



DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. OSHA-2013-0020]

RIN No. 1218-AC82

Process Safety Management and Prevention of Major Chemical Accidents

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Request for information.

SUMMARY: In response to Executive Order 13650, OSHA requests comment on potential revisions to its Process Safety Management (PSM) standard and its Explosives and Blasting Agents standard, potential updates to its Flammable Liquids standard and Spray Finishing standard, and potential changes to PSM enforcement policies. In this Request for Information (RFI), the Agency asks for information and data on specific rulemaking and policy options, and the workplace hazards they address. OSHA will use the information received in response to this RFI to determine what action, if any, it may take.

DATES: Submit comments and additional material on this Request for Information [INSERT DATE 90 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

All submissions must bear a postmark or provide other evidence of the submission date.

The following section describes the available methods for making submissions.

ADDRESSES: Submit comments and additional materials by any of the following methods:

Electronically: Submit comments and attachments electronically at <http://www.regulations.gov>, which is the Federal eRulemaking Portal. Follow the instructions online for making electronic submissions.

Facsimile: OSHA allows facsimile transmission of comments and additional material that are 10 pages or fewer in length (including attachments). Send these documents to the OSHA Docket Office at (202) 693-1648. OSHA does not require hard copies of these documents. Instead of transmitting facsimile copies of attachments that supplement these documents (for example, studies, journal articles), commenters must submit these attachments to the OSHA Docket Office, Technical Data Center, Room N-2625, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW., Washington, DC 20210. These attachments must identify clearly the sender's name, the date, subject, and docket number (OSHA-2013-0020) so that the Docket Office can attach them to the appropriate document.

Regular mail, express mail, hand delivery, or messenger (courier) service: Submit comments and any additional material (for example, studies, journal articles) to the OSHA Docket Office, Docket No. OSHA-2013-0020 or RIN 1218-AC82, Technical Data Center, Room N-2625, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW., Washington, DC 20210; telephone: (202) 693-2350. (OSHA's TTY number is (877) 889-5627.) Contact the OSHA Docket Office for information about security procedures concerning delivery of materials by express mail, hand delivery, and messenger service. The hours of operation for the OSHA Docket Office are 8:15 a.m. to 4:45 p.m., e.t.

Instructions: All submissions must include the Agency's name and the docket number for this Request for Information (that is, OSHA-2013-0020). OSHA will place comments and other material, including any personal information, in the public docket without revision, and these materials will be available online at <http://www.regulations.gov>. Therefore, OSHA cautions commenters about submitting statements they do not want made available to the public and submitting comments that contain personal information (either about themselves or others) such as Social Security numbers, birth dates, and medical data.

If you submit scientific or technical studies or other results of scientific research, OSHA requests (but is not requiring) that you also provide the following information where it is available: (1) identification of the funding source(s) and sponsoring organization(s) of the research; (2) the extent to which the research findings were reviewed by a potentially affected party prior to publication or submission to the docket, and identification of any such parties; and (3) the nature of any financial relationships (e.g., consulting agreements, expert witness support, or research funding) between investigators who conducted the research and any organization(s) or entities having an interest in the rulemaking and policy options discussed in this RFI. Disclosure of such information is intended to promote transparency and scientific integrity of data and technical information submitted to the record. This request is consistent with Executive Order 13563, issued on January 18, 2011, which instructs agencies to ensure the objectivity of any scientific and technological information used to support their regulatory actions. OSHA emphasizes that all material submitted to the record will be considered by the Agency if it engages in rulemaking.

Docket: To read or download submissions or other material in the docket, go to <http://www.regulations.gov> or the OSHA Docket Office at the address above. The <http://www.regulations.gov> index lists all documents in the docket. However, some information (e.g., copyrighted material) is not available publicly to read or download through the Web site. All submissions, including copyrighted material, are available for inspection at the OSHA Docket Office. Contact the OSHA Docket Office for assistance in locating docket submissions.

FOR FURTHER INFORMATION CONTACT:

Press inquiries: Mr. Frank Meilinger, Director, OSHA Office of Communications, Room N-3647, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693-1999; e-mail: meilinger.francis2@dol.gov.

General and technical information: Ms. Lisa Long, Director, Office of Engineering Safety, OSHA Directorate of Standards and Guidance, Room N-3609, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC, 20210; telephone: (202) 693-2222; email: long.lisa@dol.gov.

SUPPLEMENTARY INFORMATION:

Copies of this Federal Register notice and news releases: Electronic copies of these documents are available at OSHA's Web page at <http://www.osha.gov>. Copies of this Federal Register notice also are available at <http://www.regulations.gov>.

I. Background

A. Executive Order 13650

On August 1, 2013, President Obama signed Executive Order 13650, entitled Improving Chemical Facility Safety and Security. Section 6(e)(ii) of the order requires

OSHA to publish, within 90 days, an RFI designed to identify issues related to modernization of its PSM standard¹ and related standards necessary to meet the goal of preventing major chemical accidents. In response to the Executive Order, OSHA is publishing this RFI to collect data and information on its PSM standard and related standards, as well as other regulatory issues involving hazardous chemicals.

B. Process Safety Management of Highly Hazardous Chemicals

OSHA originally promulgated the §1910.119 Process Safety Management (PSM) standard in 1992 in response to a number of catastrophic chemical-release incidents that occurred worldwide. The incidents spurred broad recognition in the safety community that accidental releases of highly hazardous chemicals can result in multiple worker injuries or fatalities. The main objective of the PSM standard is to prevent or minimize employee exposure to the hazards associated with uncontrolled releases of highly hazardous chemicals.

The PSM standard is a comprehensive management program for highly hazardous chemicals that integrates technologies, procedures, and management practices to help assure safe and healthful workplaces. One of the key components of the PSM standard is the requirement that employers perform a process hazard analysis, which is a careful review of what could go wrong and what safeguards employers must implement to prevent uncontrolled releases. The PSM standard also mandates written operating procedures; employee training; prestartup safety reviews; evaluation of the mechanical integrity of critical equipment; and written procedures for managing change. In addition, the PSM standard specifies a permit system for hot work; investigation of incidents

¹<https://www.osha.gov/SLTC/processsafetymanagement/>

involving releases or near misses of covered chemicals; emergency-action plans; compliance audits at least every three years; and trade-secret protection.

While the PSM standard has been effective in improving process safety in the United States and protecting workers from many of the hazards associated with uncontrolled releases of highly hazardous chemicals, major incidents have continued to occur.

(1) On April 23, 2004, an explosion and fire at Formosa Plastics in Illiopolis, Illinois, killed five workers and severely injured three others. According to the U.S. Chemical Safety and Hazard Investigation Board's (CSB) report on the incident (CSB Report No, 2004-10-I-IL), while Formosa failed to properly implement many OSHA-required elements of its PSM program, modernization of the PSM standard to include several issues discussed below would likely have prevented or minimized the consequences of this incident. In 2005, OSHA reached a settlement agreement with Formosa with 48 citations, 31 of which were PSM citations, and fines totaling \$300,000. The CSB report contains a detailed analysis of the root causes of this incident.

(2) On March 23, 2005, 15 workers died and more than 170 others were injured at the BP Refinery in Texas City, Texas. As a result of the incident, OSHA issued over 300 citations and fined BP over \$21 million. Many of the citations were for PSM violations, including failing to properly implement mechanical integrity, training, and standard operating procedures. In a 2009 follow-up investigation, OSHA found numerous deficiencies at the BP Texas City Refinery and issued 270 failure-to-abate notices. In a 2010 settlement agreement with OSHA, BP agreed to pay a penalty of \$50.6 million to resolve the notices.

(3) On April 2, 2010, an explosion and fire at the Tesoro refinery in Anacortes, Washington, killed seven workers. The incident occurred when a heat exchanger suddenly ruptured during maintenance, releasing a highly hazardous chemical that subsequently exploded. The company operated under the jurisdiction of the Washington State Department of Labor and Industries Division of Occupational Safety and Health (DOSH), which adopted OSHA's PSM standard into its state plan regulations at WAC 296-67. DOSH inspectors found that Tesoro failed to properly implement its PSM program by inadequately testing its equipment and continuing to operate failing equipment. As the result of the incident, DOSH issued 44 citations, 36 of which were PSM citations, to Tesoro, totaling \$2.39 million. The root cause investigation is ongoing, however, modernization of the PSM standard to include several issues discussed below would likely have prevented or minimized the consequences of this incident.

(4) On April 17, 2013, an ammonium nitrate explosion at the West Fertilizer Company storage and distribution facility in West, Texas, killed at least 15 people - the majority of whom were firefighters responding to a fire at the facility - and injured over 160 others. The West Fertilizer facility is not currently covered by PSM, however it is a stark example of how potential modernization of the PSM standard may include such facilities and prevent future catastrophe.

