



OSHA's Process Safety Management (PSM) Standard Following *Wynnewood*

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Introduction

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- 10 years in environmental and process safety consulting
- PSM/RMP Program Implementation, Compliance Audit, PHA Facilitation, RMP Updates and OCA Modeling
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Agenda

1. Wynnewood Case Implications
2. PSM Definition of Process
3. What are considered interconnections?
Review of OSHA standard interpretations
4. Flammable Liquids Atmospheric Tank Exemption
5. Identify Your Next Steps

Wynnewood Case Implications

Wynnewood Case Implications (1/3)

- ▶ The boundaries of a PSM-covered process can **extend to equipment that do not contain Highly Hazardous Chemicals**
 - “Nothing on the face of this definition requires a vessel to contain a highly hazardous chemical in order to be part of a process. And its plain terms do not suggest that we should construe this definition to apply to such a narrow category of vessels. Instead, its terms suggest the opposite—the comprehensive phrase “any activity involving” captures a wide swath of vessels in that they need only be part of an *any* activity that *involves* a highly hazardous chemical. Thus, the definition of process unambiguously includes vessels which do not contain a highly hazardous chemical.”
- ▶ **Dissenting opinion refers to the PSM rule preamble** to clarify the second sentence in the PSM “process” redefinition
 - “[A] new sentence has been added to clarify the fact that interconnected and nearby vessels containing a highly hazardous chemical would be considered part of a single process and the quantities of the chemical would be aggregated to determine if the threshold quantity of the chemical is exceeded.”

Wynnewood Case Implications (2/3)

- ▶ The boundaries of a PSM-covered process can extend to equipment that is interconnected, even if the equipment cannot cause a catastrophic release
 - “We also conclude that the Secretary was not required to demonstrate that the Wickes boiler posed a risk of releasing a highly hazardous chemical in order to be part of a process through interconnection”
 - The Tenth Circuit did not address, however, what type and amount of piping and other connections between vessels within a facility constitutes “interconnection”

Wynnewood Case Implications (3/3)

- ▶ Potentially expansion of covered process boundary under EPA's Risk Management Program (RMP) standard
 - “Process” defined under RMP follows the PSM definition
 - *Process* means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities. For the purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

40 CFR 68.3 Definitions.

PSM Definition of Process

PSM Definition of Process

29 CFR 1910.119(b)

- ▶ *Process* means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels *which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.*
- ▶ 72 FR 31456-31457 Interpretation of OSHA's Standard for Process Safety Management of Highly Hazardous Chemicals (June 7, 2007)
 - OSHA's intent is that the phrase "which are located such that a highly hazardous chemical could be involved in a potential release" modifies only the immediately-preceding "separate vessels," making the entire phrase parallel to the free-standing phrase "any group of vessels which are interconnected." Thus, there is no additional requirement on OSHA to show the potentiality of a release with respect to interconnected (as opposed to separate) vessels. Rather, the PSM standard presumes that all aspects of a physically connected process can be expected to participate in a catastrophic release.

OSHA Standard Interpretations on Interconnection

Interconnection

OSHA Standard Interpretations

- ▶ April 28, 1994: A storage tank is part of the covered process:
 - If interconnected via **hard-piping (even occasionally)**
 - Whether or not the tank could be **isolated by valve closure**
 - <https://www.osha.gov/laws-regs/standardinterpretations/1994-04-28>

Interconnection

OSHA Standard Interpretations

► September 27, 1995:

- **A closed double block and vent in a pipeline** containing two closed valves between which is a vent open to the air is considered to be interconnected
 - ◆ This interpretation is predicated on the assumption that there is a reasonable probability that an event such as an explosion would affect interconnected vessels notwithstanding engineering (including valve) and administrative controls required by the PSM standard to prevent release of highly hazardous chemicals. (See the preamble discussions on the middle column of page 6372 of the PSM Final Rule which is enclosed.)
- **Temporary flexible hoses** between two vessels establish an interconnection
- **Polymer pellet pneumatic conveying line** provides interconnection between processes
- <https://www.osha.gov/laws-regs/standardinterpretations/1995-09-27>

Interconnection

OSHA Standard Interpretations

► February 28, 1997

- “If based on this analysis, it is determined that **interconnected equipment downstream from the stipulated covered process** cannot cause a HHC release or interfere with the mitigation of the consequences of a HHC release, and the equipment does not itself contain a TQ or **greater amount of a HHC**, then such equipment could safely be considered outside the limits or boundaries of the covered process.”
- <https://www.osha.gov/laws-regs/standardinterpretations/1997-02-28>
- OSHA’s guidance is to use a PHA for this demonstration

Interconnection

OSHA Standard Interpretations

- ▶ March 14, 2000: LPG Bottling Process
 - Equipment that is interconnected utilizing **underground piping** does not negate the interconnected relationship
 - <https://www.osha.gov/laws-regs/standardinterpretations/2000-03-14>

Interconnection

OSHA Standard Interpretations

► May 21, 2009:

- Process A is a PSM covered process using flammable liquids in excess of the threshold quantity. Process A supplies a "metered" flow rate of flammable product through pumps and small diameter piping to Process B, which contains less than the threshold quantity of flammable material and is located under one roof, but separated by distance and fire walls, from Process A. It is stipulated that an event in one location would not be expected to directly involve or impact the other. Both processes utilize multiple controls and monitoring to prevent a release of flammable liquid.
- Because Process A and Process B are **interconnected**, Process B is a PSM covered process because together with Process A it meets the definition of a process in 29 CFR 1910.119(b) and contains 10,000 pounds or more of flammable liquid.
- While controls may be required under other elements of the PSM standard to control hazards, **the presence or absence of controls does not affect whether or not a process is covered.**
- <https://www.osha.gov/laws-regs/standardinterpretations/2009-05-21>

Interconnection

OSHA Standard Interpretations

- ▶ July 21, 2016 – Memorandum to Regional Administrators (Mixture Rule)
 - An interconnected process is a single process for purposes of coverage under PSM; it is either covered or not covered based on whether the weight of one or more HHCs in any portion of the process meets or exceeds the threshold quantity (TQ) in Appendix A. In determining whether HHCs in any portion of an interconnected process meet or exceed the TQ, the employer need not count any HHC present in a mixture at a concentration less than one percent by weight. However, the employer must determine the total weight of any HHC in a mixture at a concentration of one percent or greater in any portion of the process, and if the total weight meets or exceeds the TQ, the process, as a whole, is covered.
 - <https://www.osha.gov/laws-regs/standardinterpretations/2016-07-21>

Flammable Liquids Atmospheric Tank Exemption

Flammable Liquids Atmospheric Tank Exemption

29 CFR 1910.119(a)(1)(ii)(B)

- ▶ A process which involves a Category 1 flammable gas (as defined in 1910.1200(c)) or a flammable liquid with a flashpoint below 100 °F (37.8 °C) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:
 - Flammable liquids with a flashpoint below 100 °F (37.8 °C) stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.

Identify Your Next Steps

Identify Your Next Steps

- ▶ Review Piping & Instrumentation Diagrams (P&IDs) and/or field verify process(es) to identify potentially interconnected process to the existing covered process(es)
- ▶ Evaluate process boundaries based on past OSHA standard interpretations on interconnection and in proximity
- ▶ If still unclear, site may consider implementing certain prevention program elements as a best practice:
 - Process Hazard Analysis
 - Mechanical Integrity
 - Management of Change



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