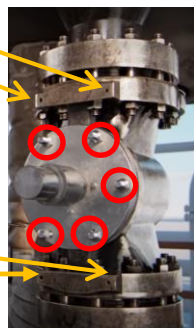


Figure 2. Bolts and nuts of pressure-retaining valve cover highlighted



Figure 3. Valve after the incident

In 2021, three contract workers at a facility in La Porte, Texas, were removing the actuator from a plug valve. The actuator was being removed so 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 and the pressure ejected the plug from the valve body. Approximately 164,000 pounds (74,545 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. (ref CSB report No. 2021-05-I-TX)

A similar incident occurred in Baton Rouge, LA in 2016. That incident caused a release of isobutane, which ignited and severely burned four workers. (ref CSB report No. 2016-02-I-LA and CCPS Beacon, December 2021).

These incidents had three common factors:

1. Contractors or operators did not have a procedure for removing the actuator.
2. Contractors or operators were not trained on removing the actuator.
3. Other workers were in the area assisting with the actuator removal who could have pointed out the wrong bolts were being removed.

Did You Know?

- All critical tasks require a procedure.
- Both maintenance and operating procedures need to be written so they are easily understood by those who will be using them.
- Critical procedures should require the user to have the procedure with them at the location when performing the task.
- Training should require the trainees to demonstrate they understand the training and 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 and review how to do this 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 also make procedures more effective.
- Ask your supervisor questions when instructions are not clear.
- During training, ask questions to understand why a task is performed in the specified way.
- When training others, take the time to explain why and how a critical task is performed and patiently answer questions.
- When reviewing or revising procedures, take them to the work location to verify the procedure matches the field conditions.

Training + Procedures + Understanding 'Why' = Success