In 2007, OSHA initiated its Petroleum Refinery PSM National Emphasis Program (NEP) to reduce or eliminate the workplace hazards associated with the catastrophic release of highly hazardous chemicals in petroleum refineries. The program outlined a new approach for inspecting PSM-covered facilities that allowed for a greater number of inspections using better allocation of OSHA resources. In 2009, OSHA built upon that

inspection program by implementing a pilot PSM-Covered Chemical Facilities NEP, which it later expanded into a full NEP. Under both of the PSM NEPs, OSHA was able to increase the number of PSM-covered facilities inspected and gained valuable inspection data.

C. Rulemaking and Enforcement Policy Change Options under Consideration

OSHA has determined that revisions to its PSM standard may be needed to address issues in coverage. As specified in Executive Order 13650, the Agency is also considering related revisions to its Explosives and Blasting Agents standard to address potential issues in coverage; updates to its Flammable Liquids standard and Spray Finishing standard to better align with current versions of applicable consensus standards; and changes in its enforcement policies for these standards. OSHA identified a number of rulemaking and policy options through the Agency's PSM NEPs, its investigation of major accidents, and its review of recommendations from the safety community. OSHA identified the following topics as potential candidates for rulemaking or enforcement policy changes:

1. Clarifying the PSM exemption for atmospheric storage tanks;
2. Oil- and Gas-Well Drilling and Servicing;
3. Oil- and Gas-Production Facilities;
4. Expanding PSM Coverage and Requirements for Reactivity Hazards;
5. Updating the List of Highly Hazardous Chemicals in Appendix A of the PSM Standard;
6. Revising the PSM Standard to Require Additional Management-System Elements;

7. Amending Paragraph (d) of the PSM Standard to Require Evaluation of Updates to Applicable recognized and generally accepted good engineering practices (RAGAGEP);
8. Clarifying the PSM Standard by Adding a Definition for RAGAGEP;
9. Expanding the Scope of Paragraph (j) of the PSM Standard to Cover the Mechanical Integrity of Any Safety-Critical Equipment;
10. Clarifying Paragraph (l) of the PSM Standard with an Explicit Requirement that Employers Manage Organizational Changes;
11. Revising Paragraph (n) of the PSM Standard to Require Coordination of Emergency Planning with Local Emergency-Response Authorities;
12. Revising Paragraph (o) of the PSM Standard to Require Third-Party Compliance Audits;
13. Expanding the Requirements of §1910.109 to Cover Dismantling and Disposal of Explosives, Blasting Agents, and Pyrotechnics;
14. Updating §§1910.106 and 1910.107 Based on the Latest Applicable Consensus Standards;
15. Updating the Regulations Addressing the Storage, Handling, and Management of Ammonium Nitrate;
16. Changing Enforcement Policy of the PSM Exemption for Retail Facilities; and
17. Changing Enforcement Policy for Highly Hazardous Chemicals Listed in Appendix A of the PSM Standard without Specific Concentrations.

The subsections below discuss each of these potential rulemaking topics in greater detail.

1. Clarifying the PSM Exemption for Atmospheric Storage Tanks

Pursuant to paragraph (a)(1)(ii) of §1910.119, the PSM standard applies to processes involving a flammable liquid or gas on site in one location in a quantity of 10,000 pounds or more. However, paragraph (a)(1)(ii)(B) contains an exemption for “[f]lammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.”

In Secretary of Labor v. Meer Corporation (1997) (OSHRC Docket No. 95-0341), an administrative law judge ruled that PSM coverage does not extend to flammables stored in atmospheric tanks, even if the tanks are connected to a process. As a result, employers can exclude the amount of flammable liquid contained in an atmospheric storage tank, or in transfer to or from storage, from the quantity contained in the process when determining whether a process meets the 10,000-pound threshold quantity. The Meer decision was contrary to OSHA’s earlier interpretation² of paragraph (a)(1)(ii)(B), which was that the standard covered all stored flammables when connected to, or in close proximity to, a process.

OSHA believes that revising paragraph (a)(1)(ii)(B) to include flammable liquids in atmospheric storage tanks within or connected to a PSM covered processes would improve the safety of workers by remedying the issue in PSM enforcement that has existed since the Meer decision. In the questions in this RFI, the Agency requests comment on revising paragraph (a)(1)(ii)(B) to clarify that the PSM standard covers all stored flammables when connected to, or in close proximity to, a process.

2. Oil- and Gas-Well Drilling and Servicing

²https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9760

Paragraph (a)(2)(ii) of §1910.119 exempts oil- and gas-well drilling and servicing operations from PSM coverage. The preamble to the PSM final rule explained that OSHA excluded these operations because it had begun a separate rulemaking for oil and gas well drilling and servicing operations (48 FR 57202). However, the Agency subsequently removed the oil and gas well drilling and servicing operations rulemaking from its regulatory agenda and never promulgated a final rule for these operations. In light of this history, OSHA requests public comment on whether to retain or remove the §1910.119(a)(2)(ii) exemption.

3. Oil- and Gas-Production Facilities

On March 4, 1998, a catastrophic vessel failure and fire killed four workers at an oil- and gas-production facility near Pitkin, Louisiana, owned by Sonat Exploration Company. Sonat was using well fluid to purge air from a two-mile pipeline that connected a separation facility to a production well when the separation vessel failed. In its investigation report on the incident (Report No. 1998-002-I-LA), the CSB stated that “[t]wo elements of the PSM standard, process hazard analyses and written operating procedures, are particularly relevant to the Sonat incident.” The CSB further concluded that “[t]he incident would likely have been prevented if process safety management principles or good engineering practice had been followed more effectively at the facility.”

The exemption in §1910.119(a)(2)(ii) does not extend to oil- and gas-well production operations such as the Sonat facility noted in the previous paragraph. A December 20, 1999, memo from Compliance Programs director Richard Fairfax to OSHA regional administrators, entitled PSM Applicability to Oil/Gas Production

Facilities, explained that “production facilities...were always intended to be covered under PSM.” The memo described covered production operations as follows:

Production, as recognized by the petroleum industry, is a phase of well operations that deals with bringing well fluids to the surface, separating them, and then storing, gauging and otherwise preparing the product for the pipeline. This production phase occurs after a well has been drilled, completed, and placed into operation, or after it has been returned to operation following workover or servicing. A completed well includes a "Christmas tree" (control valves, pressure gauges and choke assemblies to control the flow of oil and gas) which is attached at the top of the well where pressure is expected. It is at this point, the top of the well, where the covered PSM process begins. The distance between separation equipment and the well is not a factor when determining PSM applicability for production facilities.

The American Petroleum Institute (API) objected to the December 20, 1999, memo, asserting that PSM coverage of oil- and gas-production facilities was invalid because OSHA did not conduct an economic analysis during the original PSM rulemaking proceedings addressing such coverage. In a March 7, 2000, letter to API, OSHA conceded that the original economic analysis for the PSM standard did not include oil- and gas-production operations, and stated further that the Agency would suspend enforcement of the PSM standard for oil- and gas-production operations until it performed the analysis. OSHA is considering completing this analysis so that it can resume enforcement of the PSM standard for oil- and gas-production facilities.

OSHA believes that implementation of an effective PSM program in accordance with the requirements in §1910.119 by oil and gas production facilities could prevent or mitigate accidents like the Sonat explosion. In the questions in this RFI, the Agency requests public comment on completing an economic analysis and possibly resuming enforcement for PSM-covered oil- and gas-production facilities. OSHA will review the comments received to determine what action, if any, the Agency will take.

4. Expanding PSM Coverage and Requirements for Reactivity Hazards

Paragraph (a) of §1910.119 states that the standard applies to any “process which involves a chemical at or above the specified threshold quantities listed in Appendix A,” and to any “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),” unless the process meets one of the exceptions in §1910.119(a)(1)(ii)(A) and (B). Appendix A of §1910.119 contains a list of 137 highly hazardous chemicals that present a potential for a catastrophic event at or above the listed threshold quantities. A number of the chemicals listed in Appendix A are highly reactive chemicals based on a variety of metrics, including consensus standard sources, but the list does not cover all highly reactive chemicals.

