

## Executive Summary: Proposed Major Changes to Refinery PSM Rule

*January 9, 2018*

The proposed refinery process safety management rule is the most significant update to our PSM requirements since 1992 when the rule was first adopted. The draft rule contains requirements to prevent major incidents and eliminate, to the greatest extent feasible, health and safety risks to which employees may be exposed. The revised proposed language emphasizes leading and lagging factors, employee collaboration, and new sections that are intended to support a strong process safety management program in petroleum refineries.

This draft strengthens our current PSM requirements and clarifies the intent of the rules. New sections mirror the rule revisions recently adopted in California. These new concepts include:

- **Damage Mechanism Reviews (DMR):** An assessment of potential damage mechanisms that can affect processing equipment, including corrosion, stress cracking, and other material degradation.
- **Hierarchy of Hazard Controls Analysis (HCA):** Assessing hazard prevention and control measures, in priority order, to eliminate or minimize a hazard.
- **Human Factors:** The design of machines, operations and work environments such that they closely match human capabilities, limitations and needs.
- **Management of Organizational Change (MOOC):** This program includes a management of organizational change assessment that the facility manager certifies, and must include employees and their representatives.
- **Process Safety Culture Assessments (PSCA):** This provision is in the rule to objectively define process safety values and beliefs.
- **PSM Management Program:** A PSM management coordinator who is responsible for compliance with the Refinery PSM rule must administer this rule.
- **Implementation:** This section provides for the implementation of any outstanding corrective actions as the result of a PHA, SPA, DMR, HCA, Incident Investigation and Compliance Audits.

### Highlights of Changes

**Employee Collaboration:** The proposed Refinery PSM rule expands upon the access requirements in the current PSM rule. The draft rule requires that employees or employee representatives select any employee who serves on a committee or in an advisory committee. This section also incorporates a requirement to develop and implement a “Stop Work Authority” and Hazard Reporting Program. The term “collaboration,” which replaces the current “participation,” clarifies the degree of partnership between employees and employers expected by the Department. A collaborative effort should also reflect line employee input.

**Process Safety Information (PSI):** The expanded PSI provision requires employers to develop and document information about possible damage mechanisms in a given process. This provision also addresses potential hazards by requiring employers to include in their PSI “the consequences of deviations, including chemical mixing and/or reactions that may affect the safety and health of employees.”

**Process Hazard Analysis (PHA):** A safeguard protection analysis (SPA) is required to document the likelihood of all potential initiating events within 6 months after the completion of the PHA. Furthermore, the employer is required to conduct a hierarchy of controls analysis (HCA) for each recommendation resulting from the PHA, and append it to the report.

**Operating Procedures:** The draft rule expands upon the procedures required for each phase of operation. For example, procedures must define the conditions requiring emergency shutdown, and assign “responsibilities to qualified operators to ensure that [an] emergency shutdown is executed in a safe and timely manner.” Procedures for emergency operations “shall provide that only qualified operators may initiate these operations,” and that prior to allowing operators into the vicinity of a leak, the employer must have either shutdown or depressurized the process where the leak is occurring or isolate the equipment.

**Training:** The draft addresses training for contract, operations, and maintenance employees. The employer will now have more of a role in ensuring the safety of contract employees, and training them about the hazards of the employer’s site. A training record must be created by the employer that includes the type, subject, and verification that knowledge has been transferred.

**Contractors:** The proposed revision has somewhat expanded the responsibility of the employer, which must ensure that properly skilled contractors are working in or near a process. The employer must also document performance evaluations related to contractor work.

**Pre-Start-Up Safety Review (PSSR):** The revisions to the PSSR provisions incorporate the requirement that specific reviews by qualified employees be completed for any new processes. There is a clear emphasis that the PSSR be completed before the startup of the unit, and that contract, operations, and maintenance worker involved in the PSSR have expertise in the process to be started.

**Mechanical Integrity:** The draft strengthens current language requiring development of a mechanical integrity program. The mechanical integrity provisions also require that employers develop a method for employees to report unsafe equipment, that existing equipment complies with RAGAGEPs and is designed, operated installed and maintained “to reduce the risk of failure to the greatest extent feasible.”

**Hot Work Permit:** We revised the hot work permit provision to require employers to keep hot work permits on file for one year (instead of discarding the permit after the hot work is complete).

**Management of Change (MOC):** The draft requires implementing MOC procedures as a part of the new damage mechanism review (DMR), hierarchy of hazard controls analysis (HCA) and safeguard protection analysis (SPA). The draft would also require a review of potential changes with maintenance workers and contractor employees in addition to employees involved in the process.

**Incident Investigation—Root Cause Determination:** The proposed language requires that a root cause determination must be made that allows employers to reduce risk to the greatest extent feasible, and requires that investigation teams include employees with pertinent knowledge—including a contract employee if the incident involved a contract employer.

**Emergency Planning and Response:** Proposed revised language includes the documentation of agreements between the refinery employer and any emergency mutual aid entity relied upon for emergency support.

**Compliance Audits:** Every three years employers must certify that they have evaluated compliance with the provisions of this section. Employers must verify that they are following the procedures and practices developed under this rule. They must also certify that their PSM program is effective, and include employees with expertise and experience in the work they are reviewing on the audit team. The employer must provide a written report of the audit within 60 days.

**Damage Mechanism Reviews:** The draft includes a new provision that requires employers to perform a damage mechanism review (DMR) for each process. A team of engineers, operators, inspectors and persons familiar with damage mechanisms must perform the review and must include a broad assessment of potential damage mechanisms and inspection history. The employer must immediately correct hazards identified in the DMR that could cause death or serious physical harm. “Microbiologically-induced corrosion” has been added as a type of damage mechanism.

**Hierarchy of Hazard Controls Analysis (HCA):** The employer must perform a hierarchy of hazard controls analysis (HCA) in several situations, including during the implementation of recommendations that result from PHAs, following a major change as a part of an MOC, when an incident occurs, and when ensuring the quality of new equipment. The HCA must also identify and evaluate inherently safer measures to reduce risk to the greatest extent feasible.

**Human Factors:** The draft rule language requires the employer to identify human factors-related issues such as staffing levels, fatigue, worker interface with equipment, and communication systems, the employer must develop an effective human factors program, and develop a human factors analysis.

**Management of Organizational Change (MOOC):** The draft rule requires development of a management of organizational change program that addresses changes in staffing levels, shift changes, and an analysis of human factors related to that change. This program must include a management of organizational change assessment that the facility manager certifies, and must include line employees and their representatives.

**Process Safety Culture Assessment (PSCA):** In the revised rule, employers must perform this assessment by evaluating programs and procedures, such as hazard reporting and the response to those reports.

**Process Safety Management System:** Employers must develop and implement a PSM management system. A PSM management coordinator who is responsible for compliance with this rule must administer the system. The employer must develop and maintain an organizational chart that identifies management positions responsible for implementing the PSM Program elements required by this section.

**Implementation:** The draft rule language requires the employer to develop a written corrective action program directed at the recommendations and findings from the assessments in the revised rule.