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Washington, DC 20210

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To the Docket:

The American Chemistry Council\(^1\) (ACC) is pleased to respond Executive Order 13650, Section 6(a) – Solicitation of Public Input on Options for Policy, Regulation, and Standards Modernization, Docket No. OSHA-2013-0026.

ACC is America’s oldest trade association of its kind, representing companies across the United States engaged in the business of chemistry. ACC supports the Executive Order (EO) Working Group’s commitment, as expressed in the present Section 6(a) options, to enhance the safety and security of workers, the public, and the environment from accidents at chemical facilities. ACC shares the EO Working Group’s goal of ensuring that process safety is handled and implemented as safely as possible, as workplace safety and process safety are top priorities to the ACC and its members. In fact, to become a member of ACC, a company must commit to the highest standards for protecting health, safety, and the environment through participation in the Responsible Care® program.

ACC members would be directly affected by the EO Working Group’s request for public comment on improving chemical facility safety and security. While ACC shares the EO Working Group’s goal of ensuring process safety, ACC has a number of concerns about the proposed candidates for rulemaking or enforcement changes identified in Section 6(a), as outlined in our comments. We believe that the signaled changes ultimately represent a drastic departure from the current regulatory framework, particularly for Process Safety Management

\(^1\) ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people’s lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $770 billion enterprise and a key element of the nation’s economy. It is the largest exporting sector in the United States, accounting for 12 percent of U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and defend against any threat to the nation’s critical infrastructure.
(PSM), 29 C.F.R. § 1910.119, without corresponding benefits to workplace or employee safety. Ultimately, ACC believes that the most influential step the EO Working Group could undertake to improve worker safety is through increased PSM awareness, training, and enforcement for outlier companies.

Chemical operations and process safety management are inherently complex, and ACC looks forward to working with the EO Working Group, as well as the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and other agencies, to ensure that any policy changes are informed by the daily challenges that chemical employers face. ACC encourages the EO Working Group to consider the fundamental concerns outlined in the subsequent comments as the agencies proceed with the next step in the EO process. As an alternative to rulemaking, ACC recommends that agencies including OSHA, EPA, and others evaluate the use of non-regulatory means to help the EO Working Group achieve its goal of creating a safer workplace for our nation’s employees and surrounding communities.

Thank you for the opportunity to submit comments on this matter.

We hope that the EO Working Group will find our contributions helpful. Should you have questions, please contact me by phone at (202) 249-6426 or by e-mail at Rachel_meidl@americanchemistry.com.

Respectfully submitted,

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To the Executive Order Working Group:

The American Chemistry Council (ACC) is America’s oldest trade association of its kind, representing companies across the United States engaged in the business of chemistry. ACC members would be directly affected by any potential adjustments to existing risk management practices, or changes that affect chemical facility safety and security. ACC supports the (EO) Working Group’s stated goal of improving safety through risk management practices. Workplace safety and process safety also are top priorities to ACC and its members. In fact, to become a member of ACC, a company must commit to the highest standards for protecting health, safety, and the environment through participation in the Responsible Care® program. As a part of this commitment, in 1990, ACC adopted the Responsible Care Process Safety Code of Management Practices, which identified specific activities that chemical companies implemented as part of their Responsible Care obligations.

ACC and its members continuously focus on improvement, developing a new Process Safety Code as part of the Responsible Care program, which was finalized in November 2012. This code was built on existing process safety performance requirements under Responsible Care and is further evidence of ACC members’ commitment to safety throughout our chemical processing operations, safety management systems, and leadership. The Process Safety Code requires companies to develop and implement a comprehensive process safety management system to manage risk and seek opportunities to improve performance, including the consideration of safer alternatives. Companies must understand and prioritize process safety risks and see that all employees have the required knowledge, expertise, tools, and training to manage process risks in their operations.

2 ACC submits this comment concurrently with our comment to Occupational Safety and Health Administration (OSHA) regarding the Request for Information (RFI) on Process Safety Management (PSM) and Prevention of Major Chemical Accidents. See ACC Comment on OSHA Docket No. OSHA-2013-0020 (Mar. 31, 2014) (attached hereto as Exhibit 1). The present comment has been tailored to the Executive Order (EO) Working Group’s solicitation of public input in significant ways, but, where issues correspond, the comment also overlaps substantially with our submission to OSHA Docket No. OSHA-2013-0020.
The Process Safety Code is intended to complement regulatory requirements, including the Occupational Safety and Health Administration’s (OSHA’s) Process Safety Management (PSM) standard and the Environmental Protection Agency’s (EPA’s) Risk Management Program (RMP) standard. Regulatory standards, by necessity, focus on process safety at an individual facility. In contrast, the Process Safety Code addresses issues at a more universal level, such as across a division or corporation, and includes a company commitment to set expectations regarding process safety, define accountability for process safety performance and allocate adequate resources to achieve performance expectations. These higher-level considerations, contained within the Process Safety Code, are critical elements of effective management of process safety.

