

**U.S. Chemical Safety and
Hazard Investigation Board**

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Honorable Kristen M. Kulinowski
Board Member
Delegated Interim Executive and Administrative Authority



Honorable Manny Ehrlich, Jr.
Board Member

Honorable Rick Engler
Board Member

July 20, 2018

U.S. Environmental Protection Agency
1200 Pennsylvania Ave NW
Attention: James Belke, Office of Land and Emergency Management
Washington, District of Columbia 20004

Attention: Docket No. EPA-HQ-OEM-2015-0725, Accidental Release Prevention
Requirements: Risk Management Programs Under the Clean Air Act, 40 CFR Part 68

Dear Mr. Belke:

Please find attached the U.S. Chemical Safety and Hazard Investigation Board's (CSB's) response to the U.S. Environmental Protection Agency's (EPA's) May 30, 2018, Proposed Rule, which proposes changes to a final rule, the Risk Management Program (RMP) Amendments Rule (Amendments Rule), issued on January 13, 2017.

The attached comments supplement previously made CSB comments and recommendations to EPA on EPA's Request for Information concerning its Risk Management Program regulations issued on July 31, 2014, and on EPA's March 14, 2016, Proposed Rule, "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)(7)." Those CSB comments address other deficiencies in the RMP rule, such as the lack of regulation of reactive hazards.

The CSB thanks you for the opportunity to provide comments on this proposed rule. If you have any questions about our comments, or if we may be of further assistance, please contact Charles B. Barbee, Director of Recommendations, at 202-261-7621 or via email at charles.barbee@csb.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Kristen Kulinowski".

Kristen M. Kulinowski, Ph.D.
Board Member
Delegated Interim Executive and Administrative Authority

U.S. Chemical Safety and Hazard Investigation Board

Introduction

The U.S. Chemical Safety and Hazard Investigation Board (CSB) is an independent Federal agency charged with investigating industrial chemical incidents, determining the cause or probable cause of the incident, and issuing recommendations to prevent recurrence of those incidents per 42 U.S.C. §7412(r)(6)(C)(1). The CSB has long supported modernization of process safety regulations through formal recommendations to the Environmental Protection Agency (EPA) and has identified process safety management as an issue for our “Drivers of Critical Chemical Safety Change” program.

The CSB submitted comments on the EPA’s Request for Information (RFI) concerning its Risk Management Program regulations issued on July 31, 2014.¹ The CSB also submitted comments on the EPA’s March 14, 2016, Proposed Rule, “Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)(7).”²

The CSB was encouraged that the EPA made much needed improvements in its regulations intended to prevent chemical incidents when the final RMP Amendments Rule was issued on January 13, 2017. Though we viewed it to be an initial step, the rule adopted several new requirements to help advance chemical safety and the prevention of accidental releases, including improving communication between facilities and emergency responders, requiring root cause analyses of chemical incidents and near misses, and requiring chemical facilities to consider “inherently safer” chemicals and production processes.

The CSB is now deeply concerned that the EPA seeks to rescind these key improvements, including elimination of all accident prevention program provisions of the RMP Amendments Rule, even though the EPA’s own data supports implementing greater protections. Specifically, the EPA stated in its 2017 document entitled *EPA Activities Under EO 13650: Risk Management Program (RMP) Final Rule Questions & Answers*³ that between 2004 and 2013, RMP data shows that there have been more than 1,517 reportable incidents (an average of about 150 incidents per year), 473 of which had offsite impacts. These incidents resulted in 59 fatalities, 17,099 injuries requiring medical treatment, almost 500,000 evaluations or shelters-in-place, and over \$2 billion in property damage. The EPA stated in its 2016 Regulatory Impact

¹ U.S. Chemical Safety and Hazard Investigation Board’s (CSB’s) response to the EPA’s July 31, 2014 Request for Information (at 79 FR 44604) on potential revisions to its Risk Management Program regulations and program (Docket No. EPA-HQ-QEM-2014-0328; October 29, 2014). Available at: https://www.csb.gov/assets/1/6/epa_rfi2.pdf (accessed June 19, 2018).

² CSB’s response to the EPA’s March 14, 2016 Proposed Rule, “Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)(7)” (Docket No. EPA-HQ-QEM-2015-0725, May 10, 2016) (at 81 FR 13637). Available at: https://www.csb.gov/assets/1/6/CSB_comments_epa-hq-oem-2015-0725_51020161.pdf (accessed June 19, 2018).

