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| Process Safety Management Program |
| **Title:** Compliance Guidelines for Management System  **Document #:** PSM-SY-UN-018 **Issued:** 01/08/2016 |
| **Responsible Dept.:** EHS **Version:** 1  **Approved By:** PSM Focus Group **Page:** 1 of 3 |

**1.0 Purpose:** This document summarizes the method The Pennsylvania State University uses to comply with the requirements relating to the Management System Element of the Process Safety Management (PSM) Program.

**2.0 Scope:** The intent of this element is to outline the framework for managing and continually improving Penn State’s PSM Program. A key component of this element is a consistently demonstrated commitment to Process Safety by senior leadership within the University. The Process Safety Management System will also define the appropriate goals/objectives of the various program elements and outline the metrics necessary to measure continuous improvement.

**3.0 Guidelines:** The primary objective of the PSM Program is proper oversight over the use of highly hazardous chemicals / biological agents within The Pennsylvania State University to prevent unwanted releases especially into locations which could expose employees, students or the public to serious hazards. The framework to effectively manage and operate highly hazardous operations safely has been incorporated into the seventeen (17) Elements of the PSM program. The 17 Elements that are included within the management system are provided below:

1. Management System
2. Process Safety Information
3. Process Hazard Analysis
4. Management System to Address Action Items
5. Process Hazard Analysis Review
6. Employee Participation
7. Operating Procedures
8. Emergency Preparedness
9. Training and Assessment
10. Contractor Management
11. Mechanical Integrity
12. Maintenance Systems
13. Pre-Startup Safety Review
14. Management of Change
15. Incident Investigation
16. Compliance Audits
17. Trade Secrets

Note: Although the above elements represent the complete PSM program, it is recognized that specific operations with lower risks may benefit from implementation of select elements based on operational requirements. Through consultation with the PSM Steering Committee, select element implementation will be assessed on a case-by-case basis.

A Compliance Guidelines document is available for each of the 17 elements, outlining the key requirements within that aspect of the PSM program. The Compliance Guidelines can be utilized as a tool within the University to assess potential implementation within a specific department. To support the Compliance Guidelines, specific written procedures detailing the method to meet the element requirements have been developed. In addition, the procedures will clearly define responsibilities for element compliance. Implementation of a specific element requires adherence to the corresponding written procedure.

For any program to be successful, senior leadership is paramount. Leadership alone can make Process Safety a key business goal and provide the necessary resources to achieve PSM objectives. Employees within every organization take their cues from administrators, managers and supervisors. If leadership consistently treats Process Safety as a priority, so will the rest of the work-group. At a minimum management commitment to Process Safety must include the following actions:

1. Visibly demonstrate leadership commitment to Process Safety
2. Clearly assign and communicate Process Safety responsibilities to all affected employees
3. Ensure leadership is aware of relevant Process Safety incidents
4. Implement system for ensuring Process Safety responsibilities are met
5. Integrate Process Safety into planning processes
6. Establish Process Safety goals and metrics for the covered process area(s)

All documents within the PSM Management System will be managed through a Document Control process. Document management is important to ensure the most current information is available at the user’s level and mechanisms are in place to manage updates. Each document within the PSM Document Control process will at a minimum contain the following information in the document Heading:

1. Program Name
2. Title of Document
3. Document Number
4. Version Number
5. Date the Document was Issued or Revised
6. Responsible Department of Document
7. Approval to Release Document
8. Page Number

Only the “Approved” current document shall be referenced when reviewing specific procedures, policies or work instructions. These documents shall reside in a transparent, readily available location where various groups within the University are able to access them, including availability on-line.

The Process Safety Program Manager (PSPM) is responsible to manage the PSM Document Control process and track progress against PSM objectives and metrics developed by the specific covered process areas. In addition, the PSPM will periodically evaluate the effectiveness of the PSM Management System and recommend improvements to senior leadership.

**4.0 Definitions:** The following definitions provide guidance regarding common issues surrounding the Management System Element.

