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| Process Safety Management Program |
| **Title:** Compliance Guidelines for Training and Assessment  **Document #:** PSM-SY-UN-005 **Issued:** 06/25/2014 |
| **Responsible Dept.:** EHS **Version:** New  **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 Training and Assessment Element of the Process Safety Management (PSM) Program.

**2.0 Scope:** The intent of this element is to outline the required PSM training for personnel working on or who can affect a covered process area within Penn State. Process Safety training is conducted for a variety of reasons including but not limited to:

1. Ensure site-specific chemical process EHS information and procedures are being communicated to and understood by all employees in support of the safe operation of the covered process
2. Help employees better understand the nature, causes and consequences of process deviations
3. Increase employee awareness of the Process Safety Management Program and the potential EHS hazards associated with a particular chemical used in a process
4. Assist in the reducing the number and severity of incidents arising from operation of the covered processes

**3.0 Guidelines:** Penn State will define the minimum required training by affected department for employees working on or who can affect a covered process area. As part of conducting the training needs assessment, the following areas will be considered; the associated timeframe to receive initial training, a determination on the requirements for employees to demonstrate competency on the subject matter and frequency of the training (refresher training must be conducted at least every three years). The PSM Training Procedure (PSM-SOP-UN-005) outlines the appropriate actions to implement this element.

On-the-job training is a critical component of this element and includes hands-on review of the actual operation of the covered process. This training will include as appropriate the necessary emergency procedures and exercises to demonstrate competency. This form of training must be conducted under close supervision by someone who is knowledgeable and/or qualified on the subject matter, follows established current operating procedures and is documented.

Each covered process area as defined by Penn State will maintain a list of process specific qualified employees authorized to operate the equipment. Employees must be trained on operating procedures prior to the startup of a new process or transfer to a covered process area.

Employees working on a covered process area must be familiar with the PSM Program requirements (e.g. Management of Change, Mechanical Integrity, Incident Investigation, Maintenance Systems, etc.) prior to working on the equipment. This training must also include the known potential fire, explosion, or toxic release hazards related to their work and the covered process including applicable provisions of the site specific emergency action plan.

Individuals working around a covered process area must at a minimum be trained on the known potential fire, explosion, or toxic release hazards related to their work and the covered process including applicable provisions of the site specific emergency action plan.

Contractor training requirements relating to a covered process area are outlined within the Contractor Management Element (PSM Element #10) and can be found in PSM-SOP-UN-004.

Employee training records must be maintained and document at a minimum with the following information:

1. Identity of the Trainer, the date and length of the session
2. Identity of the individuals taking the training (including signature)
3. Title of Training session and Objective
4. Means to verify that the trainees understood the training

Records will be maintained by their Department following the established documentation procedures. In addition, the EHS Department will maintain PSM training records associated with training sessions provided through the EHS webpage.

The Process Safety Program Manager (PSPM) is required to periodically evaluate the effectiveness of the training being conducted under PSM and audit compliance to the PSM Training Procedure.

**4.0 Definitions:** The following definitions provide guidance regarding common issues surrounding the PSM Training and Assessment Element.

*Competency* - is the ability of an individual to do a job properly, usually through an established set of defined behaviors that provide a structured guide enabling the identification, evaluation and

development of the skill set of individual employees.

*On-the-Job Training* - sometimes called direct instruction or observational learning that is typically a one-on-one training located at the job site, where someone who knows how to do a task showing another how to perform it.

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

*Training Needs Assessment* - is a systematic process for determining the specific training requirements by Job Description. For the PSM program this addresses the job functions related to routine operation of the covered process equipment and routine work around the covered process that may impact the operation.

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| Process Safety Management Program |
| **Title:** Training and Assessment Procedure  **Document #:** PSM-SOP-UN-005 **Issued:** 12/09/2014 |
| **Responsible Dept.:** EHS **Version:** New  **Approved By:** PSM Focus Group **Page:** 1 of 7 |

**1.0 Purpose:** This document outlines the required Process Safety Management (PSM) training for personnel working on or who can affect a covered process area within The Pennsylvania State University (Penn State). This element defines the necessary program to ensure that the covered process areas are operated and maintained by trained and knowledgeable personnel.

**2.0 Scope:** This element covers all personnel who work on PSM covered process areas as defined by the University. In addition, ancillary personnel working around or on areas of the operation that can have an impact on the PSM covered process areas are within the scope of this element. The Training and Assessment element requirements are not limited to Penn State employees.

**3.0 Responsibility:** The following employees have specific responsibilities assigned to them in accordance with the requirements of PSM Training and Assessment procedure. 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. Assign a representative from their respective academic or administrative unit to ensure compliance with this procedure.
3. Ensure training responsibilities are carried out in the academic departments or administrative units for which they are responsible.

Director Design & Construction:

1. Ensure employees within their area(s) of responsibility understand and adhere to the training requirements outlined in this procedure.

Manager Engineering Services:

1. Ensure employees within their area(s) of responsibility understand and adhere to the training requirements outlined in this procedure.

