

Hazards and Operability (HAZOP) Studies for Process Safety and Risk Management

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YOU SHOULD ATTEND IF

You want to become an effective HAZOP study team leader or team participant in HAZOP studies employing a multi-disciplinary, team approach facilitated by a trained leader

The course is ideally suited to PHA leaders/scribes, key PHA team members, PSM coordinators and plant management who have oversight responsibility

YOU CAN EXPECT TO

- Gain a thorough understanding of the methodology, fundamental concepts and skills of HAZOP studies
- Concentrate on the hazard and operability (HAZOP) study method following an overview of the OSHA PSM Rule, and the details of Process Hazard Analysis (PHA) required by this Rule
- Learn about other PHA methods to round out your knowledge
- Receive the textbook Guidelines for Hazard Evaluation Procedures (CCPS/AIChE)

COURSE CONTENT

- Overview of the OSHA PSM Rule and Requirements for PHAs
- Concepts of Hazard Analysis
- Leader Preparation and First Team Meeting
- Basic HAZOP Study Concepts
- Guide words, Design intentions, Deviations matrix, Causes, Consequences, Protection, Mitigation & impact
- Exercise HAZOP Study of a Continuous Process
- HAZOP Study for a PLC Controlled Process
- Action Items
- Risk Matrix Usage
- Final Team Meeting
- Other PHA Methods What if, FMEA, FTA, ETA

EXPERTS YOU'LL HEAR FROM

Fred Leverenz

CITIES AND DATES

ORLANDO

October 24–26, 2001

LAS VEGAS

November 7–9, 2001

NEW ORLEANS

March 11–13, 2002

FEE

2001

\$1245—AIChE Members

\$1445—Non Members

2002

\$1345—AIChE Members

\$1445—Non-Members

Hazards Evaluation: Qualitative & Quantitative Methods of Reliability & Risk Assessment of CPI

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YOU SHOULD ATTEND IF

You want to learn the most commonly used techniques for (1) identifying chemical process industry hazards, (2) quantifying their likelihood, and (3) assessing the reliability, availability, and dependability of process systems. This course will help ensure your company's compliance with OSHA's regulation for Process Safety Management of Highly Hazardous Chemicals (29 CFR 1910.119), EPA's rule of Risk Management (40 CFR 68), and other industry risk management initiatives. This course is especially useful for engineers and scientists who need to evaluate the benefits (risk-reduction potential) of recommendations for process change.

YOU CAN EXPECT TO

- Review the key elements of qualitative and quantitative risk analysis methods
- Understand how to select appropriate hazard evaluation techniques to use in a variety of instances
- Learn simplified methods for calculating system reliability, availability, and expected number of failures

- Examine several frequency analysis techniques used to estimate accident likelihood
- Participate in at least seven hands-on workshops in which you gain valuable practice and experience in applying a particular analytical technique to a process system

COURSE CONTENT

- Overview of qualitative hazard evaluation techniques Checklist and what-if methods
Workshop Performing a what-if checklist analysis
- Hazard and operability (HAZOP) technique for continuous and batch processes
Workshop Performing a HAZOP analysis on continuous and batch processes
- Failure modes and effects analysis (FMEA) technique
Workshop Performing an FMEA on a process system
- Fault tree and event tree construction methods
- Algorithms for solving fault trees
Workshop using fault trees/event trees areas to model process accidents

- Quantitative reliability analysis methods, dependant failure analysis, calculating system reliability, availability and
Workshop Calculating system reliability characteristics
- Testing, maintenance, and standby systems, incorporating test and maintenance factors into reliability calculations
Workshop reliability analysis of tested and standby systems
Workshop Risk assessment of process system

EXPERTS YOU'LL HEAR FROM

Donald K. Lorenzo
David F. Montague
Vernon H. Guthrie

CITIES AND DATES

LAS VEGAS

November 5–8, 2001

BALTIMORE

April 22–24, 2002

FEE

2001

\$1345—AIChE Members

\$1445—Non-Members

2002

\$1665—AIChE Members

\$1775—Non Members

Updating and Revalidating Process Hazard Analysis for OSHA PSM-Covered Processes

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YOU SHOULD ATTEND IF

You want a comprehensive look at the subject so that you will be thoroughly equipped to determine the right revalidation approach for your facility

This is a key course for process safety analysts, process safety engineers, PSM/PHA coordinators or anyone who has the responsibility for leading, documenting or participating in PHAs and PHA revalidations

YOU CAN EXPECT TO

- Learn how to address previous PHA deficiencies and determine an appropriate approach for revalidation
- Understand the importance of complete documentation for PHAs and management of change activities
- Develop your own PHA revalidation report that works for you and other end users for future analysis purposes
- Leave the course with a flowchart that will assist you in tailoring a revalidation approach for your facility

COURSE CONTENT

- OSHA PHA Revalidation Requirements
- Terms and Definitions
- Goals and Objectives
Level of compliance, Multiple end-users, EPA RMP impacts
- Identifying and Assessing Required Information
- Integrating Management of Change Information
- Lessons Learned
- Defining your Revalidation Approach
- Updating and Revalidating a PHA
- Documenting a Revalidation/Update

EXPERTS YOU'LL HEAR FROM

David Whittle

CITIES AND DATES

ORLANDO
October 22-23, 2001

BALTIMORE
April 25-26, 2002

FEE

2001
\$945—AIChE Members
\$1145—Non-Members

2002
\$995—AIChE Members
\$1145—Non-Members

PSM: Design and Evaluation of Process Safety Management Systems

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YOU SHOULD ATTEND IF

You want to get a process safety management program in place and ensure its effectiveness in your organization, whether it's large or small

The course is ideal for plant and corporate PSM coordinators, safety professionals, production, maintenance, and engineering managers, operating managers, and anyone responsible for the design and implementation and meeting the requirements of the OSHA PSM Standard

YOU CAN EXPECT TO

- Learn about PSM principles and how to apply them to comply with OSHA's PSM Standard 1910.119, EPA Risk Management Plan, and company standards
- Gain insight through lectures, discussions and problem-solving which will assist you in spearheading and evaluating a PSM program that's right for your organization
- Receive the textbook *Guidelines for Technical Management of Chemical Process Safety* (CCPS/AIChE)

COURSE CONTENT

- Fundamentals of PSM Management Systems, Accountability and Responsibility, Process Knowledge and Documentation, Managing Process Safety Elements
- Regulations—Examples of PSM Programs to meet the regulation
- Operating procedures, Training and Human Factors, Equipment Factors, Management of Change, Process Hazard Analysis, Incidents and Audits
- Implementation Issues

EXPERTS YOU'LL HEAR FROM

Claud E. Eley
Ray Witter

CITIES AND DATES

LAS VEGAS
November 5-7, 2001

NEW ORLEANS
March 13-15, 2002

FEE

2001
\$1245—AIChE Members
\$1445—Non-Members

2002
\$1345—AIChE Members
\$1445—Non-Members