OSHA has long been aware of the need to update the PSM standard to address hazards associated with reactive chemicals. In response to a 1995 chemical explosion that killed five workers at Napp Technologies, Inc., in Lodi, New Jersey, OSHA received a petition to revise its PSM standard to address reactivity hazards. OSHA and the U.S. Environmental Protection Agency (EPA) investigated the Napp Technologies accident and concluded in a jointly issued 1997 report (EPA-550-R-97-002) that the explosion was most likely triggered by an uncontrolled chemical reaction of water, sodium hydrosulfite, and aluminum powder. Aluminum powder and sodium hydrosulfate are relatively stable chemicals, with instability/reactivity ratings³ of one⁴ and two⁵, respectively. However,

³Instability/reactivity ratings listed are set by the National Fire Protection Association’s Standard System for the Identification of the Hazards of Materials for Emergency Response (NFPA 704)

⁴NFPA 704 instability/reactivity of one: “normally stable, but can become unstable at elevated temperatures and pressures”

when both of these chemicals are mixed with water the reaction is extremely hazardous. In 2000, OSHA added an advance notice of proposed rulemaking (ANPRM) for reactive chemicals (RIN 1218-AB63) to its regulatory agenda. However, OSHA removed the item from its regulatory agenda in 2002 and never published the ANPRM. In 2003, the labor unions re-filed their petition for OSHA to revise its PSM standard to address reactivity hazards.

The CSB has also made a number of recommendations to OSHA on how the PSM standard could be amended to more comprehensively control reactive hazards. In a 2002 report, the CSB broadly recommended that OSHA extend PSM coverage to chemicals based on a class of highly reactive properties, similar to the way the existing PSM standard defines a class of flammable liquids or gases. The CSB explained that a performance-based approach to evaluating reactive hazards would allow for both a comprehensive analysis and flexibility in implementation, but it cautioned that a proper hazard analysis of reactive hazards would require expertise in reactivity hazards.

One approach to regulating reactive hazards is the New Jersey Toxic Catastrophe Prevention Act (TCPA). Enacted in 1986, the TCPA is a New Jersey statute that contains many process safety elements similar to the PSM standard, but the TCPA differs from PSM by explicitly covering reactive hazards, including reactive mixtures. Unlike the PSM standard, which contains only one list of covered hazardous chemicals in Appendix A, the TCPA contains multiple lists. This includes the List of Individual Reactive Hazardous Substances, as well as a list of Reactive Hazard Substances Mixture Functional Groups. N.J.A.C. 7:31-6.3(a), Table I, Part D, Group I, N.J.A.C. 7:31-6.3(a),

⁵NFPA 704 instability/reactivity of two: “undergoes violent chemical change at elevated temperatures and pressures”

Table I, Part D, Group II. These functional groups include certain molecular structures that have been identified as highly reactive, based on scientific research and accident history. Under the TPCA, covered facilities must determine if any of the chemicals they are intentionally mixing include components on the Functional Group list. If so, then the facility must determine the heat of the reaction and the corresponding threshold quantity for TPCA coverage. This approach takes into account not only certain specific chemicals, but also their overall reactivity in determining the level of coverage.

In the questions in this RFI, OSHA invites comment on different regulatory approaches to covering reactive hazards, including the approach used in the TPCA.

5. Updating the List of Highly Hazardous Chemicals in Appendix A of the PSM Standard

Appendix A of §1910.119 contains a list of 137 highly hazardous chemicals that present a potential for a catastrophic event at or above the threshold quantity of the standard. OSHA compiled the Appendix A list of chemicals from multiple sources, including:

- New Jersey's Toxic Chemical Prevention Act;
- Delaware's Extremely Hazardous Substances Risk Management Act;
- The World Bank's Manual of Industrial Hazard Assessment Techniques;
- U.S. Environmental Protection Agency's List of Extremely Hazardous Substances;
- U.S. Department of Transportation's Emergency Response Guidebook;
- Council of the European Communities' Council Directive of June 24, 1982, on the Major Accident Hazards of Certain Industrial Activities (82/501/EEC);

- United Kingdom Health and Safety Executive’s A guide to the Control of Major Accident Hazards Regulations 1999 (as amended);
- API’s Recommended Practice 750 - Management of Process Hazards;
- National Fire Protection Association’s (NFPA) NFPA 49 - Hazardous Chemicals Data; and
- Organization Resources Counselors, Inc.’s Recommendations for Process Hazards Management of Substances with Catastrophic Potential.

Every chemical listed in Appendix A appeared in at least one of these sources as warranting a high degree of management control due to its extremely hazardous properties; most of the chemicals appeared in several of the sources.

Appendix A has remained unchanged since OSHA promulgated the PSM standard in 1992. In the questions in this RFI, OSHA requests public comment on which chemicals, if any, the Agency should add to Appendix A through rulemaking. OSHA further seeks comment on methods for periodically updating Appendix A to ensure adequate protection of workers in PSM-covered facilities when new hazards are discovered and as technology and advancements in chemical science evolve.

6. Revising the PSM Standard to Require Additional Management-System Elements

Executive Order 13650 requires OSHA to “identify issues related to modernizing the PSM standard.” When OSHA promulgated the PSM standard in 1992, the standard adopted management-system elements based on best practices from industry at the time. However, best practices have continued to evolve since 1992 and additional management-system elements may now be recognized to be necessary to protect workers.

In this RFI, OSHA seeks public comment on additional management-system elements that would increase worker protection if required under the PSM standard.

The Center for Chemical Process Safety (CCPS) is an example of a safety organization that recommends additional management-system elements. CCPS specifies in its Risk Based Process Safety (RBPS) program 20 different management-system elements, a number of which are not included in the PSM standard. One such RBPS element is “Measurement and Metrics,” described by CCPS as a system for establishing indicators to track the effectiveness of the management system.⁶ In this element, the employer typically uses metrics to track leading and lagging safety indicators, and to identify opportunities for improvement. Another RBPS element is “Management Review and Continuous Improvement,” which CCPS describes as “the ongoing ‘due diligence’ review by management that fills the gap between day-to-day work activities and periodic formal audits.”⁷ A third RBPS element is “Process Safety Competency,” which CCPS explains “encompasses three interrelated actions: (1) continuously improving of knowledge and competency, (2) ensuring that appropriate information is available to people who need it, and (3) consistently applying what has been learned.”⁸

OSHA also is considering adopting management-system elements from safety standards that other federal agencies promulgated since 1992. For example, the Bureau of Safety and Environmental Enforcement’s (BSEE) Revisions to Safety and Environmental Management Systems (SEMS II) final rule (78 FR 20423; 04/05/2013), which revised a number of requirements in 30 CFR 250, Subpart S, contains management-system

⁶Guidelines for Risk Based Process Safety, CCPS. <http://www.aiche.org/ccps>

⁷Ibid.

⁸Ibid.

elements not included in the PSM standard. In its SEMS II Fact Sheet (April, 2013)⁹,

BSEE describes three of the main additional elements as follows:

- Developing and implementing a stop work authority that creates procedures and authorizes any and all offshore industry personnel who witness an imminent risk or dangerous activity to stop work.
- Developing and implementing an ultimate work authority that requires offshore industry operators to clearly define who has the ultimate work authority on a facility for operational safety and decision-making at any given time.
- Requiring an employee participation plan that provides an environment that promotes participation by offshore industry employees as well as their management to eliminate or mitigate safety hazards.

OSHA invites public comment on any additional management-system elements, or on expanding existing elements, including those elements discussed in this RFI to improve worker protection in facilities covered under the PSM standard. The Agency requests that commenters submit data and information on management-system elements from consensus standards, safety organizations, federal standards, or other sources that could increase worker safety if OSHA expanded the PSM standard to include the elements.

7. Amending Paragraph (d) of the PSM Standard to Require Evaluation of Updates to Applicable RAGAGEP

Paragraph (d)(3)(ii) of §1910.119 requires employers to document that covered equipment complies with RAGAGEP. “For existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use,” paragraph (d)(3)(iii) of §1910.119 further requires employers to “determine and document that the equipment is designed, maintained, inspected, tested, and operating in a safe manner.” However, the PSM standard does not require employers to evaluate

⁹<http://www.bsee.gov/BSEE-Newsroom/BSEE-Fact-Sheet/SEMS-II-Fact-Sheet.aspx>

updates to applicable RAGAGEP or to examine new RAGAGEP after evaluating and documenting compliance with either §1910.119(d)(3)(ii) or (iii).

Through extensive collaboration and evaluation of incidents, many safety organizations periodically update their standards to improve work practices and protect workers against newly identified hazards. Since the practices constituting RAGAGEP under the PSM standard are constantly changing as a result of this process, evaluating updates to applicable RAGAGEP ensures that employers base a facility's PSM program on the most up-to-date and accurate safety information available.

An accident that occurred at a Formosa Plastics facility in Point Comfort, Texas, on October 6, 2005, illustrates the importance of evaluating updates to applicable RAGAGEP. A trailer towed by a forklift became snagged and pulled a small drain valve out of a strainer in a liquid propylene system at the facility. Escaping propylene rapidly vaporized, causing a series of explosions and fires that injured 16 workers. According to the CSB's investigation report on the incident (CSB Report No. 2006-01-I-TX), Formosa and the company that sold the plant design failed to evaluate updates to applicable RAGAGEP for fireproofing structural steel that supports critical safety systems. The CSB concluded in its report that had Formosa fireproofed the steel according to more recent RAGAGEP, then "the consequences of this incident would likely have been less severe." OSHA invites public comment on the best approach to revising paragraph (d) of the PSM standard to require employers to evaluate updates to applicable RAGAGEP could help prevent or mitigate accidents like the October 6, 2005, Formosa explosion, and increase worker protection in PSM-covered facilities.