³ US EPA. *EPA Activities Under EO 13650: Risk Management Program (RMP) Final Rule Questions & Answers*; August 2017. Available at: https://www.epa.gov/sites/production/files/2017-08/documents/rmp_final_rule_qs_and_as_8-02-17.pdf (accessed June 19, 2018).

U.S. Chemical Safety and Hazard Investigation Board

Analysis⁴ that the frequency of these high-consequence chemical events highlights the need to modernize the RMP regulation. The CSB agrees. It is apparent from the EPA's published data that the American people need stronger rather than weaker safeguards protecting them from chemical disasters.

The following comments address the CSB's specific concerns regarding the EPA's proposal to roll back significant RMP safeguards:

1. EPA Should Not Base its Proposed Regulatory Changes on the Flawed Findings of the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) in the West Fertilizer Investigation

The EPA has stated that it is reconsidering the final RMP Amendments Rule based on objections highlighted in three petitions submitted to the Agency and based on its own review of the rule. One of the items the EPA seeks to address is the ATF's conclusion that the 2013 fire and explosion in West, Texas, was caused by arson rather than being accidental.

On April 17, 2013, a massive explosion at a fertilizer storage and distribution facility in West, Texas, fatally injured 12 first responders and three members of the public, and injured more than 260 others. The blast also destroyed the facility and damaged more than 150 offsite buildings, including schools and a nursing home. The CSB noted in its investigation report that had the incident occurred during school hours, many more adults and children could have been injured.⁵ The CSB determined that a fire likely originated in and above the seed room and progressed throughout the northern half of the facility. The presence of combustible materials used for construction of the facility and the fertilizer grade ammonium nitrate (FGAN) storage bins, in addition to the West Fertilizer Company (WFC) practice of storing combustibles near the FGAN pile, contributed to the progression and intensity of the fire and likely resulted in the detonation.

The CSB's legislative mandate is to investigate and determine the probable cause of chemical accidents. Therefore, if the CSB identifies evidence of an intentional criminal act of any kind during its investigation (e.g., arson, terrorism, etc.), it would cede investigation jurisdiction to the appropriate law enforcement agency. The CSB's investigation was conducted in teams that included members of both the ATF and Texas State Fire Marshall's Office. No evidence of any intentional criminal conduct was found. In fact, several members of the ATF and Texas State Fire Marshall's Office openly shared with CSB investigators that there was no evidence indicating intentional criminal acts, despite weeks of effort in the field combing through rubble and debris. As such, the CSB disagrees with the ATF's conclusion that the fire was the result of arson.

Instead of making its findings on physical evidence from the site, witness testimony, or any other actionable evidence, the ATF appears to have based its conclusion on a discredited arson investigation technique which relies on a process of elimination known as *negative corpus*.

⁴ US EPA. *Regulatory Impact Analysis. Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)(7)*. December 16, 2016; p 17. Available at: <https://www.regulations.gov/document?D=EPA-HQ-OEM-2015-0725-0734> (accessed June 19, 2018).

⁵ CSB. Investigation Report. *West Fertilizer Explosion and Fire*. January 2016; p 233. Available at: <https://www.csb.gov/west-fertilizer-explosion-and-fire/> (accessed June 19, 2018).

U.S. Chemical Safety and Hazard Investigation Board

Essentially, when utilizing this methodology, if no evidence of causation for a fire or explosion can be found, then it is simply assumed that the cause was in fact an intentional crime, e.g., arson. However, the National Fire Protection Association (NFPA), the world's leading authority on fire investigation, stated in the 2011 edition of NFPA 921, *Guide for Fire and Explosion Investigations*, that the negative corpus methodology is inappropriate to determine the ignition source of a fire:

The process of determining the ignition source for a fire, by eliminating all ignition sources found, known, or believed to have been present in the area of origin, and then claiming such methodology is proof of an ignition source for which there is no evidence of its existence, is referred to by some investigators as 'negative corpus.' Negative corpus has typically been used in classifying fires as incendiary, although the process has also been used to characterize fires classified as accidental. This process is not consistent with the Scientific Method, is inappropriate, and should not be used because it generates un-testable hypotheses, and may result in incorrect determinations of the ignition source and first fuel ignited.⁶

It is also important to note that the fire that led to the explosion of the ammonium nitrate onsite at WFC was just one of several causal factors leading to this event. The CSB found that contamination of the FGAN pile (likely from the storage of nearby combustibles or the combustible materials used to construct the FGAN bins and the storage building), as well as the lack of ventilation and the decision not to install a sprinkler or deluge system were all contributing factors that led to the explosion.

The CSB believes that, as the ATF's conclusions about the causes of this incident were based on flawed methodology, the EPA should not use them to justify rolling back changes to the RMP Final Rule.

