



Safety in Process Design

Consultant / Trainer:

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The **Petrogenium**. Safety in Process Design course is an indispensable course for all engineers in the oil refining, petrochemical and gas-processing (LNG) industry. This very popular course addresses all basic issues involved in technical safety and operability of a process plant. The course provides awareness on the implementation of basic technical safety principles into a process, awareness in applying and supporting company QHSSE policies and regulations already at the (process) design stage. (Given the course content this is only available face-to-face rather than online).

Participants

This **Petrogenium**. course can be tailored for awareness/inexperienced staff, for intermediate and for experienced personnel. Furthermore the course can be customized for a specific refinery, plant or unit. The option for post-course consultancy/help-desk support is also available.

Participants may include: engineers or technologists who recently joined the industry but can be also highly beneficial to experienced engineers or selected operations staff

Learning Objectives

Types of risks related to oil and gas; Assess and quantify risks; How to manage risks; Familiarisation with safety related equipment; How to conduct a plant change procedure.

Programme

Day 1

- Kick off, introductions, course objectives and expectations
- Process Safety versus personal safety; history of process safety developments and industry major incidents
- Process safety Management Processes including risk management
- Hazard identification, Bowtie, LOPA, ALARP, Hierarchy of Controls, process safety Critical Elements, Activities, Positions.
- Group Exercise

Day 2

- Codes and standards for Safe Design, active protection
- Safe Design: pressure and temperature
- Overpressure protection, flare systems
- Overtemperature protection: emergency depressuring
- Material selection and degradation

Day 3

- Continue active protection, Passive protection / escalation control
- Safeguarding Instrumented Functions
- Release Detection Systems, ROV, TSO
- Fire protection
- Area Classification/ATEX/Site Lay out
- Exercise (optional)
- Safeguarding Memorandum

Day 4

- Static electricity, reactive hazards, fire and explosions
- Static electricity
- Reactive hazards
- Flammability, Ternary Diagrams
- Exercise(s)
- Types of fires/explosions (VCE, BLEVE, Flash, Pool), dispersion, toxicity
- Process and Operational Safety/MOC/Transient conditions

Day 5

- Management of Change, Process safety culture
- MOC exercise(s) - Risk Screening Form
- Getting the right Process Safety Culture
- Process Safety Fundamentals
- Measuring the health process safety: leading, lagging indicators (pyramid)
- Process Safety Reviews
- Discussion of client specific subject(s)