8. Clarifying the PSM Standard by Adding a Definition for RAGAGEP

The term “recognized and generally accepted good engineering practices” (RAGAGEP) appears in paragraphs (d)(3)(ii) and (j)(4)(ii) of §1910.119, but the PSM standard does not contain a definition for the term. For guidance purposes, OSHA’s Petroleum Refinery NEP directive (CPL 03-00-010) provides one example of a RAGAGEP definition from CCPS’s Guidelines for Mechanical Integrity Systems:

“Recognized And Generally Accepted Good Engineering Practices” (RAGAGEP) – are the basis for engineering, operation, or maintenance activities and are themselves based on established codes, standards, published technical reports or recommended practices (RP) or similar documents. RAGAGEPs detail generally approved ways to perform specific engineering, inspection or mechanical integrity activities, such as fabricating a vessel, inspecting a storage tank, or servicing a relief valve.

Although the CCPS’s definition of RAGAGEP is not an official OSHA definition, it is consistent with OSHA's intent when it promulgated the standard. In its PSM proposal, OSHA would have required employers to follow commonly accepted consensus standards and industry codes. 55 FR 29150, 29155 (July 17, 1990). In promulgating the final rule, OSHA changed the requirement that employers comply with applicable published codes to the requirement that they comply with “recognized and generally accepted good engineering practices.” In making this change, OSHA explained that RAGAGEP would include codes and standards published by organizations such as NFPA, ASTM, and ANSI, as well as "appropriate internal standards." 57 FR at 6390-91. OSHA made the change in response to comments expressing a number of concerns about the proposed language. These included comments about employers' difficulties in obtaining relevant codes and standards, potential confusion on which codes were required by OSHA in a given situation, the possibility that codes and standards could become outdated, and the inability of employers to use more stringent internal standards. OSHA believed it was clear from the context of this change that it intended "appropriate internal

standards" to be those employers developed when published codes and standards were unavailable or outdated, or that were more stringent than published standards. 57 FR at 6390-91. However, OSHA did not include a definition of RAGAGEP in the standard itself.

In this RFI, OSHA invites public comment on whether the Agency should clarify the PSM standard by including an explicit definition of RAGAGEP in §1910.119 to assist employers in complying. OSHA requests that commenters specify if the Agency should adopt the CCPS's definition of RAGAGEP in §1910.119, or any other appropriate definition, and whether inclusion of a definition would increase worker protection and enhance process safety.

9. Expanding the Scope of Paragraph (j) of the PSM Standard to Cover the Mechanical Integrity of Any Safety-Critical Equipment

Paragraph (j) of §1910.119 requires employers to implement an ongoing mechanical-integrity program with respect to their PSM-covered processes. For processing, storing, or handling highly hazardous chemicals, employers must use equipment designed, constructed, installed, and maintained to minimize the risk of an uncontrolled release. Elements of an effective mechanical-integrity program include: identifying and categorizing equipment and instrumentation; inspecting and testing their frequency; maintaining procedures; training maintenance personnel; having criteria for acceptable test results; documenting test and inspection results; and documenting manufacturer recommendations for equipment and instrumentation.

Paragraph (j)(1) states that the mechanical-integrity requirements of the PSM standard apply to: pressure vessels and storage tanks; piping systems (including piping components such as valves); relief and vent systems and devices; emergency shutdown

systems; controls (including monitoring devices and sensors, alarms, and interlocks); and pumps. In the preamble to the PSM final rule, OSHA explained that “if an employer deems additional equipment to be critical to a particular process, that employer should consider that equipment to be covered by this paragraph and treat it accordingly” (57 FR 6389, February 24, 1992). In light of the limited list of covered equipment in paragraph (j)(1), OSHA addresses hazards associated with other types of safety-critical equipment through citations for violations of Section 5(a)(1) of the OSH Act.

Revising paragraph (j) to explicitly apply the mechanical-integrity requirements of the PSM standard to all equipment the employer identifies as critical to process safety-critical equipment, in addition to the equipment currently listed in the standard, would provide industry with proper notice regarding coverage of such equipment. OSHA invites comment on whether the addition of this provision to paragraph (j) will increase worker safety and whether any further clarifying revisions would be recommended to ease implementation.

10. Clarifying Paragraph (l) of the PSM Standard with an Explicit Requirement that Employers Manage Organizational Changes

Paragraph (l) of §1910.119 requires employers to establish and implement written procedures to manage change, including all modifications to equipment, technology, procedures, raw materials, and processing conditions other than replacements in kind. Temporary changes are subject to the management-of-change requirements of the standard. Employers must properly identify and review all PSM-covered changes before implementation.

The existing standard does not explicitly state that employers must follow management-of-change procedures for organizational changes,¹⁰ such as changes in management structure, budget cuts, or personnel changes; however, as noted in a March 31, 2009, Memorandum for Regional Administrators from Richard Fairfax¹¹, it is OSHA's position that paragraph (l) covers organizational changes if the changes have the potential to affect process safety. Since the original promulgation of the PSM rule, it has become well established in the safety community that organizational changes can have a profound impact on worker safety and, therefore, employers should evaluate organizational change like any other change. Illustrating the significant hazards that organizational changes can produce, the CSB identified a lack of organizational management of change as a significant factor behind the 2005 BP Texas City Refinery accident that killed 15 workers and injured over 170 others (CSB Report No. 2005-04-I-TX). OSHA invites comments on whether revising paragraph (l) to clarify that the PSM standard's organizational management-of-change requirements will increase worker safety.

11. Revising Paragraph (n) of the PSM Standard to Require Coordination of Emergency Planning with Local Emergency-Response Authorities

Paragraph (n) of §1910.119 requires employers to establish and implement an emergency-action plan in accordance with §1910.38, OSHA's Emergency Action Plans (EAP) standard, and to meet applicable requirements in paragraphs (a), (p), and (q) of

¹⁰CCPS provides the following examples of organizational changes: "a reduction in the number of operators on a shift, a change in the maintenance contractor for the site, changing from 5-day operation to 7-day operation, or rotation of plant managers." Guidelines for the Management of Change for Process Safety, CCPS.

¹¹https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=28628

§1910.120, the Agency's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard. While some OSHA standards, such as §1910.146, Permit-Required Confined Spaces, require employers to coordinate emergency planning with local emergency-response authorities, the existing PSM standard does not contain such a requirement. Existing §§1910.38 and 1910.120 do not require coordination of emergency planning with outside parties if the employer chooses to evacuate employees from the danger area when an emergency occurs that does not permit employees to assist in handling the emergency.

When emergency responders and other workers do not have adequate information or employer coordination about hazardous chemicals in a facility, they are at elevated risk of death and serious injury. On April 17, 2013, an ammonium nitrate explosion at the West Fertilizer Company storage and distribution facility in West, Texas, killed at least 15 people - the majority of whom were firefighters responding to a fire at the facility - and injured over 160 others.¹² OSHA believes that revising paragraph (n) of the PSM standard to require facilities to coordinate emergency planning with local emergency-response authorities could help prevent or mitigate similar accidents by allowing first responders to develop the appropriate strategies in advance of their arrival and seeks comment on the appropriate mechanism and corresponding language to incorporate such coordination requirements into paragraph (n).

12. Revising Paragraph (o) of the PSM Standard to Require Third-Party Compliance Audits

¹²Following the West, Texas facility explosion, OSHA and partner agencies EPA and ATF issued updated guidance on Ammonium Nitrate. See, Chemical Advisory: Safe Storage, Handling, and Management of Ammonium Nitrate, EPA 550-S-13-001, EPA, OSHA, and ATF, August, 2013.

Paragraph (o)(1) of §1910.119 requires employers to audit the PSM program in their facilities for compliance every three years. Paragraph (o)(2) further requires that the audits “be conducted by at least one person knowledgeable in the process.” However, §1910.119 does not require employers to use a third party in conducting the compliance audits. According to CCPS, “Third party auditors (typically, consulting companies who can provide experienced auditors) potentially provide the highest degree of objectivity.”¹³

It is notable that BSEE’s Safety and Environmental Management Systems (SEMS) standard, 30 CFR 250, Subpart S, requires audits conducted by an independent third party, subject to approval by BSEE, or by designated and qualified personnel if the employer implements procedures to avoid conflicts of interest. In addition, BSEE’s SEMS II revisions to the standard require that, by June 4, 2015, the team lead for compliance audits must be independent and represent an accredited audit service provider. In the preamble to its SEMS II final rule, BSEE discussed its third-party-auditing requirements as follows:

Consistent audits performed by well trained and experienced auditors are critical to ensuring that SEMS programs are successfully implemented and maintained on the OCS. As a result, we are adopting industry best practices related to SEMS audits and auditor qualifications. Industry is already voluntarily adopting these practices in many deepwater operations. We believe that the application of these requirements to all OCS operations will result in more robust and consistent SEMS audits. (78 FR 20430; 04/05/2013.)