Further, the Process Safety Code is a manifestation of the leadership that Responsible Care companies will undertake to seek systematic continuous improvement in process safety, drawing from the most current learning and advances. When implemented alongside the integrated Responsible Care management systems, this Process Safety Code will help advance the chemical industry’s commitment to process safety by embedding state-of-the-art concepts within Responsible Care, strengthening process safety leadership, culture, management and, ultimately, performance. Implementation of the Process Safety Code is mandatory for all ACC Responsible Care companies.

ACC appreciates the opportunity to submit our comments in response to the EO Working Group’s solicitation of public input. As with OSHA’s PSM Request for Information (RFI), however, we have a number of significant concerns about proposed options for rulemaking or enforcement changes. Even so, ACC is encouraged that the EO Working Group recognized in Section 6(a) that the “purpose of this document is to provide preliminary options as a starting point for additional stakeholder discussion” and that you “anticipate that the options may change significantly.” See Section 6(a) at 2. Moreover, we appreciate your clarification that “this effort does not supersede official or standard processes for agency actions, such as notice and comment rulemaking.” See id. Chemical operations and PSM are inherently complex, and ACC looks forward to working with the EO Working Group, as well as OSHA, EPA, and other agencies, to ensure that any policy changes are informed by the daily challenges that chemical employers face.

I. EXECUTIVE SUMMARY

ACC believes that process safety standards in the United States are strong and effective precisely because they are performance-oriented. Given the diverse nature of chemical industry operations, ACC knows that a flexible approach to process safety best protects workers from risk of harm. Each employer is in the best position to make site-specific process safety decisions by evaluating its own equipment, onsite materials and chemicals, expertise, organizational structure, and operations. For these reasons, ACC opposes prescriptive recommendations that will chip away at the necessary discretion given to employers. Any one-size-fits-all approach to process safety would limit employers’ ability to address real facts on the ground.

ACC fears that several suggested change options would, in practice, weaken the highly effective performance-oriented approach to process safety. Given our concerns, ACC would like to underscore the importance of maintaining a performance-oriented approach for the following topics:
(1) ACC opposes incorporation of mandates to consider or implement “inherently safer technologies” (IST) into regulatory safety programs. Inherently safer approaches or safer alternatives have been and will continue to be considered by facilities as a matter of course. However, only facility operators know whether IST is appropriate given the complexities of their unique operating environments, and no one program will work for all facilities. Furthermore, every regulatory program has a distinct focus, whether it is employee safety, environmental protection, or security. Therefore, IST mandates under one program cannot account for other factors that a facility incorporates in any consideration of inherently safer approaches. The facility operators, however, are able to and do consider inherently safer approaches holistically, in order to ensure the highest degree of safety in all respects.

(2) ACC wholly opposes changing PSM or RMP to a safety case regulatory regime. The safety case framework would be a drastic overhaul of the current system. Against this, no real data establishes its value in the context of process safety for the chemical industry. ACC believes that shifting responsibility to approve safety decisions from employers to inspectors, who inevitably will be less familiar with the jobsites, would detract from worker safety.

(3) ACC believes that the mandated use of third-party auditors would be overly burdensome and unjustified. Employers must be afforded the discretion to choose among self-audits, second-party audits, and third-party audits. Company-led audits can be far more effective in actually addressing issues uncovered during an audit, due to the company auditor’s intimate knowledge of the organization and how it functions.

ACC knows that workers and the public are best protected by allowing employers onsite to make decisions on these and other process safety topics, considering the myriad of site-specific factors presented.

Next, ACC members take process safety very seriously and we disagree with any presumption that the U.S. chemical industry has a poor safety history. ACC acknowledges the public’s fear of chemical operations and “worst-case scenarios,” given their complexities; however, through compliance with the already enacted versions of PSM and RMP, chemical facilities have a strong safety track record. For example, ACC companies have a worker safety rate that is five times better than the U.S. manufacturing sector as a whole. Additional regulation generally has not been justified and would be unnecessary.

