

PSM & VPP

March 31st, 2010



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What is PSM?

Process Safety Management regulation enacted in 1992

- Performance based, not prescriptive regulations
- Applies to all refineries and chemical manufacturing plants with “Highly Hazardous Substances” in excess of a “Threshold Quantity”
- Process safety is the operation of facilities that handle, use, process or store hazardous materials in a manner free from catastrophic incidents (CCPS: Guidelines for Technical Management of Chemical Process Safety)
- Process safety management is the application of management systems to the identification, understanding and control of process hazards to prevent process-related injuries and incidents (CCPS: Guidelines for Technical Management of Chemical Process Safety)

Difference between PSM & Traditional Safety

Traditional workplace health and safety

- Focuses on the individual actions while considering interaction with equipment
- Occupational health exposures
- Significant legal and regulatory mandate

Objective: to eliminate injuries and illnesses to personnel

Process safety management

- Focuses on process: materials, equipment and systems
- Individuals and procedures are considered part of the system

Objective: to eliminate process-related incidents

PSM Elements

California Code of Regulations (Title 8, Sec. 5189)

- Employee Participation/Involvement
- Process Safety Information (PSI)
- Process Hazards Analysis (PHA)
- Operating Procedures
- Training
- Contractor Safety
- Pre Start-up Safety Review (PSSR)
- Mechanical Integrity
- Hot Work Permits (and other Safe Work Practices)
- Management of Change (MOC)
- Incident Investigation
- Emergency Planning and Response
- Illness and Injury Prevention Program
- **Compliance Audits / Trade Secrets (Federal PSM, 1910.119)**

Commonalities between PSM & VPP Elements

PSM Element

VPP Element / Sub-Element

- Employee Participation
 - Process Hazard Analysis
 - Operating Procedures
 - Training
 - Contractors
 - Pre Startup Safety Review
 - Mechanical Integrity
- #9 Employee Involvement
 - #14 Hazard Analysis / #23 Hazard Correction Tracking
 - #26 Emergency Procedures
 - Safety & Health Training
 - #8 Contract Workers
 - #13 Pre-use Analysis
 - #22 Preventive Maintenance

Commonalities between PSM & VPP Elements

PSM Element

- Hot Work Permits
- Incident Investigation
- Emergency Planning & Response
- Compliance Audit
- Injury and Illness Prevention Program

VPP Element / Sub-Element

- #20 Hazard Elimination or Control
 - Hazard Control Program
- #17 Accident/Incident Investigations
- #30 Emergencies
- #10 Safety and Health Program Evaluation
- #4 Written Safety and Health Program

VPP at a PSM site

Objective: Exceed the minimum PSM regulatory requirements

- Management System
- Information well documented and readily available to impacted personnel
- Practices worth repeating

Management System 101

- **What is a Management System?**
 - A formally established and documented set of activities, processes and programs designed to produce:
 - Specific results
 - In a consistent manner
 - On a sustainable basis
 - It must enable the organization, not bureaucratically stifle it
 - It clarifies what is (and what is not) being done
- **Why is a Management System Needed?**
 - A Management System recognizes that people don't know what they don't know, so it:
 - Outlines clear expectations and what needs to be managed
 - Helps remove risk and identify opportunities
 - Consistently delivers safe operations

Information Availability

- People vary in how they can learn and absorb information effectively - Different communication methods for different employees
- Provide Information Multiple Ways – Keep it Evergreen
 - Hard copies
 - E-mails
 - Flyers
 - Internet/Intranet with Shortcuts to Key Information
 - Meetings
 - Newsletters
 - Computer Based Training

Practices Worth Repeating

- Define key measurements and steward
 - Routine stewardship reports
- Audit results to ensure thorough completion of recommendations
- Communicate audit results, gap closure plans, and completion of recommendations so personnel are aware of the changes
 - Celebrate successes!

Why Bother?

- **Safety Benefits**

- Eliminates/Reduces accidents with may create catastrophic impacts on:
 - Employees
 - Contractors
 - Community
 - Environmental

- **Other Benefits**

- Enhanced productivity due to fewer process disruptions and accidental shutdowns & Consistent product quality
- Improved morale due to safer work environment
- Lower insurance premiums

PSM Focus Areas – Where to Start

- **Fed OSHA Most Frequent PSM Citations**
 - Mechanical Integrity – incomplete inspection and testing
 - Process Hazard Analysis – methodology used inappropriate for complexity
 - Training – missing documentation of training
 - PSI – missing documentation of equipment / technology
- **EPA Paper “Recurring Causes of Recent Chemical Accidents”**
 - Mechanical Integrity – inappropriate design, non compliance with stds, deficiencies in repair/testing of critical equipment
 - Process Hazard Analysis/MOC – inadequate review of failure scenarios
 - Audits – complacency to warnings/recommendations
 - Incident Investigations – failure to address root cause
- **National Emphasis Program (NEP)**