In its investigation report on the 2005 BP Texas City Refinery explosion, the CSB identified a lack of rigorous compliance audits as a contributing factor behind the

¹³Guidelines for Risk Based Process Safety, CCPS. <http://www.aiche.org/ccps>

accident. As the CSB noted in its report, the resulting settlement agreement¹⁴ between OSHA and BP required BP to retain a third-party compliance auditor with PSM expertise, subject to approval by OSHA, to assess the company's PSM program. OSHA is aware that third-party compliance auditors exist and are already utilized by some of the PSM regulated community. In the questions in this RFI, OSHA seeks comment on whether revising paragraph (o) of the PSM standard to require employers to use a qualified third party for compliance audits would increase worker protection through a more rigorous and objective PSM auditing process.

OSHA is also seeking comment on increasing the required frequency of compliance audits. In addition, the Agency is seeking comment on requiring specific timeframes for responding to deficiencies found in the compliance audit process.

13. Expanding the Requirements of §1910.109 to Cover Dismantling and Disposal of Explosives, Blasting Agents, and Pyrotechnics

Paragraph (k)(1) of §1910.109 provides that the standard applies to “the manufacture, keeping, having, storage, sale, transportation, and use of explosives, blasting agents, and pyrotechnics,” and does not apply to the sale and use of fireworks or the use of explosives in the form prescribed by the U.S. Pharmacopeia^{15,16}. Although dismantling and disposing of explosives can be just as hazardous as the covered activities

¹⁴United States of America Occupational Safety and Health Administration, BP Products North America Inc. Settlement Agreement, September 21, 2005.

¹⁵The U.S. Pharmacopeial Convention (USP) is a scientific nonprofit organization that sets standards for the identity, strength, quality, and purity of medicines, food ingredients, and dietary supplements manufactured, distributed and consumed worldwide.
<http://www.usp.org/about-usp>

¹⁶OSHA has no data showing an increase in accidents with this activity and is not seeking comment on changing this exclusion.

listed in paragraph (k), dismantling and disposal are not activities that the existing standard covers.

On April 8, 2011, an accidental explosion in Waikele, Hawaii, killed five workers who were disposing of fireworks seized by the Federal Government as contraband. The workers, employed by contractor Donaldson Enterprises, Inc., were disassembling the firework tubes by hand and separating black powder and aerial shells into plastic-lined cardboard boxes, which they then soaked in diesel for burning. The CSB investigated the explosion and determined (CSB Report No. 2011-06-I-HI) that gaps in federal regulations—specifically with regard to dismantling and disposal of explosives—contributed to the accident. Hawaii administers its own state safety and health program approved under the OSH Act, and adopted the federal OSHA standards in their entirety.

OSHA believes that expanding the scope of §1910.109(k) to cover dismantling and disposal of explosives, blasting agents, and pyrotechnics, in the workplace in addition to the activities covered under the existing standard, would prevent tragic accidents similar to the Hawaii accident. While the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives exercises jurisdiction over many aspects of the explosives industry through its Commerce in Explosives standard at 27 CFR Part 555, OSHA seeks comment on whether expanding the scope of 29 CFR 1910.109 to address hazards associated with dismantling and disposal of explosives would lead to increased worker protection and whether ATF's current regulations would make any revisions to OSHA's regulations duplicative.

14. Updating §§1910.106 and 1910.107 Based on the Latest Applicable Consensus Standards

OSHA is considering updating its Flammable Liquids standard and Spray Finishing standard. OSHA first published these standards in 1974 and based the requirements on NFPA consensus standards from the 1960s. The format and requirements of the standards are significantly out of date, and need updating based on the latest applicable consensus standards¹⁷. OSHA seeks recommendations on updates that should be considered and comments on how such updates will lead to increased worker protection.

15. Updating the Regulations Addressing the Storage, Handling, and Management of Ammonium Nitrate

Industry manufactures millions of tons of ammonium nitrate annually in the United States. Consumers commonly use high-density ammonium nitrate in fertilizer and use low-density ammonium nitrate in making explosives. The NFPA assigns a reactivity rating of 3 (in a range of 0-4) to ammonium nitrate, which means that it is capable of detonation, explosive decomposition, or explosive reaction; ignition requires a strong initiating source or heating the substance under confinement. Stored ammonium nitrate is generally stable, but explosions of ammonium nitrate can be severe and have resulted in many injuries and fatalities. OSHA's requirements for storage of ammonium nitrate are contained in §1910.109, and are based on a 1970 NFPA consensus standard.

As discussed earlier in this RFI, on April 17, 2013, an ammonium nitrate explosion at the West Fertilizer Company storage and distribution facility in West, Texas, killed at least 15 people and injured over 160 others leading OSHA and its partner agencies EPA and ATF to issue an updated chemical advisory on the safe storage,

¹⁷Applicable consensus standards may include, but are not limited to: NFPA 30, NFPA 30A, NFPA 30B, NFPA 33

handling, and management of ammonium nitrate.¹⁸ An ammonium nitrate explosion that occurred in Texas City, Texas, on April 16, 1947, was the deadliest industrial accident in United States history. In that case, the initial explosion of a ship carrying ammonium nitrate, and the subsequent chain reaction of fires and explosions in other ships and nearby oil-storage facilities, killed at least 581 people and injured thousands of others.¹⁹

In the questions in this RFI, OSHA invites comment on safe work practices for storing, handling, and managing ammonium nitrate. OSHA further seeks comment on how to update its regulatory requirements to improve its approach to preventing the hazards associated with ammonium nitrate.

16. Changing Enforcement Policy of the PSM Exemption for Retail Facilities

The PSM standard contains an exemption from coverage for retail facilities at 29 CFR 1910.119(a)(2)(i). Although the term “retail facility” is not defined, the Preamble to the Final PSM standard noted that chemicals in retail facilities are generally in small packages, containers, and allotments, and gives the example of gasoline stations as a type of facility that would typically qualify for the exemption. 57 FR 6356, 6369 (February 24, 1992).

Other Federal Government agencies have explicit definitions of retail facilities. In particular, the U.S. Department of Commerce, which is responsible for the development of the North American Industry Classification System (NAICS) that organizes businesses into specific industrial sectors for economic and statistical purposes, characterizes retail trade as follows:

¹⁸Chemical Advisory: Safe Storage, Handling, and Management of Ammonium Nitrate, EPA 550-S-13-001, published by EPA, OSHA, and ATF, August, 2013.

¹⁹Texas City, Texas, Disaster, April 16, 17, 1947. Fire Prevention and Engineering Bureau of Texas, 1947.

The Retail Trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The retailing process is the final step in the distribution of merchandise; retailers are, therefore, organized to sell merchandise in small quantities to the general public.

North American Industry Classification System Manual (“NAICS Manual”), Sector 44-45 – Retail Trade.

OSHA has stated that this NAICS Manual definition applies in interpreting the retail exemption. In a November 8, 1995, memo from Enforcement Programs director Richard Fairfax to Acting Region 10 Administrator Richard S. Terrell, OSHA distinguished retail end users from wholesale end users:

[T]he “retail facilities” exception is intended to apply to an establishment in the retail trade as delineated in the Standard Industrial Classification (SIC) Manual. With exceptions, retail trade establishments sell merchandise to the general public for personal or household consumption. On the other hand, wholesale trade establishments may sell similar merchandise for exclusive use by industry... Income derived from selling [merchandise] to industry may not be counted as “income obtained from direct sales to end users” for the purpose of qualifying for the “retail facilities” exception under paragraph 1910.119(a)(2)(i).

Notwithstanding this general statement, OSHA has also issued letters saying that a facility that is primarily engaged in selling anhydrous ammonia product to farmers (a wholesale operation under the NAICS definition) could qualify for the §1910.119(a)(2)(i) retail-facilities exemption. For example, the January 26, 2001 letter from Richard Fairfax to J.D. Varn III of Varnco, Inc. which states that a facility selling 75% of its anhydrous ammonia to farmers qualifies for the retail exemption because the farmers were the "end users" of the product.

