



NARGAN
ACADEMY



Flare network Design Fundamentals

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WHY CHOOSE THIS TRAINING COURSE?

During the operation of many hydrocarbon industry plants, there is the need to control process conditions by venting gases and/or liquids. As a general rule, process equipment, tanks, and other vessels have two complementary venting requirements:

Normal Process - to provide normal venting while the process is functioning as intended in one of the normal operating phases.

Emergency - to protect equipment and personnel from the effects of excessive pressure or vacuum caused by an abnormal condition (fires, runaway reactions, . . .) that cannot be controlled by the basic process controls or the safety instrumented system (interlocks) Emergency vent header systems are safety systems that safely dispose of vent gases resulting from unintended events outside the range of normal operations (like external fire, runaway reactions, human error, equipment, and instrumentation failures) Flare systems are the last protection layers in chemical industries. Optimum designing of the flare systems

components make depressurization as a reliable provision in the critical circumstances. Flare headers are one of the most important components in the system and they have been sized by FLARENET Software. Proper assessment of results, checking and modifying input data and optimization of the flare header sizes are vital to have the most reliable layer in safety reviews.

WHO IS THIS TRAINING COURSE FOR?

This course is appropriate for process and safety engineers who are familiar with concepts and basic issues. Base knowledge of the process will help users to understand discussions more convenient than others. Consultants, clients, engineering teams of operational parties, and process or safety engineers eager to learn more are competent to participate in the course.

WHAT ARE THE GOALS?

In this course, all the essential requirements for a flare Network design will be presented and by the end, you'll achieve a designing knowledge and will be able to evaluate all associated items with respect to flare. Undoubtedly, if you're working in operational units, you will be able to analyzing data and procedures related to flare system.



COURSE SYLLABUS (14 HOURS)

- Introduction
- Terminology of items associated in flare design concept
- Overview of Cause of Overpressure
- Overview of Overpressure Protection Philosophy
- Overview of Flare network sizing Fundamentals
- Overview of Depressurizing
- Overview of Pressure safety valve sizing
- Overview of Fire scenarios (Specifying Fire Areas)
- Overview of operating failures scenarios
- Overview of Criteria for sizing PSV outlet pipe/lateral /sub headers and main header
- Overview of KOD flare sizing
- Overview of Seal Drum Sizing
- Overview of Flare Stack sizing
- Overview of Flare tip and flare stack and controversial items During Procurement activity
- Overview of Flare radiation Study
- Overview of flameout gas dispersion Modeling
- Overview of Flare Gas recovery



Iman Asghari

- M.Sc. in Chemical Engineering from Shiraz University
- Working as a Senior Process Safety Engineer for more than 15 years in projects below:
 - Technical Safety Lead Engineer of Gachsaran Petrochemical Complex
 - Technical Safety Lead Engineer of Methanol & Ammonia Plant (LIDCO)
 - Technical Safety Lead Engineer of NGL 900 Compressor Station
 - Technical Safety Lead assistant of Anahita Petro-Refinery Kermanshah
 - Technical Safety Lead Assistant of Esfahan Refinery (DHT, HPU, SRU, RHU)
- Had been published more than 5 articles like:
 - I. Asghari*, F. Esmailzadeh, 2013, Manipulation of key parameters in RESS process for Attapulgate particles utilizing in drilling mud and investigation on its rheological characteristics. Journal of petroleum science and engineering, 112 (2013) 359-369.
 - I. Asghari*, F. Esmailzadeh, 2012. Investigation of key influence parameters for synthesis of submicron carboxymethylcellulose particles via rapid expansion of supercritical CO₂ solution by Taguchi method. Journal of Supercritical Fluids. 69, 34-44.
 - I. Asghari*, F. Esmailzadeh, 2012. Formation of ultrafine deferasirox particles via rapid expansion of supercritical solution (RESS process) using Taguchi approach. International Journal of Pharmaceutics. 433 (1-2), 149-156.

THE COURSE CONTENT

Day One

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- Overview of Overpressure Protection Philosophy
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Day Two

- Overview of Criteria for sizing PSV outlet pipe/lateral /sub headers and main header
- Overview of KOD flare sizing
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- Overview of Flare Stack sizing
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