2. The RMP Regulation and the Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) Standard Do Not Require Absolute Consistency

The EPA asserts that the proposed rule will maintain the consistency of the RMP regulatory requirements with the OSHA PSM standard, thereby streamlining regulatory requirements. However, despite the EPA RMP regulation and OSHA PSM standard having overlapping requirements as well as the shared legislative goal of preventing major chemical incidents, the

⁶ NFPA 921 (2011). *Guide for Fire and Explosion Investigations*. Section 18.6.5, p 174. Available at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=921> (accessed June 19, 2018). See also Smith, Dennis W., "The Death of Negative Corpus," published in *Proceedings of the 5th International Symposium on Fire Investigation Science and Technology* (ISFI2012), pp 601, 607 (negative corpus is "inherently reliable" and leads to false accusations in the absence of evidence). Available at: <https://www.nafi.org/blog/negative-corpus/> (accessed June 26, 2018); Durso, Fred, "Guided by Science," published in *NFPA Journal*, March/April 2014 (explaining the historical evolution towards using the scientific method, as established by NFPA 921, in fire investigation science rather than negative corpus. Available at: <https://www.nfpa.org/News-and-Research/Publications/NFPA-Journal/2014/March-April-2014/POV/Perspectives> (accessed June 26, 2018)).

U.S. Chemical Safety and Hazard Investigation Board

RMP regulation focuses more specifically on offsite consequences. The RMP regulation requires facilities to identify their hazardous chemicals, analyze the potential risks to surrounding communities, develop an emergency response program, and submit pertinent information to the EPA. The EPA then makes much of the information publicly available. The regulation ultimately provides local authorities and communities with important information that allows them to identify relevant chemical hazards and risks posed by nearby chemical facilities with the goal of improving public awareness and safety outside the facility fence line.

OSHA's PSM standard, on the other hand, focuses more on the identification and management of process hazards within a facility with a greater focus on worker safety. The PSM standard has not been updated since its adoption in 1992. OSHA currently lists it as a "long-term action," meaning regulatory action is anticipated to occur far in the future if at all. Waiting to update the RMP regulation to ensure consistency with the PSM standard has the consequence of unnecessarily deferring important safety revisions. From a public safety perspective, the CSB views this as ill-advised. The average number of incidents that occur each year is significant. Many of these facilities are adjacent to highly populated areas. The communities that exist just outside of the numerous chemical plants, refineries and other facilities that manufacture, store, or use a regulated or highly hazardous substance covered by RMP and PSM deserve more protection, not less.

Finally, Executive Order 13650 directed both the EPA and OSHA to review and update their respective regulations, with no requirement that they be identical. As such, the CSB disagrees with the EPA's justification to eliminate key improvements to the RMP regulation that could help save lives and protect communities based upon a streamlining effort associated with OSHA's PSM standard.

3. Third-Party Audits Offer Additional Safeguards and Should Not Be Eliminated

The EPA's proposed rule removes the requirement that facilities contract with a third party to conduct the next scheduled compliance audit within 12 months following an RMP reportable incident, or after an implementing agency determines that conditions at the stationary source could lead to an accidental release of a regulated substance, or identifies problems with the prior third-party audit. Instead, the new rule would allow the next required compliance audit to be conducted every three years with no third-party requirement.

As a result of our investigations, including *First Chemical Corp. Reactive Chemical Explosion*,⁷ *BP America Refinery Explosion*,⁸ and *Valero Refinery Propane Fire*,⁹ the CSB has found that a company's own internal corporate process safety management audits can fail to identify systemic process safety deficiencies. Therefore, the CSB generally supports third-party audits. The CSB encourages the EPA to have requirements for ensuring and maintaining auditor independence and competence, which the Amendments Rule achieved through requiring that at least one

⁷ CSB. Investigation Report. *First Chemical Corporation Reactive Chemical Explosion*. October 15, 2003. Available at: <https://www.csb.gov/first-chemical-corp-reactive-chemical-explosion/> (accessed June 20, 2018).

⁸ CSB. Investigation Report. *BP America Refinery Explosion*. March 20, 2007. Available at: <https://www.csb.gov/bp-america-refinery-explosion/> (accessed June 20, 2018).

⁹ CSB. Investigation Report. *Valero Refinery Propane Fire*. July 9, 2008. Available at: <https://www.csb.gov/valero-refinery-propane-fire/> (accessed June 20, 2018).

U.S. Chemical Safety and Hazard Investigation Board

member of the third-party team be someone with whom the facility does not have an existing or recent relationship and who meets basic qualifications criteria.