Applying the retail-facility exemption in this way is inconsistent with the normal meaning of "retail" and the preamble's explanation of the purpose of the exemption. As

stated in the preamble, OSHA chose to exclude retail facilities from PSM coverage because the limited container, package, or allotment sizes of the chemicals typically found at these facilities do not present the same safety hazards as those encountered at establishments working with large, bulk quantities of materials. Facilities selling large or bulk quantities of materials would typically fall into Sector 42 – Wholesale Trade of the NAICS system, which includes facilities that sell or arrange the purchase or sale of raw and intermediate materials and supplies used in production. As a result of increased workplace hazards associated with large, bulk quantities of highly hazardous chemicals, OSHA believes that only retail-trade facilities listed in NAICS sectors 44 and 45 that sell highly hazardous chemicals in small containers, packages, or allotments to the general public qualify for the retail-facilities exemption in 29 CFR 1910.119(a)(2)(i).

In light of OSHA's inconsistent statements on the application of the retail exemption, the Agency is inviting comment on what the exemption should cover and whether OSHA's current enforcement policy adequately addresses workplace hazards associated with these facilities.

17. Changing Enforcement Policy for Highly Hazardous Chemicals Listed in Appendix A of the PSM Standard without Specific Concentrations

Appendix A of the PSM standard lists highly hazardous chemicals and threshold quantities that must be met to establish PSM coverage. Although Appendix A provides specific concentrations for 11 of its listed chemicals, the standard is silent on concentrations for the remaining 126 listed chemicals. For example, Appendix A lists hydrogen peroxide at concentrations of 52% by weight or greater, but the appendix does not provide a specific concentration for hydroxylamine. OSHA has issued interpretation letters taking a variety of positions regarding coverage of chemicals that have no listed

concentration. Under one such approach, OSHA considers PSM coverage to apply if threshold quantities of such chemicals are present at commercial grade. As noted in a 1994 Letter of Interpretation from Compliance Programs Deputy Director H. Berrien Zettler to Mr. Luc Hamelin of IVACO, Inc., OSHA defined commercial grade to mean “a typical maximum concentration of the chemical that is commercially available and shipped.” The letter added that, to determine commercial grade concentrations, an employer may refer to any published catalogue of chemicals for commercial sales.

In 1999, an explosion at Concept Sciences, Inc. in Allentown, Pennsylvania, killed five people as the company was attempting to produce concentrated hydroxylamine. A U.S. District Court dismissed a subsequent criminal indictment related to this incident based on inconsistencies in OSHA's statements regarding coverage of hydroxylamine. The Court pointed out that the PSM standard is ambiguous with respect to concentrations of Appendix A chemicals. It concluded that in light of a series of OSHA letters that were themselves inconsistent, no reasonable person in the defendant's position could determine how a chemical is covered by the standard. *U.S. v. Ward*, 21 BNA OSHC 1882, 1884 (2001). In light of this, OSHA believes it is important to issue a clear and authoritative statement about PSM coverage of chemicals for which Appendix A does not include a specific concentration.

With respect to the commercial grade approach, OSHA also realizes that it is difficult to determine the maximum commercial grade of many of the highly hazardous chemicals listed in Appendix A. In addition, the maximum commercial grade of a chemical may change over time due to technological innovation or changes in industry. Furthermore, even where the concentration of a PSM-listed highly hazardous chemical

falls below the correctly determined maximum commercial grade, the chemical may still present a hazard because substances in a mixture retain their original properties. For example, a solution of any concentration of hydroxylamine can form pure hydroxylamine crystals, which can rapidly decompose and cause fires or explosions.

An interpretative approach that is consistent with the regulatory language and that addresses this concern is the approach currently used by EPA under the Risk Management Program (RMP). Similar to OSHA's list of highly hazardous chemicals in Appendix A of the PSM standard, the EPA RMP provides a list of toxic substances in 40 CFR 68, Appendix A - Table of Toxic Endpoints. However, in contrast to OSHA's "commercial grade" policy for PSM-listed chemicals, EPA considers a mixture containing an RMP-listed substance to be covered if the concentration is greater than one percent and the calculated weight of the substance in the mixture is greater than the threshold quantity.²⁰ With a few exceptions, this rule does not apply in cases where the operator can demonstrate that the partial pressure of the substance in the mixture is less than 10 mmHg.

OSHA invites comment on whether it should adopt the EPA's policy for RMP-listed substances as a simpler and more practical approach to addressing hazards associated with Appendix A chemicals that do not have listed concentrations. If OSHA adopts this policy, the Agency would consider a PSM-listed chemical in a mixture to be covered if the concentration of the chemical were greater than one percent and the calculated weight of the chemical in the mixture were greater than the threshold quantity.

²⁰*General Guidance On Risk Management Programs For Chemical Accident Prevention (40 CFR Part 68)*; EPA 555-B-04-001; U.S. EPA; March 2009.

OSHA believes this represents a more practical, consistent, and straightforward approach to coverage of Appendix A chemicals under the PSM standard.

D. Effects of Possible Regulatory and Policy Changes

As part of this RFI, the Agency is requesting data and information on the potential economic impacts of each option. OSHA requests that commenters discuss potential economic impacts, whenever possible, in terms of quantitative benefits (e.g., reductions in injuries, fatalities, and property damage), costs (e.g., compliance costs or decreases in production), and offsets to costs (e.g., less need for maintenance and repairs) when responding to the questions in this RFI. OSHA also requests that commenters provide data and information on economic effects that the options may have on market conditions or services (e.g., market structure and concentration). In addition, OSHA invites public comment on unintended consequences and consistencies or inconsistencies with other policies or regulatory programs.

OSHA requests that commenters discuss economic impacts in as specific terms as possible. For example, if a rulemaking or policy change would necessitate additional employee training, then helpful information would include the following: the training courses necessary; the types of employees who would receive the training; the length and frequency of the courses; topics covered; any retraining necessary; and the training costs if conducted by a third-party vendor or in-house trainer. The Agency invites comment on the time and level of expertise required to implement potential changes discussed in this RFI, even if dollar-cost estimates are not available. For discussion of equipment-related costs, OSHA requests that commenters estimate relevant factors such as purchase price,

cost of installation, cost of equipment maintenance, cost of training, and expected life of the equipment.

E. Impacts on Small Entities

The Agency would like to determine whether the options in this RFI will have a significant economic impact on a substantial number of small entities. If the options have such impacts, then under the Regulatory Flexibility Act, 5 U.S.C. §§ 601 – 612, OSHA must, if it engages in rulemaking, develop a regulatory flexibility analysis and assemble a Small Business Advocacy Review Panel before publishing a proposal. Regardless of the economic impacts, OSHA seeks ways of minimizing burdens on small entities consistent with OSHA's statutory and regulatory requirements and objectives. The Agency requests that, when responding to the questions in this RFI, commenters discuss any special circumstances related to small entities, such as potential market-structure disruptions or uniquely high costs that small entities may bear.

II. Request for Data, Information, and Comments

OSHA is providing the following questions to collect data, information, and comments on the options discussed in this RFI. The Agency invites the public to respond to any questions for which they have specific knowledge, data, or information, regardless of their involvement in PSM-covered operations.

OSHA would appreciate detailed responses to the following questions. When responding, please reference the specific question number to which you are responding.

A. General Information

1. To assist in classifying comments, please provide information on the workplace (or industry) about which you are commenting, including the

type of facility, NAICS code (if available), number of employees, types and volumes of chemicals handled, when the facility began operation, and other relevant information.

2. If you are commenting about a specific workplace or industry, does the workplace or industry conduct operations covered by the PSM standard? Please explain.

B. Clarifying the PSM Exemption for Atmospheric Storage Tanks

3. Does your facility have any atmospheric storage tanks that are exempt from PSM coverage under §1910.119(a)(1)(ii)(B)? If so, what facts led you to conclude that the exemption applies, and do you treat the exempted tanks as if they were PSM-covered for safety or other reasons? Please explain.
4. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents related to flammable liquids stored in atmospheric tanks exempted from PSM coverage under §1910.119(a)(1)(ii)(B).
5. Would limiting the §1910.119(a)(1)(ii)(B) exemption to apply only to flammable liquids stored in terminals and tank farms prevent worker injuries and fatalities? What would be the economic impacts of limiting the exemption in this way (e.g., costs and benefits of extending PSM coverage to additional types of tanks)? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

6. Should OSHA limit the §1910.119(a)(1)(ii)(B) exemption to apply only to specific NAICS codes? If so, which NAICS codes should OSHA exempt?
7. Should the §1910.119(a)(1)(ii)(B) exemption apply only to “storage tanks,” such that “process tanks” are explicitly covered under PSM? If so, how should OSHA define the terms “storage tanks” and “process tanks”? What would be the economic impacts of limiting the exemption in this way? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?
8. Are there any other options related to the §1910.119(a)(1)(ii)(B) exemption of flammable liquids stored in atmospheric tanks that OSHA should consider to prevent worker injuries and fatalities? If so, what would be the economic impacts of the option(s), and are there any special circumstances involving small entities that OSHA should consider with respect to the option(s)?

