

# Effective ERS Design – Elective Module I

## Auditing Emergency Relief Systems

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### Overview

The Auditing Emergency Relief Systems module provides guidance on how to conduct efficient and effective ERS design audits to ensure compliance, safety, and reliability. Special emphasis is placed on how operating companies can leverage past efforts to bring their existing ERS documentation into compliance.

This module will help process / safety engineers and managers achieve compliance and address potential discrepancies in their ERS documentation.

### Topics

- ◆ Benefits and Organization of ERS Audits
- ◆ Elements of ERS Design Documentation
- ◆ Accuracy of Plant Data
- ◆ Verification of Contingencies & Calculation Methodologies
- ◆ Addressing Discrepancies

### Participants

This module is ideally suited to process safety management professionals responsible for ensuring their ERS design documentation complies with OSHA 1910.119.

### Course Materials and Fee

Attendees will receive presentation summaries and guidelines on how to conduct ERS design audits to address potential discrepancies.

Fee: \$300

Fees for course includes lunch and refreshments. They do not include hotel accommodations or travel, which are each participant's responsibility.

## Course Outline

### Half Day

#### **Benefits and Organization of ERS Audits — 1:00PM to 1:30PM**

A discussion on the importance of ERS audits to ensure ongoing compliance and accurate/reliable ERS documentation. Topics include OSHA 1910.119, OSHA 1910.106, and the importance of maintaining accurate ERS design basis information for process hazard analyses (PHAs), capital projects, plant debottlenecking, etc. Emphasis will be placed on how to organize efficient ERS audits through team selection, sampling techniques for different processes, information management, and audit / reporting protocols.

#### **Elements of ERS Design Documentation — 1:30PM to 2:15PM**

A discussion on the basic elements of ERS design documentation and the role of each in ensuring a safe and accurate design basis. Topics include reactivity screening, overpressure contingencies evaluation, relief device analysis, piping analysis, effluent system analysis, and application of local/state laws.

#### **Accuracy of Plant Data — 2:15PM to 2:45PM**

A discussion on the importance of accurate and reliable plant data for ERS design and verification projects. Topics include piping and instrumentation diagrams (P&IDs), process flow diagrams (PFDs), equipment and instrumentation data, piping isometrics, plot plans, reactivity data, Management of Change (MOC), etc.

### Break

#### **Verification of Contingencies and Calculation Methodologies — 3:00PM to 4:30PM**

A discussion on contingency consideration and selection as well as best practices and methodologies for ERS design calculations. Topics include API-RP 520 checklist for causes of overpressure, availability of contingency documentation and rationale for selection/rejection, and incorporation of root causes from previous incidents. Topics also include applications of standards and practices (e.g., API-RP 520/521, NFPA-30, DIERS) and the selection of appropriate sizing correlation.

#### **Addressing Discrepancies — 4:30PM to 4:45PM**

A discussion on developing a practical and cost effective approach to addressing ERS design basis discrepancies. Topics include reporting of audit results, prioritization/risk ranking of issues, aligning ERS documentation efforts with PHAs, implementation of industry standard tools and best practices, and training of personnel to address ongoing needs.

#### **Wrap-up Discussion — 4:45PM to 5:00PM**