Building Operations Engineers:

1. Assist in development and maintenance of training needs assessments
2. Develop and/or lead training programs as appropriate.

Physical Plant Supervisors:

1. Ensure employees within their area of responsibility understand and adhere to the training requirements outlined in this procedure.
2. Assist in development and maintenance of training needs assessments including covered employees.
3. Develop and/or lead training programs as appropriate.
4. Take prompt corrective action when unsafe process safety conditions or practices are observed or reported.

Operations/Facility Manager:

1. Ensure employees within their area of responsibility understand and adhere to the training requirements outlined in this procedure.
2. Assist in development and maintenance of training needs assessments including covered personnel.
3. Develop and/or lead training programs as appropriate.
4. Take prompt corrective action when unsafe process safety conditions or practices are observed or reported.

Safety Officer:

1. Coordinate implementation of the Training and Assessment program within the work unit.
2. Ensure required training is provided to employees within the work unit.
3. Assist in development and maintenance of training needs assessments including covered personnel.
4. Develop and/or lead training programs as appropriate.

Process Safety Program Manager – EHS Department:

1. Oversee all aspects of the University’s Process Safety Training and Assessment program.
2. Manage training records including training matrix and competencies by covered process area.
3. Periodically reviewing the training program, consultation with program stakeholders and updating the element requirements as appropriate.

Employees:

1. Adhere to the requirements of Training and Assessment program.
2. Assist in development and maintenance of training needs assessments.
3. Develop and/or lead training programs as appropriate.

**4.0 Definitions:**

*Approved Entrant* – any employee or contractor that is familiar with the University PSM requirements, understands the safe work practices required within a covered process area, has been informed of and understands the hazards associated with the covered process area and has received the appropriate hazard communications and specific emergency action plan training.

*Competency* - is the ability of an individual to do a job properly, usually through an established set of defined behaviors that provide a structured guide enabling the identification, evaluation and

development of the skill set of individual employees.

*On-the-Job Training* - sometimes called direct instruction or observational learning that is typically a one-on-one training located at the job site, where someone who knows how to do a task showing another how to perform it.

*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.).

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

*Training Needs Assessment* - is a systematic process for determining the specific training requirements by Job Description. For the PSM program this addresses the job functions related to routine operation of the covered process equipment and routine work around the covered process that may impact the operation.

**5.0 Procedure:** Penn State expects personnel working in or around covered process areas to be trained and knowledgeable on safe operation of the equipment, emergency response actions and key elements of the PSM program. Process Safety training is conducted for a variety of reasons and can be accomplished through various methods. The following steps outline the requirements relating to training and assessments within the PSM program.

1. Safe operation of the covered process equipment is critical to achieve the objectives of the PSM program. The University has recognized that a well-trained and knowledgeable work-force is required for proper equipment operation including during abnormal events. Process Safety training is conducted to address the following areas:
   1. Ensure site-specific chemical process EHS information and procedures are being communicated to and understood by appropriate employees in support of the safe operation of the covered process
   2. Help employees better understand the nature, causes and consequences of process deviations
   3. Increase employee awareness of the Process Safety Management Program and the potential EHS hazards associated with a particular chemical / biological agent used in a process
   4. Assist in the reducing the number and severity of incidents arising from operation of the covered processes

Training can also be provided to address other specific work unit requirements or issues identified through different PSM program elements (e.g. Compliance Audits, Incident Investigation, etc.).

1. Once a covered process is identified within the University, a training needs assessment will be developed through a joint effort by the Safety Officer, Operations / Facility Manager, work unit supervisor, Process Safety Program Manager (PSPM) and as appropriate equipment operators. The training needs assessment is to identify the list of training required to cover standard operations (outlined in Operating Procedures, PSM-SOP-UN-010) and routine work around the covered process area that may impact the operation. The training needs assessment shall be developed for each job description that is involved with the listed standard operations and routine work activities. The initial training needs assessment should be completed within 90 days of identifying the covered process area.

Based on the information developed through the training needs assessment, a training matrix will be generated that includes the following information:

2.1 Job Description

2.2 Training Topic

2.3 Training Frequency (Initial & Refresher)

2.4 Competency Demonstration Requirements

The Training Matrix Worksheet can be used to meet this requirement (See Attachment A).

1. All newly identified covered process areas will have an initial PSM training session scheduled within 30 days of being covered by the University’s PSM program. This initial PSM session will include the following items:
   1. Properties and potential hazards associated with the covered process area (potential fire, explosion, or toxic release hazards)
   2. Overview of the process technology, equipment and operating procedures
   3. Review of safety systems, interlocks, controls and instrumentation present in the process
   4. Overview of the key University PSM program elements and their responsibilities
   5. Emergency response actions for equipment and overall building plans

If portions of the initial training outlined above is unavailable (e.g. written operating procedures) when provided, supplemental training will be provide when the information is developed.

For a new facility / process, initial training must be provided prior to starting the covered process operation.

For the initial training requirements, portion(s) may be waived by the employee’s supervisor if the individual has the required knowledge, skills and abilities to safely carry out the duties and responsibilities as specified by the equipment manufacturer. This waiver must be certified in writing and provided to the PSPM.

