



**Proud Provider**



# Fitness-For-Service and Pressure Relieving Systems Course

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**At Frontium We  
Emphasize On The Technology  
Transfer & its Benefits To The  
Oil, Gas & Energy Industry**

**Kuala Lumpur  
(Istana Hotel, Kuala Lumpur)**

**Fitness-For-Service (FFS)  
17<sup>th</sup> to 19<sup>th</sup> Oct 2016**

**&**

**Pressure Relieving Systems (PRS)  
24<sup>th</sup> Oct to 26<sup>th</sup> Oct 2016**

**FRONTIUM ENERGY SDN BHD**  
B-11-6, Megan Avenue 1  
189, Jalan Tun Razak  
50400 Kuala Lumpur  
MALAYSIA



## **FITNESS-FOR-SERVICE COURSE, BASED ON API 579/ASME FFS-1**

### **COURSE OUTLINE**

#### **3 Days Course**

*This Fitness-For-Service training course provides attendees with an introduction to API 579-1/ASME FFS-1. This training course covers all of the sections of API 579-1/ASME FFS-1 with a focus on the Level 1 and Level 2 assessment procedures.*

### **COURSE TOPICS**

- A. Overview of Opportunities for FFS**
- B. Introduction to API 579-1/ASME FFS-1**
- C. FFS Assessment Procedures**
- D. Damage Mechanism Overview**
- E. Assessments of Equipment for:**
  - Brittle Fracture**

- General Metal Loss**
- Local Metal Loss**
- Pitting Corrosion**
- HIC, SOHIC and Hydrogen Blister Damage**
- Weld Misalignment and Shell Distortions**
- Crack Like Flaws**
- Creep Damage and Remaining Life**
- Fire Damage**
- Dents, Gouges and Dent-Gouge Combinations**
- Laminations**

### **F. In-Service Margins/Validation**

### **COURSE INSTRUCTOR**

#### **Joel Andreani:**

Mr. Andreani has over 30 years of experience in the refining and petrochemical industry both as an owner-user and consultant, and is one of the founding members of The Equity Engineering Group, Inc. A mechanical integrity, pressure-containment, and structural specialist, Mr. Andreani has worked in various technical service groups providing engineering support to refineries and chemical plants worldwide. Mr. Andreani performs FFS evaluations, code calculations, and interpretations for storage tanks, piping, pressure vessels, structures, and foundations. He performs mechanical integrity gap assessments, engineering specification and design support, and engineering training development.

Mr. Andreani serves on the Design subgroup of the API Subcommittee on Aboveground Storage Tank (SCAST). He was the primary developer of edge and shell settlement procedures in Annex B of API 653. He was also involved in the development of the current tank module in the API RBI software and a number of new storage tank RBI procedures. Mr. Andreani has performed RBI assessments on numerous storage tanks, including comprehensive evaluations of critical tanks that have combined FFS and RBI assessments to develop inspection plans. He has significant experience with mechanical integrity and the full life cycle management of in-service fixed equipment and piping.

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***API-U is dedicated to providing excellence in oil and gas industry training. The practical knowledge gained from API-U training enables participants to maintain professional competency and meet the ever-changing statutory requirements. E2G training course materials are developed and instructed by subject matter experts – many of whom are principal contributors on the relevant API committees.***

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The  
Equity  
Engineering  
Group, Inc.

[www.equityeng.com](http://www.equityeng.com)



## **PRESSURE RELIEVING SYSTEMS COURSE, BASED ON API 520 / API 521**

### **COURSE OUTLINE**

#### **3 Days Course**

*This Pressure Relieving Systems training course provides attendees with practical experience involving Pressure Relief Devices (PRDs). This course covers proper sizing, selection, and installation of PRDs to ensure adequate overpressure protection is provided and reduce hazards if a PRD discharges.*