For the same reasons that companies retain third-party accounting firms to review their financial records, third-party safety audits are a wise use of corporate resources to identify process safety issues that may have been overlooked by those closest to the issues inside a company. Whether in finance and accounting, or in process safety, it is far less costly to identify and correct problems before they contribute to a major incident. The potential for loss of life and serious injuries for workers, community impacts (whether a shelter-in-place, road closure, or actual health and safety impact due to a chemical release), and financial ramifications of a complete loss of or significant damage to a facility that results in an extended shut down of a facility and the loss or disruption of jobs for the workers, are all significant potential consequences of a major incident. Third-party safety audits are a small price to pay to help foster major accident prevention. Therefore, the CSB urges the EPA not to rescind these requirements.

4. Incident Investigation Root Cause Analysis Requirements Promote Learning and Are Essential for Continual Improvement and Accident Prevention

The EPA seeks to remove the Amendments Rule's requirement that facilities conduct a root cause analysis as part of an incident investigation following an incident that resulted in a catastrophic release or an incident that could reasonably have resulted in a catastrophic release (referred to as a "near miss"). The Amendments Rule also provided clarifying text on the meaning of "near miss" rather than deferring to owners/operators to define that term for themselves.

The CSB strongly asserts that root cause investigations of incidents are a critical tool for accident prevention. A comprehensive examination of the facts and circumstances surrounding an incident, and a determination of root and contributing causes, are prerequisite to implementation of company-wide or site-specific safety recommendations.

Investigating near misses can help prevent more serious and catastrophic incidents from occurring. The CSB investigated the February 18, 2015, explosion at the ExxonMobil refinery in Torrance, California, where a series of events led to the presence of hydrocarbons in the electrostatic precipitator (ESP), which then found an ignition source and caused an explosion. An approximately 80,000-pound piece of the ESP was propelled into the air and onto scaffolding which shielded one of the refinery's alkylation settlers that stored highly hazardous hydrofluoric acid. Had debris ruptured the settler, the resulting release could have resulted in significant casualties to workers and members of the nearby community. Without the requirement for companies to investigate such a near miss, as well as clarifying language consistently defining a near-miss incident, this type of incident may not receive the attention that it deserves. Because major process accidents are generally categorized as "low probability, high consequence" occurrences, near-miss incident investigations can also provide a higher number of learning opportunities, providing a more complete data set for lessons learned and major process safety enhancements locally, within the company, and potentially industry-wide.

A strong incident investigation program should also include the identification of causal factors and implementation of corrective actions. The EPA should continue to require that investigation

U.S. Chemical Safety and Hazard Investigation Board

reports include a schedule to address recommendations by taking appropriate corrective action(s) with a 12-month completion deadline. The CSB found as a part of its August 6, 2012, *Chevron Refinery Fire* investigation in Richmond, California,¹⁰ that previous recommendations stemming from internal incident investigations at the refinery identified the need for corrosive-resistant piping in the crude unit. However, this corrective action was not implemented. The CSB identified this as causal to the incident.

The CSB also recommends that at least one person with appropriate knowledge of the facility process and experience in incident investigation techniques be a part of the incident investigation team. The CSB found in its *Chevron Refinery Fire* investigation that personnel familiar with common damage mechanisms, such as the one that occurred at that refinery, were not included in the process hazard analysis (PHA) team. If they had been, this incident could have been prevented. The CSB strongly encourages the EPA to reconsider these proposed deletions of the requirement for Program 2 regulated processes.¹¹

5. Safer Technology and Alternatives Analyses Lead to Inherently Safer Practices

The EPA proposes to eliminate all requirements for safer technology and alternatives analysis (STAA) for facilities with Program 3 regulated processes in certain sectors¹² such as oil refineries, chemical plants, and paper mills. The CSB has stated repeatedly in its investigation reports that effectively implementing inherently safer technology provides an opportunity for preventing major chemical incidents. Industry good practice guidance provides¹³ that inherently safer technology (IST) is the preferable and often the most effective safety precaution in what is referred to as ‘the hierarchy of controls.’

Unfortunately, this requirement is not adequately enforced by the EPA through its current RMP program. In its previous RMP comments, the CSB recommended EPA to adopt more robust requirements regarding the use of inherently safer systems analysis and the hierarchy of controls, noting that requiring owners or operators to merely “consider” IST will likely not achieve the desired results. Simple consideration can be expressed on a checklist or other perfunctory exercise, without true and careful deliberation of feasibility, cost, and risk reduction opportunities.

