

## Case Study 26:

### Wacker Polysilicon Chemical Release

On November 13, 2020, a graphite heat exchanger cracked during maintenance activities, releasing gaseous hydrogen chloride (HCl) at the Wacker Polysilicon facility in Charleston, Tennessee. The incident occurred on the fifth floor of an equipment access structure when a contractor pipefitter applied excessive torque to flange bolts on a heat exchanger outlet pipe containing HCl, causing the pipe to crack and release HCl.

At the time of the incident, seven workers from two contract firms were present on the fifth-floor platform, which was equipped with a single staircase for access and egress. Three of the workers, tasked with bolt torquing, wore full-body chemical-resistant suits. The four other workers, who were from the other firm, were tasked with insulating equipment and wore only standard flame-resistant clothing. The location of the release and the workers' inability to clearly see their surroundings in the white cloud created by the releasing HCl prevented all the workers from being able to access the staircase to exit the platform. To escape from the HCl release, three of the contractor workers who were not wearing full-body chemical-resistant suits began climbing down piping on the side of the structure, located approximately 70 feet above the ground. While attempting to climb down, all three workers fell to the ground. One worker was fatally injured from the fall, and the other two sustained serious injuries. After the release stopped, the four workers still remaining on the fifth-floor platform used the staircase to evacuate the area and reach the ground.

#### *References:*

CSB: Investigation Report: Equipment Fracture and Fatal Hydrogen Chloride Release at Wacker Polysilicon North America, Inc. Eval Plant, June 2023

CSB Video on the incident: <https://www.csb.gov/wacker-polysilicon-chemical-release/>