*Covered Process* - any process where a highly hazardous chemical / biological agent or extremely hazardous substance deemed by Penn State is used, handled or stored. This also includes critical process operations identified by the University that would benefit from PSM program implementation.

*Document Control* - coordination and control of the flow (storage, retrieval, processing, printing, routing, and distribution) of electronic and paper documents in a secure and efficient manner, to ensure that they are accessible to authorized personnel as and when required.

*Management System* – framework of processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives.

*Training -* a process by which someone is taught the skills that are needed for a task, function or specific job.

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| Process Safety Management Program |
| **Title:** Management System Procedure  **Document #:** PSM-SOP-UN-002 **Issued:** 01/08/2016 |
| **Responsible Dept.:** EHS **Version:** 1  **Approved By:** Process Safety Program Manager **Page:** 1 of 7 |

**1.0 Purpose:** This document provides the framework for managing and continually improving the Process Safety Management Program (PSM) within The Pennsylvania State University (Penn State). The requirements outlined within the PSM Management System is intended to summarize the methods used to identify, control and reduce process risks associated with critical operations.

**2.0 Scope:** This element covers all aspect of the PSM program and starts with a demonstrated commitment to Process Safety by senior leadership within the University. The framework to effectively manage and operate processes involving highly hazardous chemicals / biological agents or other critical process operations are incorporated into seventeen (17) Elements of the PSM program.

**3.0 Responsibility:** The following employees have specific responsibilities assigned to them in accordance with the requirements of the Management System element within the PSM Program. Specific Budget Executives and Budget Administrators may assign these responsibilities to a Department or individual other than the one identified in this procedure as appropriate.

Budget Executives and Budget Administrators:

1. Assume primary responsibility to maintain a safe work environment within their jurisdiction, by monitoring and exercising control over their assigned areas.
2. Visibly demonstrate leadership commitment to Process Safety and establish appropriate Process Safety goals and metrics.
3. Assign a representative from their respective academic or administrative unit to ensure compliance with this procedure.

Director Design & Construction:

1. Ensure employees within their area(s) of responsibility are aware and understand the PSM Management System requirements.
2. Visibly demonstrate leadership commitment to Process Safety and establish appropriate Process Safety goals and metrics.

Manager Engineering Services:

1. Ensure employees within their area(s) of responsibility are aware and understand the PSM Management System requirements.
2. Visibly demonstrate leadership commitment to Process Safety and establish appropriate Process Safety goals and metrics.

Building Operations / Utility Engineers:

1. Adhere to the PSM Management System requirements.
2. Assist with identifying and addressing opportunities for improvement within the PSM Management System.

Physical Plant Supervisors:

1. Ensure employees within their area(s) of responsibility are aware and understand the PSM Management System requirements.
2. Visibly demonstrate leadership commitment to Process Safety including communicating and holding employees responsible for Process Safety goals.
3. Assist with identifying and addressing opportunities for improvement within the PSM Management System.

Operations/Facility Manager:

1. Ensure employees within their area(s) of responsibility are aware and understand the PSM Management System requirements.
2. Visibly demonstrate leadership commitment to Process Safety including communicating and holding employees responsible for Process Safety goals.
3. Assist with identifying and addressing opportunities for improvement within the PSM Management System.
4. Take prompt corrective action when unsafe process safety conditions or practices are observed or reported.

Safety Officer:

1. Coordinate implementation of the Management System elements within the work unit.
2. Visibly demonstrate leadership commitment to Process Safety including communicating Process Safety goals and metrics.
3. Assist with identifying and addressing opportunities for improvement within the PSM Management System.
4. Take prompt corrective action when unsafe process safety conditions or practices are observed or reported.

Process Safety Program Manager – EHS Department:

1. Oversee all aspects of the University’s Process Safety Management System.
2. Maintain data within the established management system including process to collect and report established PSM metrics.
3. Serve as Process Safety Management Representative for the EHS Department.

