



## U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATION STATUS CHANGE SUMMARY

<b>Report:</b>	Wacker Polysilicon Chemical Release
<b>Recommendation Number:</b>	2021-01-I-TN-R3
<b>Date Issued:</b>	June 8, 2023
<b>Recipient:</b>	Wacker Polysilicon
<b>New Status:</b>	Open – Awaiting Response or Evaluation/Approval of Response
<b>Date of Status Change:</b>	Not Applicable – Initial Status

### Recommendation Text:

*Develop detailed maintenance procedures for torquing activities which:*

- a. Clearly communicate differing equipment torque specifications, such as those for bolts installed at PTFE-to-PTFE and PTFE-to-graphite connections through visual means such as annotated photographs, signage, physical differentiation, and other methods, as appropriate;*
- b. Include procedural requirements for all torquing activities conducted on equipment containing hazardous material to perform an engineering and risk analysis and implement safeguards as a result of the risk analysis, per American Society of Mechanical Engineers (ASME) PCC-1-2019 Guidelines for Pressure Boundary Bolted Flange Joint Assembly and ANSI/ASSP Z244.1-2016 The Control of Hazardous Energy Lockout, Tagout and Alternative Methods;*
- c. Ensure that terms such as “hot torque” are clearly defined and employees and contractors are trained on these terms; and*
- d. Ensure that procedures and training conform to the mechanical integrity requirements of the Process Safety Management (PSM) standard found in 29 CFR 1910.119(j) and the Risk Management Program (RMP) rule found in 40 CFR 68.73.*

### Board Status Change Decision:

#### A. Rationale for Recommendation

On November 13, 2020, a graphite heat exchanger cracked during maintenance activities, releasing anhydrous hydrogen chloride at the Wacker Polysilicon facility in Charleston, Tennessee. The incident occurred on the fifth floor of an equipment access structure when a contractor applied excessive torque to flange bolts on the heat exchanger’s discharge pipe.

Seven workers from two contracted companies were in close proximity to the release. The location of the release prevented the workers from accessing the platform’s single means of

egress. While attempting to escape by climbing down piping on the side of the structure, three of the workers fell to the ground, fatally injuring one and seriously injuring the other two. The other four workers remained in place until the release ended. One of these four workers sustained chemical burns from the release due to a rip in their personal protective equipment (PPE). The remaining three workers were uninjured.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including ineffective written procedures, control of hazardous energy, and management of hazards during simultaneous operations (SIMOPs), as well as an insufficient means of egress from the platform. As a result of these findings, the CSB issued four recommendations to Wacker Polysilicon. This status change summary addresses **CSB Recommendation No. 2021-01-I-TN-R3**.