C. Oil- and Gas-Well Drilling and Servicing

9. Does your facility conduct oil- and gas-well drilling or servicing operations not covered under §1910.119? If so, do you treat these activities as covered by the PSM standard for safety or other reasons? Are the activities covered under other federal or state regulations? Please explain.
10. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving oil-and gas-well drilling or servicing operations.

11. Would removing the §1910.119(a)(2)(ii) exemption for oil- and gas-well drilling and servicing operations prevent worker injuries and fatalities? What would be the economic impact of removing the exemption? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

D. Oil- and Gas-Production Facilities

12. Does your facility conduct oil- and gas-production operations for which OSHA is not currently enforcing PSM requirements? If so, do you follow PSM requirements for these operations for safety or other reasons? Are the activities covered under other federal or state regulations? Please explain.
13. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving oil- and gas-production facilities.
14. What would be the economic impact of resuming enforcement of the PSM standard for oil- and gas-production facilities? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

E. Expanding PSM Coverage and Requirements for Reactivity Hazards

15. What are the best criteria to use in classifying reactive hazards? What do you consider to be a reactive chemical? What do you consider to be a reactive mixture?
16. Do you consider some reactive hazards to be outside coverage of the existing PSM standard? If so, please describe these hazards.

17. Should OSHA add reactive chemicals to the list of PSM-covered chemicals in Appendix A of §1910.119? If so, which reactive chemicals?
18. If your facility is in New Jersey and covered by the New Jersey TCPA, has the TCPA been effective in protecting New Jersey workers from reactive hazards? Please describe any economic impacts associated with TCPA coverage (e.g., costs and benefits, cost savings, shifts in usage of reactive chemicals, special circumstances involving small entities, etc.).
19. Should OSHA revise the PSM standard to use chemical functional groups similar to those in the TCPA²¹ to define hazardous reactive mixtures? If so, which chemical functional groups should OSHA use?
20. Does your facility follow NFPA 400 for reactive hazards? If so, please describe the economic impacts associated with following NFPA 400 (e.g., cost of additional equipment, cost of additional training, benefits of quality management, special circumstances involving small entities, etc.). Is following NFPA 400 an effective way of protecting workers from reactive hazards? Please explain.
21. Has your facility implemented a reactive-hazards management program other than a program specified by the TCPA and NFPA 400? If so, please describe your facility's program, whether it protects worker more or less than the TCPA and NFPA 400, any economic impacts associated with the program, and any special circumstances involving small entities.

²¹The definition of "reactive hazard substance (RHS) mixture" in the TCPA references a list of chemical functional groups specified in N.J.A.C. 7:31-6.3 (a), Table I, Part D, Group II. Whether any of the chemical functional groups are present determines, in part, coverage of an RHS mixture under the TCPA.

22. What specific regulatory approach, if any, should OSHA use to comprehensively address reactive hazards, what would be the economic impacts of this approach, and would there be any special circumstances involving small entities? Are there specific requirements that OSHA should add to the PSM standard to ensure that employers adequately manage reactive hazards?
23. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving reactive hazards not covered under the existing PSM standard. Would reactive-hazards management requirements in PSM have prevented the incidents?

F. Updating the List of Highly Hazardous Chemicals in Appendix A of the PSM Standard

24. What chemicals, if any, should OSHA add to the list of highly hazardous chemicals in Appendix A of §1910.119 to prevent worker injuries and fatalities? Please provide any sources, data, or incident examples related to the hazards associated with the chemicals. What would be the economic impacts of adding the chemicals to Appendix A? Are there any special circumstances involving small entities that OSHA should consider with respect to adding the chemicals to Appendix A?
25. How often should OSHA update the list of highly hazardous chemicals in Appendix A of §1910.119?
26. Is there a method, other than periodically updating the list of highly hazardous chemicals in Appendix A of §1910.119 through rulemaking,

that OSHA should use to prevent worker injuries and fatalities? Please explain.

G. Revising the PSM Standard to Require Additional Management-System Elements

27. Does your facility follow any management-system elements not required under §1910.119 for PSM-covered operations? If so, please describe the additional management-system elements, the safety benefits, any economic impacts associated with following the elements, and any special circumstances involving small entities.
28. Would expanding the scope of the PSM standard to require additional management-system elements, or expanding the scope of existing PSM management-system elements, prevent worker injuries and fatalities? If so, please describe the elements, the safety benefits, any economic impacts associated with expanding the scope of the PSM standard in this way, and any special circumstances involving small entities that OSHA should consider.
29. In systems using management and metrics, how do facilities develop useful leading indicators? Should the PSM standard require facilities to share these indicators with employees or OSHA?
30. Would expansion of the PSM standard's employee participation provision to include requirements such as the SEMS stop-work authority, or other efforts to involve employees in all management-system elements, prevent worker injuries and fatalities?

31. Are there any other management-system elements in the existing PSM standard that OSHA should expand with additional requirements (e.g., a new requirement that employers perform a root-cause analysis for incidents under §1910.119(m))? If so, please describe the additional requirements, the safety benefits, any economic impacts associated with expanding the PSM elements in this way, and any special circumstances involving small entities that OSHA should consider.
32. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents that the employer could have prevented by following management-system elements not required under the existing PSM standard.

H. Amending Paragraph (d) of the PSM Standard to Require Evaluation of Updates to Applicable RAGAGEP

33. From what sources (e.g., codes, standards, published technical reports, consensus standards) does your facility select applicable RAGAGEP for operations covered under the PSM standard?
34. Does your facility evaluate updates to its selected RAGAGEP? If so, how does your facility monitor any updates, and how often do you evaluate them?
35. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving failure to evaluate updates to applicable RAGAGEP for PSM-covered operations.

36. What would be an appropriate time period in which to conduct this evaluation? Would such a requirement be more appropriate in another paragraph of the PSM standard? For example, should such a requirement become part of the Process Hazard Analysis revalidation requirements at 29 CFR 1910.119(e)(5)?
37. Would requiring employers to evaluate updates to applicable RAGAGEP prevent worker injuries and fatalities? Is there another approach that can be used to ensure the incorporation of RAGAGEP into facility operations that is tangible and documentable? What would be the economic impacts of this requirement? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

I. Clarifying the PSM Standard by Adding a Definition for RAGAGEP

38. What does your facility use as a definition for RAGAGEP?
39. Would adding a definition for RAGAGEP to the PSM standard improve understanding of PSM requirements and prevent worker injuries and fatalities? If so, what specific definition for RAGAGEP should OSHA add to the PSM standard? What would be the economic impacts of adding such a definition? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?
40. What criteria does your facility use to develop appropriate internal standards? For instance, if there is an applicable consensus standard, what steps do you take to ensure that your internal standards are at least as protective as the applicable standard?

J. Expanding the Scope of Paragraph (j) to Cover the Mechanical Integrity of Any Safety-Critical Equipment

41. Does your facility have any equipment not covered under §1910.119(j) that is critical to process safety? If so, what type(s) of equipment? Did you identify the equipment as safety-critical through a PSM process hazard analysis? How did your facility determine that the equipment was safety-critical, and does your facility treat the equipment as if it were PSM covered for safety or other reasons? Please explain.
42. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents related to the mechanical integrity of safety-critical equipment not covered under §1910.119(j).
43. Would expanding the scope of §1910.119(j) to cover the mechanical integrity of all equipment the employer identifies as critical to process safety, in addition to the equipment listed in existing §1910.119(j), prevent worker injuries and fatalities? What would be the economic impact of expanding the scope of §1910.119(j) in this way? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

K. Clarifying Paragraph (l) of the PSM Standard with an Explicit Requirement that Employers Manage Organizational Changes

44. What do you consider to be an organizational change within the context of process safety management practices? For example, would you consider the following, or similar, changes to be organizational changes: reducing

the number of operators in a shift; changing from 5-day to 7-day operations; changing from 8-hour to 12-hour operator shifts; replacing a unit manager; relocating a technical group to a remote corporate location; or changing a supervisory or compensation structure?

45. If your facility has established and implemented written procedures for management of organizational changes, please describe any economic impacts associated with the procedures.
46. Would clarifying §1910.119(l) with an explicit requirement that employers manage organizational changes prevent worker injuries and fatalities? What would be the economic impact of such a clarification? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?
47. Please describe any organizational changes made in your facility or organization that have had the potential to affect process operations. Were management-of-change procedures followed before making the changes?
48. What do you consider to be the best safety practices concerning management of organizational change?
49. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving the failure to manage organizational change. Would following management-of-change procedures under §1910.119(l) prevent these incidents?

