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OSHA Issues New Guidance on Process Safety Management

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OSHA recently published a guidance document to help petroleum refineries comply with OSHA's Process Safety Management (PSM) standard, 29 CFR 1910.119, distilling lessons learned by OSHA over the past ten years from the Petroleum Refinery PSM National Emphasis Program (NEP). The OSHA guidance serves as a road map for process safety professionals to understand specific areas that OSHA will focus on during a PSM audit and areas most likely for OSHA to find gaps in PSM programs.

The PSM standard contains numerous requirements for the management of processes containing threshold quantities of highly hazardous chemicals, aimed at preventing accidental and unintended releases of toxic and flammable substances. Such threshold quantities are present in a wide range of industrial applications. According to OSHA, no industry sector has had as many fatal or catastrophic PSM-related incidents as the petroleum industry. The PSM standard is an analog to EPA's Risk Management Plan regulation.

OSHA's new guidance document identifies the most common types of PSM non-compliance by petroleum refineries, summarized as follows:

Process Safety Information (PSI)

- Non-compliance with and non-documentation of recognized and generally accepted good engineering practices (RAGAGEP) for facility siting. OSHA cites API RP-752 as an example of RAGAGEP for facility siting.
- Frequent failure to maintain accurate, complete, and current piping and instrumentation diagrams (P&IDs) for process equipment.
- Failure to document relief system design and design basis.

Process Hazard Analysis (PHA)

- Failure to establish a system to promptly address PHA findings and recommendations, ensure that findings and recommendations are resolved timely, and document this resolution. If unresolved findings are discovered, OSHA recommends reviewing previous PHAs and PHAs for other covered processes to discover all unresolved findings.
- Failure to consider facility siting of temporary and permanent structures, equipment, and parking lots.
- Inadequate consideration of human factors, including access to process controls during emergencies, clear emergency exit routes, and labelling on equipment.
- Overreliance on administrative controls to address human factors.

Operating Procedures

- Complete absence of written operating procedures in some instances.
- Frequent deviation from written operating procedures. OSHA notes that a strong employee participation plan can help ensure that operating procedures are followed, or revised when necessary. Further, annual reviews of operating procedures should be timed to occur shortly before relevant, planned events (e.g. reviewing shutdown procedures prior to a planned turnaround).
- Failure to identify conditions that require emergency shutdown, and failure to designate personnel responsible for emergency shutdown procedures.
- Deficient safe work practices for lockout/tagout, line breaks, and hot work permitting.

AUTHORS

- Andrew C. Brought
- Paul Jacobson

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Mechanical Integrity

- Failure to correct equipment deficiencies that are outside acceptable limits.
- Insufficient thickness measurements (e.g. failure to inspect boilers at appropriate location points) and unacceptable or unestablished inspection frequencies.
- Failure to address inconsistencies in thickness measurements.
- Failure to tailor mechanical integrity procedures to the unique characteristics of PSM covered processes.

Management of Change (MOC)

- Failure to utilize MOC for changes in equipment design (e.g. installing control valve bypasses), changes in operating and maintenance procedures, modifications to existing structures, and temporary changes.

OSHA also noted that PSM inspections of oil refineries frequently identify violations of OSHA standards governing flammable and combustible liquids, hazard communication, confined spaces, hazardous locations, personal protective equipment, and lockout/tagout.

Earlier this year, OSHA issued PSM guidance documents targeted at explosives and pyrotechnics manufacturers, small businesses, and storage facilities.

This post was drafted by Paul Jacobson and Andrew Brought, attorneys in the Kansas City, MO office of Spencer Fane LLP. For more information, visit spencerfane.com.