Process Safety Management Steering Committee

1. Conduct assessments utilizing the PSM Risk Ranking Matrix methodology to determine if newly identified processes should be included within the PSM program.

2. Monitor progress of PSM program against established metrics and assist in enhancing and/or developing new metrics

3. Serve as one of the key groups to periodically review the continuing suitability, adequacy and effectiveness of the PSM program.

Employees:

1. Participate in various continuous improvement initiatives within PSM program.
2. Report Process Safety issues or concerns to appropriate line management and/or the Process Safety Program Manager.

**4.0 Definitions:**

*Continual Improvement* – recurring process of enhancing a program/area in order to achieve improvements in overall performance consistent with the organization’s objectives

*Covered Process* - any process where a highly hazardous chemical / biological agent or extremely hazardous substance deemed by Penn State is used, handled or stored. This also includes critical process operations identified by the University that would benefit from PSM program implementation.

*Document Control* - coordination and control of the flow (storage, retrieval, processing, printing, routing, and distribution) of electronic and paper documents in a secure and efficient manner, to ensure that they are accessible to authorized personnel as and when required.

*Operations/Facility Manager* – a person who has control / oversight of building use, stewardship, operation, repair, and general administration of campus facilities. Also includes the operational responsibility of a specific unit operation within a facility.

*Physical Plant Supervisors* – group of individuals in first-line management who monitors and regulates employees in their performance of assigned or delegated tasks (e.g. trains, evaluates, hires, and discipline employees; approves time & attendance; administers the University / Teamster contract, manages absences; plans & rotates overtime work, etc.).

*Process Safety Leading Metrics* - a forward looking set of metrics which indicate the performance of the key work processes, operating discipline, or layers of protection that prevent incidents. [*AIChE Center for Chemical Process Safety*]

*Management System* – framework of processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives.

*Risk Management* – the systematic application of management policies, procedures and practices to the tasks of analyzing, assessing and controlling risk in order to protect employees, the general public, the environment and organizational assets while avoiding business interruptions. [*AIChE Center for Chemical Process Safety*]

*Training -* a process by which someone is taught the skills that are needed for a task, function or specific job.

**5.0 Procedure:** Penn State has developed various mechanisms to document, implement, maintain and continually improve the Process Safety Management System to reduce process risks associated with critical operations. The following steps outline the method to manage and control critical key operations within the University.

1. The primary objective of the PSM Program is proper oversight of the use of highly hazardous chemicals / biological agents within The Pennsylvania State University to prevent unwanted releases especially into locations which could expose employees, students or the public to serious hazards. The PSM Program can also include critical operations identified by the University through a risk assessment process.

The framework to effectively manage and operate highly hazardous operations safely is incorporated into the seventeen (17) Elements of the PSM program. The 17 Elements included within the management system are provided below:

* 1. Management System
  2. Process Safety Information
  3. Process Hazard Analysis
  4. Management System to Address Action Items
  5. Process Hazard Analysis Review
  6. Employee Participation
  7. Operating Procedures
  8. Emergency Preparedness
  9. Training and Assessment
  10. Contractor Management
  11. Mechanical Integrity
  12. Maintenance Systems
  13. Pre-Startup Safety Review
  14. Management of Change
  15. Incident Investigation
  16. Compliance Audits
  17. Trade Secrets

Note: Although the above elements represent the complete PSM program, it is recognized that specific operations with lower risks may benefit from implementation of select elements based on operational requirements. Through consultation with the PSM Steering Committee, select element implementation will be assessed on a case-by-case basis.