As such, ACC takes issue with any suggested change options where the EO Working Group has not established the existence of significant risk of harm. ACC cautions the EO Working Group against trying to fix something not shown to be “broken.” As the United States Supreme Court explained in its landmark decision, Industrial Union Department v. American Petroleum Institute (the Benzene case), “before he can promulgate any permanent health or safety standard, the Secretary is required to make a threshold finding that a place of employment is unsafe—in the sense that significant risks are present and can be eliminated or lessened by a change in practices.” 448 U.S. 607, 642 (1980) (J. Stevens, plurality) (“[A] workplace can hardly be considered ‘unsafe’ unless it threatens the workers with a significant risk of harm.”). In Benzene, the Court refused to give OSHA the unchecked “power to impose enormous costs
that might produce little, if any, discernible benefit,” explaining that it would be “unreasonable to assume that Congress intended to give the Secretary the unprecedented power over American industry.” Id. at 645.

ACC agrees that the public is best protected by focusing on established risks, not hazards. As the Supreme Court explained in the Benzene, accepting the possibility of even deadly consequences (for example, driving a car) is a part of participating in society. The real question is not whether the consequence is serious, but rather the existence of risk—i.e., the likelihood that the consequence occurs. While many groups focus only on reducing hazards, the best way to protect workers, the community, and the environment is to focus on real risks. The EO Working Group should determine what hazards/threats are most significant and likely. This would allow the EO Working Group and agencies to allocate resources in the most effective and efficient way.

In addition, ACC emphasizes that changing regulations alone will not improve safety for companies that know how to fulfill the requirements of the current standards and consistently do so. Change also will not increase the safety of workers at companies that are not in compliance with existing regulations. In fact, ACC believes that process-related safety hazards are extremely rare where covered employers fully comply with current regulations. Instead, safety accidents, including those cited throughout the EO Working Group’s solicitation of public input and OSHA’s RFI, often involve outlier companies that fail to comply with some or all aspects of the current standards. As such, the EO Working Group should focus its time and resources on increasing training, outreach, and education efforts, and encourage agencies to increase enforcement for companies with a history of noncompliance, rather than increasing burdens on the industry across the board.

Overall, ACC encourages the EO Working Group to reach out to affected employers and trade associations. Public/private partnership could help to achieve many of the goals and objectives of the EO. Moreover, interactions with affected groups, including the ACC, would allow the EO Working Group and agencies to obtain a broad perspective on emerging safety trends.

II. RESPONSES TO WORKING GROUP’S PROPOSED OPTIONS

Option 1: “Improving the Safe and Secure Storage, Handling, and Sale of Ammonium Nitrate”

1(e) How should the agencies evaluate the implementation of safer alternatives and best practices for AN, and what are the best methodologies for accomplishing this? Safer alternatives and practices involve improving safety by reducing or eliminating hazards inherent in industrial processes. These alternatives and practices may involve reducing the amount of a hazardous substance kept on-site, or entirely eliminating the hazardous chemical by utilizing an alternative chemical pathway or safer intermediate chemicals. Promoting the use of safer alternatives and practices could occur through industry programs (e.g. Responsible Care, ChemStewards, and Responsible Distribution), by issuing alerts and guidance under EPA’s RMP program and OSHA’s PSM standard to increase knowledge of industry standards, through development and broad availability of a resource center where process safety experts...
share safer alternative techniques, and through potential rulemaking. Several stakeholders also have suggested incorporating “inherently safer technologies” into risk and process safety programs and the agencies are requesting additional information on how this concept would be defined, accomplished, and measured. In addition, the agencies are requesting comment on the potential costs and benefits of implementing such an approach as opposed to other approaches.

ACC addresses the implementation of safer alternatives and best practices below in its comment on Option 2(I)(m).

1(f) Should the agencies examine the use of third-party audits and develop targeted guidance for industries that need assistance in understanding safe practices for handling AN? Third party audits are inspections conducted by appropriate independent auditors (retained by a chemical facility) who make process safety and regulatory compliance recommendations. According to the Center for Chemical Process Safety (CCPS), “Third party auditors (typically, consulting companies who can provide experienced auditors) potentially provide the highest degree of objectivity.” The U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement’s (BSEE) 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.

The Mandated Use Of Third-Party Auditors Would Be Overly Burdensome And Unjustified

ACC cautions against the mandated use of third-party auditors. Further, ACC is skeptical of any assertion that third-party auditors provide the “highest degree of objectivity,” or are more effective overall than self or second-party audits. ACC believes that instead of taking steps to require any audits through regulation, the EO Working Group should focus on targeted non-regulatory approaches such as increased PSM awareness, training, and enforcement for outlier companies, or those requiring additional assistance. In addition, the EO Working Group could encourage voluntary audits by consultants or groups such as Center for Chemical Process Safety (CCPS), ACC, American Fuel & Petrochemical Manufacturers (AFMP), and others, as well as participation in programs such as OSHA Voluntary Protection Program (VPP) to provide supplemental gap analysis and guidance. These tools may help outlier organizations that are not aware of and/or lack the resources to be in full compliance with existing regulations. Adding new regulations, by itself, would not improve process safety performance for such companies. ACC maintains that the mandated third-party audits is unjustified and, depending on the facility, may not best achieve the goals of safety, education, and understanding.