1. Refresher training for the items noted in Section 5.3 must be conducted at least every three (3) years. In addition to those items, supplemental training material should include an overview of past changes and improvement that have been made on the covered process along with appropriate PSM incident reports that have occurred.

Refresher training can be conducted more frequently than once every three (3) years if there are significant changes to the equipment, senior leadership deems appropriate due to a high degree of risk associated with the specific covered process area, high rate of process safety related incidents or audit findings.

1. This procedure does not specify a particular training method to be used within the PSM program. The traditional lecture/classroom, on-the-job training, interactive computer training, and other methods can be used separately or in combination to present the required information to covered personnel. Various groups within the University maintain the technical knowledge and expertise to provide training within the PSM program. This can include but not limited to Engineering Services, Area Supervisors, Operations / Facility, Safety Officer, EHS, work group Supervisors and employees. These groups should be engaged in identifying specific training needs, developing and conducting training sessions. It is at the discretion of the individual(s) preparing the training to select the appropriate method to deliver the information.

On-the-job training is a critical component associated with transferring knowledge and must include hands-on review of the actual operation of the covered process equipment. This form of training shall be conducted under close supervision by someone who is knowledgeable and/or qualified on the subject matter, follows established current operating procedures and is documented.

1. The ability of participants to demonstrate their competency within the identified training materials is an important part of this element. The ability of the trainer(s) to verify that the information presented during the training was understood by the participants shall be the assessment portion of this element. There are various methods to conduct this assessment and could include, written or verbal tests, demonstrating mastery of a related skill / task or a series of process steps by successful performance in the field, supervisor’s evaluations attesting to the capabilities of the employee or successful computer simulations of a related skill / task.

It must be clear at the start of any training session how this assessment will be accomplished. In addition, results of the assessment will be documented with the other training records. A minimum level of competency shall be established by the trainer (e.g. Test > 75% score, etc.) and be noted within the training records. If a participant is unable to achieve the level of competency identified for a task or activity, they will be unable to complete that portion of the job responsibilities until successfully achieved. It will be left to the discretion of the trainer to identify the number of attempts to successfully demonstrate competency, however, it will not exceed three (3). If an individual is unable to demonstrate competency to a skill / task they will not be able to conduct those functions within the covered process area for at least twelve (12) months prior to affording them another opportunity to demonstrate competency.

1. Employee training records must be maintained and document at a minimum the following information:

7.1 Identity of the Trainer, the date and length of the session

7.2 Identity of the individuals taking the training (including signature)

7.3 Title of Training session and Objective(s)

7.4 Assessment & results – method to verify participants understood the training

Records will be maintained by their Department following their established documentation procedures. In addition, the EHS Department will maintain PSM training records associated with training sessions provided through the EHS webpage. As necessary, the PSPM will request specific training records to be maintained within the Process Safety Master File for a specific covered process area.

1. Each covered process area as defined by Penn State will maintain a list of process specific qualified employees authorized to operate the equipment. These employees must have received the appropriate training, maintain the necessary equipment knowledge / expertise and met the competency requirements.
2. Individuals working around a covered process area must at a minimum be trained on the known potential fire, explosion, or toxic release hazards related to their work. This shall include any specific alarms associated with the covered process and their responsibilities within the site emergency action plan. This training shall be conducted annually and documented according to the requirements within this procedure.
3. Each covered process area identified within the University’s PSM program will develop a restricted area based on the risks associated with the process. The on-going safe operation of all covered process areas is paramount and individuals entering the designated restricted area must have been provided and understand key EHS / PSM information for that process. Therefore, the designated restricted area will be limited to Approved Entrants.

To become an Approved Entrant, an individual must obtain specific information relating to the covered process area including:

10.1 Known hazards relating to release of the highly hazardous chemical / biological agent, including fire, explosion or health effects

10.2 Appropriate site access and communication requirements for the specific covered process area

10.3 Applicable provisions of the site emergency action plan including understanding of the alarm notification systems

10.4 Understanding of the key PSM program requirements impacting their activities (e.g. Safe Work Permit, Management of Change, Incident Reporting, etc.)

Due to the technical aspects related to the various covered process areas, an approved entrant for one covered process does not authorize them for other covered processes within the University.

A master list will be maintained identifying who is considered an Approved Entrant for each specific covered process. The training in this section shall be conducted annually and documented according to the requirements within this procedure.

1. Contractor employees must receive training on the work practices that are necessary to safely perform their assigned duties as well as Penn State’s safety and work rules and emergency action plan prior to beginning any work on or work that can affect the covered process equipment. In addition, the Approved Entrant requirements defined in Section 5.10 apply to contractor employees, including training documentation, refresher training frequency and maintaining a master list by company.
2. The PSPM is required to periodically evaluate the effectiveness of the training being conducted under the PSM program. This evaluation can include participation in training sessions, participant knowledge in the field and participant input.
3. The PSPM will periodically evaluate performance of the various covered work units to the requirements of this element.

**6.0 Attachments**

* 1. Attachment A – Training Matrix Worksheet