1. A Compliance Guideline document has been created by the PSM Focus Group for each of the 17 elements, outlining the key requirements within that aspect of the PSM program. The Compliance Guidelines are to be utilized as a tool within the University to assess potential implementation within a specific work unit.
2. To support the Compliance Guidelines, specific written procedures detailing the method to meet the element requirements were developed by the PSM Focus Group. The intent of the written procedure is to clearly define responsibilities and describe the requirements for element compliance. Implementation of a specific element requires adherence to the corresponding written procedure.
3. Senior leadership is required as part of the management system and must be visible within the organization. They are accountable for ensuring compliance with the management system and shall make Process Safety a key business goal while providing the necessary resources to achieve PSM objectives. At a minimum leadership commitment to Process Safety must include:

4.1 Visibly demonstrate leadership commitment to Process Safety

4.2 Clearly assign and communicate Process Safety responsibilities to all affected employees

4.3 Ensure leadership is aware of relevant Process Safety incidents

4.4 Implement system for ensuring Process Safety responsibilities are met

4.5 Integrate Process Safety into planning processes

4.6 Establish Process Safety goals and metrics for the covered process area(s)

In addition, Process Safety shall be incorporated into existing EHS Policy statements for the University as appropriate.

1. The PSM Focus Group has developed a process to identify and select new or existing operations within the University that will be covered within the PSM program. Penn State wants to drive occupational and process risks as low as possible within its operations and a risk matrix approach was developed solely as an internal screening assessment tool. This semi-quantitative risk assessment approach utilizes a 5-by-5 methodology to assign a risk ranking value.

As new or existing operations are identified, the PSM Steering Committee has been charged with evaluating coverage within the PSM program using the risk matrix (see Attachment A).

1. All documents within the management system will be managed through a Document Control process. Document management is important to ensure the most current information is available to the user and mechanisms are in place to manage updates. Each document within the PSM Document Control process shall at a minimum contain the following information:

6.1 Program Name

6.2 Title of Document

6.3 Document Number

6.4 Version Number

6.5 Date the Document was Issued or Revised

6.6 Responsible Department of Document

6.7 Approval to Release Document

6.8 Page Number

A PSM Document Strategy outlines the requirements to ensure documents within the program are reviewed, approved, updated and distributed in a consistent manner. All documents that are part of the management system shall comply with the requirements outlined within the PSM Document Strategy (PSM-SY-UN-020). The Process Safety Program Manager (PSPM) is responsible to manage the PSM Document Control process.

Only the “Approved” current document shall be referenced when reviewing specific procedures, policies or work instructions. These documents shall reside in a transparent, readily available location where various groups within the University are able to access them, including availability on-line.

1. The management system includes a component to measure performance through leading and lagging process safety metrics. Wherever possible leading metrics should be established since they represent forward looking indicators of processes, operating discipline or layers of protection that prevent incidents.

Senior leadership will establish process safety metrics that are relevant to the covered process operations within their work unit. In addition, they will periodically communicate to affected employees the results against the metrics. The PSPM will assist in monitoring and tracking the process safety metrics.

1. A critical component of the management system is continued evaluation of the effectiveness of the processes and procedures in controlling operational risks. The evaluation mechanisms can be formal (e.g. compliance audits) or informal (e.g. action item effectiveness determination) but either method requires appropriate documentation. The PSPM has primary responsibility to ensure program evaluations are conducted and documented.

If management system deficiencies or opportunities for improvement are identified through an evaluation, it should be managed according to the Management System to Address Action Items Element (#04).

1. Senior leadership involved in the PSM program shall review the University’s process safety management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. The planned interval shall be established by the senior leadership but will not exceed the Compliance Audit (#16) cycle. The review shall include assessing opportunities for improvement and the need for changes to the process safety management system. In addition, input to leadership reviews shall include:

9.1 Results of internal audits and evaluations

9.2 Results of participation and consultation by affected stakeholders

9.3 Overall process safety performance

9.4 Extent to which objectives and metrics have been met

9.5 Recommendations for management system improvements

9.6 Significant process safety incidents

9.7 External impacts to management system including regulatory and/or legal actions or wider University objectives

The results of the senior leadership review including any decisions and actions related to management system modifications shall be documented. In addition, the output of the review will be made available to affected stakeholders.

1. The PSPM will periodically evaluate adherence to the requirements outlined within this element including stakeholder feedback on overall process safety management system effectiveness.

**6.0 Attachments**

* 1. Attachment A – Risk Matrix, PSM Covered Process Determination