PIPELINE RISK MANAGEMENT

CREATING A TOTAL INTEGRITY MANAGEMENT PROGRAM

A PROGRAM FOR MANAGING RELIEF DEVICE SYSTEMS AND MECHANICAL INTEGRITY

Adequately designed, installed, and maintained Pressure Relieving Systems (PRS) and their documentation are a critical part of a mechanical integrity program to ensure the safe, efficient, and reliable operation of piping systems. The consequences of inadequate overpressure protection can include unexpected shut-downs, loss of production, regulatory fines, environmental damage, and human injury of fatality.

OSHA REQUIREMENTS

OSHA requires that certain pipeline facilities (mainly gas handling) meet the regulatory criteria of OSHA 1910.119 Process Safety Management of Highly Hazardous Chemicals, which includes Pressure Relief Device (PRD) documentation and mechanical integrity requirements. But even if specific facilities are not required to comply with this OSHA regulation, good engineering practice demands that a relief device integrity program be established to document the relief system design basis, manage changes as they affect the PRD installations, and provide an optimized inspection plan for testing and overhauling relief devices. Documentation should include calculations based on generally accepted good engineering practice and industry standards.

THE GOAL: REAL-TIME DOCUMENTATION YOU CAN TRUST AND ACCESS

> Assurance of compliance with OSHA, DOT, and ASME requirements, using generally accepted good engineering practice for overpressure protection of pipelines and facilities
> Demonstration of consistent calculation methodology used in respective PRD applications
> A comprehensive record of existing PRDs with sizing and installation information in a database that can be customized to fit management and operational needs
> Assessment of risks associated with pipeline systems’ operation relating to overpressure scenarios

COMPREHENSIVE PIPELINE ANALYSIS CAPABILITIES

E²G | The Equity Engineering Group, Inc. performs the following services for a total integrity management program for pipelines:

> Suitability-For-Service (SFS) assessments on vessels, tanks, and piping systems that lack adequate documentation
> Fitness-For-Service (FFS) assessments on vessels, tanks, and piping, including determination of damage mechanisms
> ILI interpretation, alignment, and damage assessment
> Site-wide storage tank audits, including remaining life and inspection plans
> Structural assessments of piping and pipeline systems for compliance with ASME codes when subjected to surge-induced forces
THE COMPLETE, PROACTIVE SOLUTION FOR PRESSURE RELIEF

E²G includes the following tasks as part of a comprehensive relief device integrity program:

» Review owner relief device integrity program for conformity with the latest guidelines and generally accepted good engineering practice (OSHA 1910.119)
» Review owner PRD standard for current compliance with DOT, ASME, and API requirements and/or guidelines
» Perform or review calculations based on ASME/API requirements and guidelines, including PRD sizing and installation assessment (inlet/outlet pipe sizing and routing)
» Review existing surge analysis or perform new analysis, as required. Review P&IDs for adequate depiction of relief device and pipe routing

» Develop a database platform (e.g., SharePoint) to collect, store, and maintain project data; this also enables project management of the program work-flow
» Perform Risk-Based Inspection (RBI) assessment to determine intervals for servicing each PRD using RBI fully compliant with API 581
» Provide engineering consulting and support for process design issues relating to overpressure protection
» Provide project management services delivering a complete package of supporting documentation and RBI plan

LEADERS IN PRS TECHNOLOGY

E²G has been involved with API’s Pressure Relieving Subcommittee for more than 25 years, and our engineers are internationally recognized experts in the area of Pressure Relief System (PRS) design and installation.

PHILIP A. HENRY, P.E.

E²G’s Phil Henry, P.E. is an industry leader in PRS. He has served for many years as the task force chairman for the development of API RP 520, Sizing Selection, and Installation of Pressure-Relieving Devices in Refineries. Mr. Henry also teaches the API-certified training course on PRS, covering API 520, 521, and 2000.

RBI TECHNOLOGY

E²G is also a leader in the development of RBI technology. Our engineers contributed to the development of API RP 580 Risk-Based Inspection and were primary authors of the second addition of API RP 581, Risk-Based Technology. We developed and maintain the API RBI software, which includes a PRD module. Additionally, E²G engineers were the primary authors of API RP 579 Fitness-For-Service, the benchmark standard for FFS assessment worldwide, as well as API RP 571, Damage Mechanisms in the Refining Industry.

Our engineers are internationally recognized experts in the area of pressure relief system design and installation.

SMART TECHNOLOGY. ANSWERS FOR TODAY. INSIGHTS FOR TOMORROW.

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