26 PROCESS SAFETY MANAGEMENT

QUIZ 1 (20 POINTS)

True/False (5 points)

- 1. SARA Title III required companies to develop emergency preparedness plans; recognition, knowledge, and inventories of hazardous chemicals; and to report toxic releases.
 - a. true
 - b. false
- 2. One of the factors in process safety management accountability is management and supervisory accessibility and communications.
 - a. true
 - b. false
- 3. If original equipment design information is not available, the information need to establish a process safety management program may be reconstructed from inspection records.
 - a. true
 - b. false
- 4. Management-of-Change programs do not need to consider temporary changes and variances in a process.
 - a. true
 - b. false
- 5. Employers need verification that contractor employees have been trained even though they are only temporary employees.
 - a. true
 - b. false

Multiple Choice (6 points)

- 6. Which of the following organizations was created by an amendment to the U.S. Clean Air Act? a. the Center for Chemical Process Safety
 - b. the Chemical Safety and Hazard Investigation Board
 - c. the Organizations Resource Counselors
 - d. the Synthetic Organic Chemical Manufacturers Association
- 7. Which of the following are not exempt from OSHA's PSM standard?
 - a. a company that stores 12,000 pounds of flammable liquid
 - b. hydrocarbons used only for fuel in the workplace
 - c. retail facilities
 - d. oil well drilling operations

- 8. Among other factors, the short-term goals of a process risk management program should be based on ______.
 - a. the regulatory requirements for program development
 - b. the timeliness and economic feasibility of instituting necessary changes
 - c. management's desired level of compliance
 - d. the requirements for implementing a program
- 9. Which of the following methods of hazard analysis works by asking a series of questions to review potential scenarios and possible consequences?
 - a. HAZOP Study
 - b. Checklist
 - c. "What If...?"
 - d. Failure Mode and Effect Analysis
- 10. Which of the following may be considered for a permit program?
 - a. hot work
 - b. confined-space entry
 - c. opening process equipment
 - d. all of the above
- 11. To comply with the OSHA PSM standard, employers must audit all process operations at least every
 - a. two years
 - b. three years
 - c. four years
 - d. five years

Short Answer (7 points)

12. According to the Chemical Manufacturers Association, what is process safety?

13. What does STEP stand for and what are its goals?

14. Section 112 (r) of the Clean Air Act requires some facilities to develop risk management plans. Which facilities are affected by this rule?

15. How should a facility determine the order of priority to be used for process hazard analyses?

16. Under what conditions should pre-start-up safety reviews be conducted?

17. At a minimum, what information should an incident investigation report cover?

18. Why might a company decide to stop routine process safety audits?

Short Essay (2 points)

19. Chemical information is vital to the creation of a process safety management program. What does this information include and where can it found?

20. Process facilities are subject to two different types of standards and regulations. What are they and how are they different?

QUIZ 2 (20 POINTS TOTAL)

True/False (5 points)

- According to OSHA, process safety management is the proactive identification, evaluation, mitigation, or prevention of chemical releases that could occur as a result of an equipment failure.
 a. true
 - b. false
 - b. false
- 2. Risk management plans required by the Clean Air Act need not be registered with the EPA, although they must be registered with state and local agencies.
 - a. true
 - b. false
- 3. The long-term goals of process risk management should be based on the degree of risk that management is willing to accept.
 - a. true
 - b. false
- 4. An event tree analysis works backward from a defined incident to identify the combination of errors or failures involved in an incident.
 - a. true
 - b. false
- 5. When implementing a training program for employees who work with hazardous chemicals, management needs to consider the design of process maintenance procedures.
 - a. true
 - b. false

Multiple Choice (6 points)

- 6. When did the CMA initiate its Responsible Care Program?
 - a. 1983
 - b. 1985
 - c. 1988
 - d. 1990

- 7. Which of the following focused on preventing releases of hazardous chemicals that could expose employees and others to danger?
 - a. 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals
 - b. Petrochemical (PETROSEP) Industries Compliance Directive
 - c. Instruction CPL 2-2.45, Systems Safety Evaluation of Operations with Catastrophic Potential
 - d. 40 CFR 68 Section 112 (r), Risk Management Programs for Chemical Accidental Release Prevention
- 8. Which of the follow methods of hazard analysis uses specific guide words, which are systematically applied to parameters to identify the consequences of changes in the design of a process?
 - a. Fault Tree Analysis
 - b. Failure Mode and Effect Analysis
 - c. "What If...?"/Checklist
 - d. HAZOP Study
- 9. A good process safety management practice is to review process hazard analyses at least every _____, even if the processes, equipment, or materials have not changed.
 - a. two years
 - b. three years
 - c. five years
 - d. seven years
- 10. Mechanical integrity requirements apply to _____
 - a. vent devices
 - b. pumps and piping systems
 - c. materials of construction
 - d. all of the above
- 11. To comply with OSHA regulations, how many compliance audit reports does an employer need to keep on file?
 - a. the most recent report
 - b. the last two reports
 - c. the last three reports
 - d. none (OSHA does not require employers to keep reports.)

Short Answer (7 points)

12. What is the mission of the Center for Chemical Process Safety?

13. What three points should management keep in mind when developing a safety management program?

14. Why is it important for management to have information on the maximum inventory of hazardous chemicals in a facility at any one time?

15. Block-flow diagrams and simple process-flow diagrams can help the safety professional gather and provide ______.

16. Operating instructions should cover the processing unit's operating limits, including which three areas?

17. What are the four types of PSM inspections OSHA can carry out?

18. Name the five points that, at a minimum, a process safety audit must include.

Short Essay (2 points)

19. Operating instructions should be clear, precise, and understandable. They should be accessible to all employees and contractors involved in a process and should cover a minimum number of points. What are these points?

20. The management of Steeling Corp. has decided to make a major change to a process and has set a team to monitor the design of the new process and quality assurance. Before final design drawings are issued, what areas will the team typically need to check?