### **COURSE TOPICS**

- A. Pressure Relief Valve Design and Operation**
- B. Codes and Standards**
- C. PRV Sizing and Selection, Including Two Phase Flow**
- D. Rupture Disks/Other Devices**
- E. Relief Device Installation**
- F. Relief Valve Inspection, Testing, and Repair**
- G. Relief System Design Philosophy**

- H. Overpressure Scenarios**
- I. Determining Relief Loads for Process Upsets, Including Fire**
- J. Overpressure Protection of Piping and Other Equipment**
- K. Overpressure Protections of Atmospheric and Low Pressure Storage Tanks**
- L. Overpressure Protection of Power Boilers**
- M. Additional topics:**
  - i. Determining required relief loads for distillation towers**
  - ii. Sizing for two-phase releases**
  - iii. ASME B&PVC, Section VIII-1 Appendix M requirements for isolation valves**
  - iv. ASME B&PVC, Section VIII-1 UG-140 re-write on instrumentation**
  - v. Determining inspection frequency of relief devices**
  - vi. Documenting PRD design basis to meet OSHA 1910**
  - vii. Evaluating overpressure scenarios**
  - viii. Effects of back pressure on relief valves**
  - ix. Protecting vessels from fire damage**
  - x. Evaluating gas breakthrough**
  - xi. Setting pressure tolerances**
  - xii. Classroom exercises that illustrate procedures for determining relief rates and sizing selection, and installation of PRDs**

### **COURSE INSTRUCTOR**

#### **Philip A. Henry, PE**

Mr. Henry has over 30 years of experience in the areas of heat transfer fluid flow and pressure relieving systems. He is a specialist in the design, installation, sizing and selection of pressure relief devices and relieving systems. For 14 years, he provided engineering support to BP oil refineries and chemical plants worldwide.

Mr. Henry is actively involved in the development of technology for the API Risk Based Inspection (RBI) methodology. He is a co-contributor to the re-write of API 581, API RBI Technology, and is responsible for the development and implementation of Risk-Based Inspection programs for pressure relief valves and heat exchanger bundles at refining and petrochemicals plants throughout the country.

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## General Information

- There is a maximum number of students for every course. Registrations, which must include payment, are accepted on first-come, first-served basis.
- Refreshments and lunch are provided.
- Attendees earn 2.4 CEUs for attending the 3 days course and completing an evaluation form.
- Class begins at 08:00 and ends at 17:00 Monday to Wednesday

\* API and The Equity Engineering Group, Inc. reserve the right to cancel a course if minimum enrollment is not reached and to modify the agenda and/or faculty when circumstances are beyond our control.

## Questions about the Course, Registration, or Special Needs?

- Contact Equity Engineering at [training@equityeng.com](mailto:training@equityeng.com) or visit website at [www.equityeng.com](http://www.equityeng.com)
- (OR)**
- Contact Frontium Energy at [info@frontium.com.my](mailto:info@frontium.com.my) or visit website at [www.frontium.com.my](http://www.frontium.com.my)

Event	Per Person
3 Days API-U FFS Course	USD\$ 3,000
3 Days API-U PRS Course	USD\$ 3,000

A 20% discount will be provided to Human Resources Ministry participants and Student/Academia of Malaysian Universities. To obtain the discount documentation must be provided to the instructor on the first day of the course. The refund will be processed after verification.

## Notes

- Discounted group rates would apply to companies paying full fee and sending five(5) students or more to a specific course. The group rate would not apply to the already discounted Human Resource Ministry or Student/Academia rates. Companies wanting more information on a discounted group rate should contact E<sup>2</sup>G.
- The fees listed exclude withholding tax and goods and services tax (GST), payment of which are the responsibility of the course participant.

## Refund Policy

- 75% of the fee refunded if cancellation is received at least 14 days before the course
- 50% of the fee refunded if cancellation is received between 6 and 13 days before the course
- 25% of the fee refunded if cancellation is received between 1 and 5 days before the course
- NO REFUNDS for NO SHOW. However, substitutions for registrants unable to attend are acceptable.



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