



# Engineering Safety Relief Systems Workshop

April 16-20, 2018  
1-3 pm – CENTRAL

## **An intensive web-based workshop**

This workshop is your opportunity to develop or improve your understanding of engineered safety relief systems. Our primary focus is industrial refrigeration systems but many of the principles we will discuss apply equally to other applications as well.

## **Build your understanding of relief systems**

Whether you are an end-user, equipment manufacturer, design engineer, or contractor, this course will help you build your capabilities in the area of the principles and practices of engineering safety relief systems. Participate and develop your understanding of:

- Codes and Standards related to safety relief systems
- Key aspects of engineering code-compliant relief systems
- Capacity determination for non-standard equipment like heat exchangers
- Methods for proper sizing of relief vent piping, including headered vent systems

## **The IRC's Safety Relief Vent (SRV) Tool**

The IRC's web-based safety relief systems analysis tool (Ver. 2.0) has a high degree of flexibility to analyze, engineer, and document safety relief systems for industrial refrigeration applications.

## **SRV Ver. 2.0 tool features**

- Graphical user interface to configure relief system to be analyzed
- Ability to handle headered systems & multiple relief scenarios
- Quick and accurate algorithm to solve compressible flow equations
- Relief valve selection wizard
- Allows specification of carbon & stainless steel piping, and stainless steel tubing
- Equivalent lengths for elbows & fittings included
- Integrated inlet loss calculations
- Detailed compliance checks for each system component
- One-click reports for easy printing

Access to this tool is provided free of charge for 3 years to those completing this course. Renewal of access is available at the end of the term.

## **How Can I Access The IRC's SRV Ver. 2.0 Tool?**

Access to our web-based tool is provided without charge to those individuals who successfully complete the Engineering Safety Relief Systems Workshop. Don't wait, enroll today and realize the benefits this tool provides.

## **How Do I Participate in the Engineering Safety Relief Systems Workshop?**

This workshop will be delivered over the web in an instructor-led live format. To participate, you will need a computer with internet access. Although we provide VOIP, the use of a telephone for accessing the audio is recommended. The course meets two hours daily for a one week period. See the attached course registration form for upcoming workshop dates as well as workshop costs.

# Engineering Safety Relief Systems Workshop

April 16-20, 2018

MONDAY APRIL 16 (1:00 PM – 3:00 PM – CENTRAL TIME)

## Workshop Introduction

### Safety Relief System Overview

- Terminology and definitions
- Relief device types
- Theory of operation
- Codes and Standards
- Relief valves and sizing
- Relief vent piping

*Douglas T. Reindl, Ph.D., P.E.*

*Director, IRC*

### Relief Valve Capacity Determination

- Pressure vessels
- Compressors
- Oil separators

*Douglas T. Reindl, Ph.D., P.E.*

*Director, IRC*

TUESDAY APRIL 17 (1:00 PM – 3:00 PM – CENTRAL TIME)

### Relief Valve Capacity Determination

- Heat exchangers
- Condensers
- Product silos

*Doug Reindl*

### Relief Valve Inlet Piping and Pressure Losses

- Background
- Effects of inlet pressure losses
- Estimating inlet pressure losses
- Code requirements

*Doug Reindl*

WEDNESDAY APRIL 18 – (1:00 PM – 3:00 PM – CENTRAL TIME)

### Relief Piping Requirements

- Vent piping systems & losses
  - Single relief valve systems
  - Headered (multiple) relief valve systems
- Inlet piping losses
  - Connections
  - Manifolds

*Todd B. Jekel, Ph.D., P.E.*

*Assistant Director, IRC*

A vertical strip on the left side of the page shows yellow industrial piping and structures against a clear blue sky.

**THURSDAY APRIL 19 – (1:00 PM – 3:00 PM – CENTRAL TIME)**

**IRC's Safety Relief Vent Tool (Version 2)**

- Input data requirements
- Creating relief system structure
- Report generation capability
- Code compliance checks

*Todd Jekel*

**FRIDAY APRIL 20 – (1:00 PM – 3:00 PM – CENTRAL TIME)**

**IRC's Safety Relief Vent Tool - *Continued***

- Analysis examples
- Questions and answers

*Todd Jekel*

**Relief Scenarios**

- Background
- Codes and standards
- Relationship between relief device capacity and scenarios
- Analysis
- Reports

*Todd Jekel/Doug Reindl*



**Engineering Safety Relief Systems  
Enrollment Form**

**Spring 2018**



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***To Register:***

**Enroll online @ the IRC website  
[https://www.irc.wisc.edu/?/ed\\_registration](https://www.irc.wisc.edu/?/ed_registration)**

***Any other questions?*  
Call the IRC at 866-635-4721 (toll free)  
or e-mail us at: [info@IRC.wisc.edu](mailto:info@IRC.wisc.edu)**

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