



Oil & Natural Gas  
Special Interest Group



**JOINT WEBINAR FORUM**

**Friday, 27<sup>th</sup> October 2023**

## **Managing Tube Rupture Failure Risks in Pressure Relief Systems**

*Philip A. Henry, The Equity Engineering Group, Inc.*

In API Standard 521, Pressure Relieving and Depressuring Systems, if the operational pressure on one side of a shell and tube heat exchanger exceeds the corrected hydrostatic pressure of the other side, it is necessary to size the overpressure protection system of the low-pressure side considering the possibility of a tube rupture scenario. Sizing for the tube rupture scenario leads to increased costs, whether it involves a new design or retrofitting existing systems. However, API 521 permits HX users to consider the tube rupture scenario as non-credible following a comprehensive assessment known as the Tube Rupture Credibility Assessment (TRCA). This assessment encompasses various critical aspects related to the potential of tubes to withstand an instant full-bore rupture, such as vibration phenomena, required wall thickness, susceptibility to erosion, corrosion, or credible degradation mechanisms. Often, the TRCA results indicate that implementing a tube inspection program is a fundamental measure to mitigate and address damage mechanisms that could lead to a sudden tube break.

The presentation will start at **12 noon** (for one hour).

**Free Webinar Registration Link: [HERE](#)**

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## Presenter - Philip A. Henry

Philip Henry is responsible for engineering consulting services in the areas of pressure relief, heat transfer, and fluid flow. He is a specialist in the design, installation, sizing, and selection of pressure relief devices and relieving systems, and has been the Chairman and Master Editor of the API Pressure Relieving System Subcommittee's Task Force on API 520 for the last 26 years. He conducts audits of pressure relieving systems to ensure compliance with OSHA, PSM legislation, and ASME, API, and DIERs Standards, Codes, and Publications. He also teaches the official API Pressure Relieving Systems course.

Philip is actively involved in the development of technology for the API Risk-Based Inspection (RBI) methodology and was the lead investigator of the re-write of API 581 RBI Technology and is responsible for the development and implementation of RBI programs. He has developed a rigorous consequence analysis model to assess the impact of loss of containment from refinery and petrochemical fixed equipment and has also developed industry guidelines on performing risk-based assessments of process equipment, including pressure relief devices, heat exchanger and fired heaters.

## Future events

- ❖ 1<sup>st</sup> November, President's Night - Tassos Karayiannis at Imperial College London, Exhibition Road, South Kensington, London, SW7 2BX
- ❖ 22<sup>nd</sup> March 2023, 58th HTS Annual Dinner - Grand Connaught Rooms, 61-65 Great Queen St, London WC2B 5DA.

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