The CSB also encouraged the EPA not to limit the application of STAA to the PHA process, arguing that it was too narrow in scope, and should apply to other key safety management elements as well, such as Management of Change (MOC) activities. Time and again, the CSB

¹⁰ All three CSB investigation reports on the *Chevron Refinery Fire* investigation are available here: <https://www.csb.gov/chevron-refinery-fire/> (accessed June 20, 2018).

¹¹ The RMP regulation defines a “Program 2” process as a covered process that does not meet the requirements of a Program 1 process or Program 3 process. Title 40 CFR § 68.10 (c).

¹² The RMP regulation defines a “Program 3” process as a covered process that does not meet the requirements of a Program 1 process, and one of the following conditions is met: 1) The process is in NAICS code 32211, 32411, 32511, 325181, 35188, 325192, 325199, 325211, 325311, or 32532; or 2) The process is subject to the OSHA process safety management standard, 29 CFR 1910.119. Title 40 CFR § 68.10(d).

¹³ CRC Press, *Process Plants: A Handbook for Inherently Safer Design* Second Edition; Kletz, Trevor and Amyotte, Paul; 2010; pp 15-16.

U.S. Chemical Safety and Hazard Investigation Board

finds insufficient MOCs where major projects are undertaken without thoughtful consideration of superior technologies or materials of construction.

The Amendments Rule required owners or operators of facilities with Program 3 regulated processes to conduct a STAA as a part of their PHA, and to evaluate the practicability of any IST identified, essentially adding consideration of IST alternatives to the PHA process. While this did not go as far as the CSB proposed, it was still a notable step in the right direction. The CSB strongly encourages the EPA to retain these requirements in the regulation.

6. Tabletop and Field Exercises Provide the Most Realistic Opportunity for Preparedness

The proposed rule removes the 10-year minimum frequency requirement for field exercises. The CSB supported the EPA's original proposal to include the periodic conduct of emergency response drills and exercises with local responding authorities to identify planning gaps and other potential areas of improvement, although concern was expressed that an initially proposed five-year minimum frequency for field exercises was not sufficient. The 10-year minimum frequency requirement that EPA implemented was even less sufficient, however it did establish a periodic field exercise frequency. The CSB does not understand why the EPA proposes to eliminate this modest requirement. Training for emergencies is often accomplished in a classroom setting or via computer based training modules. Although helpful, there is no effective substitute for actual exercises to test both the management's and workforce's understanding of roles and responsibilities in an emergency, especially when combined with a debrief and lessons learned. Additionally, without the field exercise requirement, the coordination and identification of planning gaps and other improvements with local response authorities can be lost.

7. Information Disclosure Promotes Transparency and Resulting Risk Reduction

EPA proposes to eliminate the requirements for providing to the public, upon request, certain chemical hazard information and access to certain community emergency preparedness information. The CSB believes that there is an important need for information sharing among facilities, emergency responders, Local Emergency Planning Committees (LEPCs), and the community. The CSB noted in its first report on the *Chevron Refinery Fire* the important role of transparency between industry and the public in improving health and safety for the facility and the surrounding communities. Following the Chevron incident, various community organizations, worker representatives, regulators, and governmental bodies played key roles to drive transparency, accountability, and improved risk reduction during the decision-making process related to approving crude unit piping repairs.

The responsibility for providing information to the public should be on the facility rather than shifting the burden to community members or local officials to request it. Comprehensive information that facilities can provide to the public, including information on chemicals being used at the site, process safety hazards, incident investigation reports, audits, hazard reviews, and inherently safer technology analyses, is necessary to inform emergency responders, area

U.S. Chemical Safety and Hazard Investigation Board

residents, and other community stakeholders of the risks and to better enable them to help prevent or prepare for accidental releases.

Conclusion

The updated RMP rule issued in January 2017 contains important provisions to help prevent chemical incidents and enhance emergency planning and response. The CSB urges the EPA to continue to emphasize the prevention of chemical incidents, and not eliminate these important requirements which could put many at greater risk of exposure from a major chemical incident.

As an aside, a critical part of the CSB's mission is to protect people. This includes the safety of all communities near hazardous facilities, regardless of whether the facilities are covered under an RMP and without consideration of the communities' socio-economic/racial/ethnic demographics. The CSB notes with concern the EPA's Regulatory Impact Analysis, which states, "Based on analysis of RMP data and other studies, EPA concludes that there is evidence that risks from RMP facilities fall on minority and low-income populations, to a significantly greater degree than those risks affect other populations." As a Federal agency, the CSB finds this disconcerting.

The CSB appreciates the opportunity to provide comments and looks forward to a continued dialogue with EPA on these matters.