

CONSEQUENCE & RISK · INTERMEDIATE · 1 DAY

Fire & Gas Mapping and Detection Philosophy

Performance-based detector layout, coverage assessment and voting under ISA-TR84.00.07



DURATION
1 day

LEVEL
Intermediate

FORMAT
On-site classroom · virtual instructor-led

LANGUAGE
English

MAX. PARTICIPANTS
16

- 1** coverage map on your plot plan
- 4** detector technologies compared
- 1** F&G philosophy template

Overview

Fire and gas detectors are usually placed where the pipe rack has a free flange, not where the gas will be. The course explains a performance-based approach: defining detection objectives from the hazard, selecting technologies, setting coverage targets, mapping geographic and scenario coverage on the plot plan, and deciding voting, alarm and executive actions. Participants produce a coverage map and a philosophy outline for one of their own areas.

Learning outcomes

- Write an F&G philosophy that states what the system is for and what it must achieve
- Select flame, point gas, open-path and acoustic detectors for the hazard and environment
- Set coverage targets and assess geographic and scenario-based coverage
- Position detectors using dispersion and fire modelling rather than rules of thumb
- Define voting, alarm and executive-action logic and their effect on availability
- Assess an existing installation and prioritise improvements

Who should attend

Instrument, fire-protection and process safety engineers who specify, lay out or assess fire and gas detection; SIS and F&G system owners

Course outline

MORNING

F&G in the layers of protection · ISA-TR84.00.07 performance-based method · detection objectives and hazard zones · flame, gas, acoustic and toxic detector technologies · coverage targets and detector effectiveness

AFTERNOON

Geographic and scenario-based mapping on the plot plan in CeraImpact · voting, alarm setpoints and executive actions · F&G within the SIS and IEC 61511 · testing, maintenance and performance monitoring · assessment of a participant's existing area

Standards referenced

ISA-TR84.00.07 · NFPA 72 · IEC 60079-29-1 / -2 · ISO 13702
IEC 61511

Tools & exercises

Coverage mapping in CeraImpact on the participants' plot plan

What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES

Instrumentation or fire-protection background; P&ID and plot-plan reading

CERTIFICATION

Certificate of completion

INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum

On-site at your plant or virtual · in-house groups · competency assessment included

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