

# PROCESS SAFETY MANAGEMENT (PSM) PRINCIPLES APPLIED TO EXPLOSIVE OPERATIONS

Safety Management Services, Inc. (SMS<sup>®</sup>) has an extensive background in Process Safety Management (PSM), classification testing, and Process Hazards Analysis (PHA). This four (4) day course is intended for managers, engineers, and safety professionals involved in PSM program implementation. This course provides an understanding of the risk management systems, protocols, and procedures necessary for safe explosive operations and compliance with OSHA 29 CFR 1910.119. Process hazards analysis and explosive classification are key to safe operations. Course emphasis includes the following :

- Understanding the 14 elements of OSHA 29 CFR 1910.119 “Process Safety Management of Highly Hazardous Chemicals” and the unique aspects associated with propellant, explosives, and pyrotechnic materials
- Insights to the importance of explosive classification and characterization testing and how test data are applied to ensure “safety by design” of explosive process equipment and facilities
- Understanding the various PHA methodologies and the proper application to explosive operations to ensure systematic identification and elimination/mitigation of risk

- **Hands-on workshops that allow the participants to work in a controlled group environment to learn and apply the techniques discussed during the course**

A course outline is provided below. Ryan Dittmar or William Post are available for technical questions. Online registration is available at [www.tci-training.com](http://www.tci-training.com).

**September 21-24, 2020 (4 Days)**  
**\$1900**

**Hampton Inn & Suites**  
**3923 West Center Park Drive**  
**West Jordan, UT**

## DAY 1: PSM Principles for Explosive Operations

1. Explosives manufacturing heritage
2. PSM background
3. Fundamental principles of explosives safety
4. Detailed discussions of the 14 PSM elements
  - Emphasis on implementation of explosive safety principles to each element
  - Discussions on OSHA 29 CFR 1910.119 requirements and compliance
  - Application of industry “best practice” to explosive processing
5. OSHA PSM interpretations

## DAY 2: Explosive Classification Testing for Process, Storage, and Facility Design

1. Classification testing heritage and current methods
2. In-process hazard classification of explosives
3. Explosives storage and staging principles
  - Application of DOT, ATF, building/ fire codes
  - Facility siting
  - Workstation shielding
4. Risk reduction through “safety by design”
5. Code compliance

## DAYS 3 & 4: Process Hazards Analysis (PHA) Training for Team Leaders

1. Regulatory PHA requirements
2. PHA methodologies:
  - What-if
  - Logic diagrams
  - FMEA
  - HAZOP
  - Fault Tree Analysis
3. Workshops: selecting and utilizing appropriate PHA methodology
4. Application of material characterization test data
5. Applying qualitative and quantitative PHA methodologies
6. How to document a PHA study
7. Managing the follow-up of PHA results