



## PROFESSIONAL DEVELOPMENT:

**One classroom day** providing .8 CEU (Continuing Education Units) or 8 PDH (Professional Development Hours)



## BENEFITS OF THE INTRODUCTION TO PHA / HAZOP TRAINING COURSE:

- Participants will develop a basic understanding of PHA processes. The course will focus on the HAZOP methodology and the roles and responsibilities of participants.
- ACM also has available a full 3 day PHA/ HAZOP Leadership Workshop in case participants wish to further develop the ability to lead HAZOP studies.
- A comprehensive workbook and reference guide will be supplied.



## COURSE OVERVIEW:

Through this Process Hazard Analysis / Hazard and Operability Study (PHA/HAZOP) overview training, you will learn the theory behind conducting these studies and why they matter. You will learn the principles behind each of the major PHA methods (HAZOP, What-if?, Checklist, FMEA) and the attributes of each methodology.



## PREREQUISITES OR RELATED COURSES:

It is recommended that participants have completed the following training courses:

- Engineering Drawings Interpretation – Piping and instrumentation Diagrams (P&ID)
- It is also recommended to complete the Practical Risk Assessment and Hazard Identification and Awareness courses.



## WHO SHOULD ATTEND?

This course will be of benefit to anyone involved in PHAs as a participant but not as a leader of the group. Registrants do have the option to attend the full 3 day PHA/HAZOP Leadership Workshop if they wish to develop the ability to lead PHA studies.

- PHA / HAZOP scribes
- Health and Safety / HSE Professionals
- Process Safety Management (PSM) / Loss Management Specialists
- Supervisors, Managers, and engineers responsible for PHA studies



## COURSE OUTLINE:

- I. QUANTITATIVE & QUALITATIVE HAZARD ANALYSIS
- II. OVERVIEW OF HSE HAZARD MANAGEMENT

### III. ELEMENTS OF FACILITY RISK

### IV. PHA TEAM DYNAMICS

### V. PHA METHODS:

- HAZOP (Hazard and Operability Study)
- Preliminary Hazards Analysis
- Checklist Analysis
- What-If? Analysis
- Checklist / What-If? Analysis
- FMEA (Failure Modes and Effects Analysis)

### VI. PHA METHODOLOGY SELECTION

### VII. DOCUMENTATION



### THE ACM EXPERIENCE:

Our courses and workshops are experiential, interactive and provide participants with practical knowledge and tools that can be immediately applied back at work.



### COURSE TESTIMONIALS:

Here are a few quotes from over 3,300 participants we've trained;

- *“Very helpful instruction and activities in this course helped me get what I was looking for from it!”*  
**Project Coordinator**
- *“The instructor was very interactive, encouraged discussion and welcomed feedback.”*  
**Process Engineer**
- *“Great course! The instructor made the course very enjoyable. With their wealth of knowledge and experience they could answer all of the questions, as well as provide a real life situation in which it applied.”*  
**New Grad EIT**
- *“Great course content, coverage and length. Superb instructor who presented material as it applies to real world scenarios.”*  
**I&C Engineer**



### COURSE INSTRUCTORS:



**Marcel Leal-Valias**  
**Expert Advisor & Instructor**

Mr. Leal-Valias has more than 50 years of experience in engineering/design and project management in the petrochemical industry in North and South America and Australia and 27 years as a certified PHA specialist and trainer. He holds a diploma in Mechanical Engineering from Centro de Treinamento Industrial, Rio de Janeiro, Brazil and diplomas in Management and Supervision from People Growth Inc., Los Angeles, USA. Mr. Leal-Valias has conducted a multitude of PHA studies that comply with OSHA Process Safety Management guidelines in North and

South America, the Middle East, Asia and the Caribbean and also has delivered P&ID and PHA training courses to many companies in Canada and overseas.

He is a member of ASET, the Society of Piping Engineers and Designers, Project Management Institute and the Canadian Institute of Energy.



**Jamie Merriam**

**B.Sc. Elec. Eng., P. Eng., TÜV (Rheinland) F.S. Eng. Functional Safety Engineer / TÜV (Rheinland) PH & RA Functional Safety Engineer / Instructor**

Mr. Jamie Merriam is an Electrical Engineer (automation) with over 24 years of experience in the energy industry. His experience includes construction, maintenance and project engineering. Mr. Merriam began leading Hazop/LOPA reviews in 2002 as part of his duties with Suncor. Now with ACM, Mr Merriam continues to support Suncor, Cenovus and other clients execute effective hazard analysis. He has applied knowledge in Instrumentation, Process Control and Functional Safety for the energy industry. Mr. Merriam's communication and leadership skills, combined with his understanding of Process Safety make him an effective and competent facilitator and educator. Mr. Merriam is a professional engineer and TÜV Functional Safety Engineer.

**Past Projects:** Terra Nova FPSO, Edm. Refinery Upgrade, Fort Hills, MR2 (Petro Canada), Firebag 3, Tailings Reduction Operations, Coker Upgrade (Suncor)



**Richard Carter**

**B.Sc. Chem. Eng., P.Eng., TÜV (Rheinland) F.S.Eng. PH & RA, PHA Facilitator / Project Manager / Instructor**

Mr. Richard Carter is a Professional Engineer, and is qualified as a Functional Safety Engineer (F.S. Eng.) in Process Hazards and Risk Analysis through the TÜV (Rheinland) Functional Safety Program.

Richard is an experienced facilitator of Process Hazards Analysis (PHA) studies, such as Hazard and Operability (HAZOP), Layer of Protection Analysis (LOPA), Hazard Identification (HAZID) and What-If Analysis. He has facilitated more than 120 PHA studies for some of the largest operating and engineering organizations in Canada and the United States, and has field experience in oilsands and petrochemicals facilities.

Richard is a training instructor, and teaches the 2-day P&ID/Engineering Drawings Interpretation course, the 1-day Introduction to Process Hazards Analysis course, and the 3-day PHA/HAZOP Facilitation course at ACM Facility Safety. He has also managed ACM's education and training program for public and private offerings, and developed customized PHA procedures and education materials to meet the specific needs of clients.

[View instructor profiles online.](#)

**CONTACT FOR FURTHER INFORMATION:** [info@acm.ca](mailto:info@acm.ca)

**CALL TOLL FREE AT 1-877-264-9637**

**PRIVATE IN HOUSE TRAINING COURSES:**

<http://www.acm.ca/institute-of-hazard-prevention/private-courses>