L. Revising Paragraph (n) of the PSM Standard to Require Coordination of Emergency Planning with Local Emergency-Response Authorities

50. Does your facility provide information to, or coordinate emergency planning with, local emergency-response authorities? If so, please explain any special circumstances that necessitated the information sharing or coordination of emergency planning.
51. If OSHA proposes a regulatory amendment to require coordination, what types of information should OSHA require PSM-covered facilities to provide to local emergency-response authorities? For example, should OSHA require employers to provide safety data sheets for all on-site chemicals, list the quantities of chemicals, list the location of chemicals, provide block-flow diagrams, list fire-mitigation systems present, or report known fire and explosion risks in the facility? What would be the economic impact of requiring employers to provide such information? Are there any special circumstances involving small entities that OSHA should consider with respect to this option? What would be the cost to emergency-response authorities of coordinating emergency planning with PSM-covered employers?
52. What, if any, steps should OSHA require PSM-covered facilities to take in coordinating emergency planning with local emergency-response authorities? What additional benefits would accrue from requiring training exercises in addition to information sharing? What would be the economic impact of such requirements, and would there be any special circumstances involving small entities or security concerns that OSHA should consider?

53. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents related to local emergency response authorities responding to a PSM-covered facility without adequate information on the chemicals present.

M. Revising Paragraph (o) of the PSM Standard to Require Third-Party Compliance

Audits

54. Does your facility use a third party for conducting compliance audits under §1910.119(o) for safety or other reasons? Please explain.
55. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents that could have been prevented or minimized by more effective compliance audits conducted for operations covered under §1910.119(o). Were the ineffective compliance audits conducted by in-house staff or a third party?
56. Would revising §1910.119(o) to require employers to use a third party for compliance audits prevent worker injuries and fatalities? What would be the economic impacts of revising §1910.119(o) in this way (e.g., typical consultant fees, additional work hours required, special circumstances involving small entities, etc.)?
57. Should OSHA revise §1910.119(o) to require employers to use compliance auditors (internal or third party) with certain minimum credentials or certifications? If so, what minimum credentials or certifications should the Agency require? What burden might this place on small businesses?

- 58. Should OSHA revise §1910.119(o)(1) to require a compliance audit frequency less than every three years?
- 59. Would revising §1910.119(o) to require employers to respond to deficiencies found in the compliance audit within certain timeframes prevent worker injuries and fatalities? What would you consider to be an appropriate timeframe?

N. Expanding the Requirements of §1910.109 to Cover Dismantling and Disposal of Explosives, Blasting Agents, and Pyrotechnics

- 60. Does your facility conduct explosives dismantling or disposal activities not covered under §1910.109? If so, do you treat these activities as covered under §1910.109 for safety or other reasons? Please explain.
- 61. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving dismantling or disposal of explosives, blasting agents, and pyrotechnics. Would coverage of these dismantling and disposal activities under §1910.109 prevent such incidents from occurring?
- 62. Are your operations currently covered under regulations issued by ATF? Are there specific areas of workplace safety that are not covered by ATF that should be considered by OSHA? Is there overlap or inconsistencies between the Requirements of §1910.109 and ATF regulations that would need to be addressed before an expansion would be recommended?
- 63. What would be the economic impacts if OSHA expanded the scope of §1910.109 to cover the dismantling and disposal of explosives, blasting

agents, and pyrotechnics? Are there any special circumstances involving small entities that OSHA should consider with respect to this option?

O. Updating §§1910.106 and 1910.107 Based on the Latest Applicable Consensus Standards

64. Is your facility covered by §§1910.106 or 1910.107? If so, what are the operations covered by the standard(s)?
65. Are there other federal, state, or local requirements that cover flammable liquids or spray finishing operations in your facility? If so, do the requirements protect workers more or less than §§1910.106 and 1910.107? Please explain.
66. Does your facility follow NFPA 30, 30A, or 30B for flammable liquids, or NFPA 33 for spray-finishing operations? If so, which edition(s)? Are there any other consensus standards applicable to flammable liquids or spray-finishing operations that your facility follows?
67. On which standards (e.g., consensus, federal, state, local) were the design and operation of your facility primarily based?
68. Should OSHA replace §§1910.106 and 1910.107 with the latest editions of NFPA 30, 30A, 30B, and 33? If so, should OSHA replace §§1910.106 and 1910.107 entirely or only in part? What would be the economic impacts of these options (e.g., cost of additional equipment, cost of additional training, benefits of quality management, special circumstances involving small entities, etc.)?

69. Are there gaps in safety coverage in §§1910.106 or 1910.107? If so, what are the gaps, would NFPA 30, 30A, 30B, and 33 address the gaps, and what would be the economic impacts of addressing the gaps through rulemaking? Are there any special circumstances involving small entities that OSHA should consider with respect to addressing the gaps through rulemaking?
70. Are there any requirements in §§1910.106 and 1910.107 that prevent worker injuries and fatalities better than the safety practices in the latest editions of NFPA 30, 30A, 30B, and 33? If so, which requirements?
71. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving gaps in safety coverage in §§1910.106 or 1910.107.
72. Are the §1910.106 provisions related to facility types (e.g., bulk plant, chemical plant, distillery) a useful classification system? If not, what type of a classification system should the standard use instead? Please explain.
73. If OSHA updates §§1910.106 and 1910.107 through rulemaking, what revisions to the scope and application of the standards would provide the best protection to workers?

P. Updating the Regulations Addressing the Storage, Handling, and Management of Ammonium Nitrate

74. Does your facility store, handle, or manage ammonium nitrate? If so, in what form (e.g., solid, liquid) and in what grade (e.g., high density, low density) is the ammonium nitrate? Please explain.

75. Does your facility comply with §1910.109(i) for the storage of ammonium nitrate? Are there any other standards, including consensus standards, applicable to ammonium nitrate storage, handling, and management that your facility follows? If so, which ones?
76. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving the storage, handling, and management of ammonium nitrate.
77. How can OSHA update its standards and improve its enforcement policy relating to the storage, handling, and management of ammonium nitrate to prevent worker injuries and fatalities? Please discuss the economic impacts associated with such improvement, including any special circumstances involving small entities that OSHA should consider.

Q. Changing Enforcement Policy for the PSM Exemption for Retail Facilities

78. Does your facility qualify for the PSM exemption for “retail facilities” under OSHA’s current enforcement policy? If so, would changing OSHA’s enforcement policy to only exempt facilities in NAICS sectors 44 and 45 that sell highly hazardous chemicals in small containers, packages, or allotments to the general public result in PSM coverage for your facility?
79. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving highly hazardous chemicals at “retail facilities” exempt from PSM coverage under §1910.119(a)(2)(i).

80. Please discuss any economic impacts that would result from changing OSHA's retail-facilities policy to only exempt facilities in NAICS sectors 44 and 45 that sell highly hazardous chemicals in small containers, packages, or allotments to the general public. Are there any special circumstances involving small entities that OSHA should consider with respect to this option?
81. Is there a definition of "retail facilities" that OSHA should use to protect workers under the PSM standard? Please discuss any economic impacts associated with your suggested definition. Are there any special circumstances involving small entities that OSHA should consider with respect to your or other definitions?

R. Changing Enforcement Policy for Highly Hazardous Chemicals Listed in Appendix A of the PSM Standard without Specific Concentrations

82. Does your facility handle any chemicals excluded from PSM coverage on the basis that the concentration is below the "maximum commercial grade"? If so, what are these chemicals and concentrations, and would OSHA adopting EPA's policy for RMP-listed chemicals in mixtures as OSHA's enforcement policy for PSM-listed chemicals without specific concentrations result in PSM coverage of the chemicals in your facility?
83. Please provide any data or information on workplace accidents, near misses, or other safety-related incidents involving highly hazardous chemicals excluded from PSM coverage on the basis that that the concentration was below the "maximum commercial grade."

84. Please discuss any economic impacts that would result from OSHA adopting EPA's policy for RMP-listed chemicals in mixtures as OSHA's enforcement policy for PSM-listed chemicals without specific concentrations. Are there any special circumstances involving small entities that OSHA should consider with respect to this option?
85. Is there a different enforcement policy that OSHA should use to protect workers from the hazards associated with the chemicals listed in Appendix A of the PSM standard without specific concentrations? Please discuss any economic impacts associated with your suggested enforcement policy. Are there any special circumstances involving small entities that OSHA should consider with respect to your suggested enforcement policy?

Authority and Signature

David Michaels, Ph.D., MPH, Assistant Secretary of Labor for Occupational Safety and Health, authorized the preparation of this notice pursuant to 29 U.S.C. 653, 655, and 657, Secretary's Order 1-2012 (77 FR 3912; Jan. 25, 2012), and 29 CFR part 1911.

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