PrimaTech
Specialists in Safety, Security and Risk

TRAINING

Layers of Protection Analysis (LOPA)

Primatech's course sets the standard for instruction of facilitators who require a detailed understanding of LOPA. This course describes each step in performing LOPA and provides experience in its use.

LOPA is a simplified form of risk assessment often used as an extension of process hazard analysis (PHA) to improve risk estimates, and to comply with the IEC 61511 / ISA 84 standard, *Functional Safety: Safety Instrumented Systems for the Process Industry Sector.*

LOPA evaluates scenario risk and compares it with risk tolerance criteria to decide if existing safeguards are adequate, and if additional safeguards are needed. Without risk tolerance criteria, there is a tendency to keep adding safeguards in the belief the more the safer. This can be a false assumption. Eventually safeguards will be added that are unnecessary and may add complexity that can result in new unidentified hazard scenarios. LOPA helps focus limited resources on the most critical safeguards.

Attendees receive a detailed course manual for use as a reference after completing the course. Resource materials, checklists, job aids, and electronic copies of regulatory requirements are also provided.

Objective:

Learn how to perform a LOPA study to evaluate the effectiveness of process safeguards.

Target Audience:

Process safety personnel, PHA analysts, control systems engineers, project engineers, and others who need to apply or understand LOPA.

Course Topics:

- Process safety concepts
- Overview of LOPA
- Documentation and example
- Selection of hazard scenarios
- Definition of scenario consequences
- Identification of initiating events
- Consideration of enablers
- Identification of IPL's
- Estimation of scenario risk
- Use of failure data
- Making risk decisions
- Understanding protection layers
- IPL documentation
- Implementation
- Conducting PHA to facilitate LOPA
- Uses of LOPA

Duration:

Three days, 2.1 CEUs awarded

For more information, contact:
training@primatech.com
614.841.9800 | primatech.com

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