

## PHA Fundamentals and Facilitations

### 2-Day Course

#### Program Content:

This course is intended to prepare PHA team members for team leadership. It introduces techniques commonly utilized in the petrochemical, chemical, and oil and gas industries. It also includes hands-on example problems from industry.

Many engineers or operating company professionals have attended PHAs, but have not been prepared for the unique requirements of team leadership. This course, while providing an introduction to PHA methodologies, is intended to augment the skill sets of those persons. Each class offering is adjusted to meet the specific needs of the current class members, with class interaction encouraged.

Following introductions of class members, the course starts with a simple presentation on hazard and operability studies (HAZOP 101), and a hands-on example problem. Next, the team discusses the evolution of PSM in the United States so that team leaders understand how PSM came about.

Regulatory requirements for PHAs are then discussed, including Process Safety Management (PSM) programs, Risk Management Programs (RMP), and Safety and Environmental Management Systems (SEMS). Discussion includes when studies are required, and assists the PHA leader in identifying and managing compliance issues.

Along with discussion of the PHA methodologies, attendees discuss how to prepare for a PHA, and then how to manage the team during the project implementation. Preparation of reports is another topic, presented with visual examples. Additionally, checklists of general safety issues, facility siting issues, and human factor issues are included in the class notes.

#### Day 1:

- Introductions
- HAZOP 101 with workshop
- Evolution of PSM
- Regulatory requirements for PHAs
- Preparation for PHAs
- Leadership skills for managing teams
- HAZOPs—in detail
- HAZOP workshop

#### Day 2:

- What-If? and What-If? / checklist
- What-If? workshop
- FMEA and fault tree analysis
- PHA reports and documentation
- Facility siting, human factors
- LOPAs in PHAs
- PHA software
- PHAs for batch processes
- PHAs for process modifications
- Final workshop

#### Who Should Attend?

Process Hazard Analysis participants

1.4  
CEUs

14  
PDHs