As explained in ACC’s response to OSHA’s PSM RFI (Exhibit 1 at Change Option 12), the use of self-auditors, second-party auditors (company auditors not directly responsible for the area being audited), or third-party auditors should remain a choice for employers, who have the greatest understanding of the unique potential hazards and challenges facing their worksites.

3 For ease of reference, in text boxes placed throughout this submission, ACC has included excerpts from the EO Working Group’s “Solicitation of Public Input on Options for Policy, Regulation, and Standards Modernizations” to which ACC offers comment.
ACC members vary greatly in their decisions to use certain types of PSM auditors. ACC members consider their own particular operations, equipment, onsite materials and chemicals, expertise, and organizational structure to determine which method is best suited to increase safety.

Second-party and self-audits have many safety benefits that are lost with third-party audits. Company-led audits can be far more effective in actually addressing issues uncovered during an audit, due to the company auditor’s intimate knowledge of the organization and how it functions. Using common audit questions and a standardized scoring system across the company also allows for the ready comparison of results across sites, including consistent report-writing and recommendation-tracking across the company. In ACC members’ experiences with PSM audits, using internal resources broadens PSM management system education while leveraging the auditor’s detailed knowledge of the organization and how it functions.

Many ACC members believe that, in reality, company auditors have been more effective in identifying, understanding, and then taking prompt, appropriate actions to ensure that management resolves issues uncovered during an audit, as compared to temporary, unaffiliated contractors. Audit programs are just one element of a company’s safety management system, and company auditors are more likely to take ownership of the audit report process, revisit action items with the site, or advocate internally for additional resources on a continuous basis. In addition, many companies also have or implement a continuous improvement department/process that considers audits, metrics, and incident investigation findings in a holistic manner—these elements would be absent with third-party audits. It is worth noting that some ACC members use third-party auditors merely to confirm the findings of second-party or self-auditors. Ultimately, ACC believes that it should be the responsibility and choice of each owner/operator to decide how best to complete audits given the unique characteristics of the company.

OSHA’s own National Emphasis Program (NEP) inspections have not demonstrated that company-led audits are cause for concern due to any alleged incapability of the audit team or deficiency in the audit protocols used. In March 2011, the Department of Labor provided an update at the 7th Global Congress on Process Safety sponsored by the American Institute of Chemical Engineers (AIChE), explaining that only 4% of the citations for the Refinery NEP were for PSM Compliance Audits. To support the need for a change in regulation in its RFI, OSHA merely cited to the Chemical Safety Board (CSB) Baker Panel’s review of a single company and its finding that the company’s flawed internal audits contributed to an incident. See 78 Fed. Reg. 73762 (Dec. 9, 2013). As previously stated, changing the regulations alone will not improve safety for companies that know how to fulfill the requirements of the current standards and consistently do so. To improve the quality and effectiveness of audits, ACC recommends that agencies, including OSHA, develop practical non-mandatory materials (such as guidance and training) for these outlier employers. At present, ACC has observed a dearth of information regarding auditing on OSHA’s website.

Moreover, the CSB BP Texas City Report (Mar. 20, 2007) does not mention any issues with the audit team; rather CSB identified significant problems with management implementation of the audit team recommendations. Section 8.3 of the CSB BP Texas City Report stated that a “review of compliance audits at the Texas City refinery revealed that many
of the process safety system deficiencies causal to the ISOM incident had been previously identified by BP auditors.” These flaws would not be corrected or eliminated by use of a third-party audit team. Likely for this reason, the CSB BP Texas City Report did not contain a formal recommendation that OSHA update its PSM auditing requirement. The data supporting the methodology on how audits are performed by companies is not compelling, and certainly does not warrant the tremendous cost of third-party auditors through regulatory mandate.

Unquestionably, the use of third-party auditors is extremely costly. Contractors have hourly rates of up to $500 per auditor for conducting PSM audits, not including payment for travel, expenses, and preparation time, as well as inflated costs for certain expertise. ACC has investigated the cost of third-party PSM audits for its members. See Exhibit 1, ACC Comment to OSHA Change Option 12 and the exhibit therein entitled Third-Party PSM Audit Analysis. Indeed, ACC roughly estimates that the cost of a single third-party PSM compliance audit for a medium-sized company could be as high as $33,600 to $112,000 per audit. Id. By contrast, the primary cost for self and second-party audits is the opportunity cost of a company’s PSM and other technical staff, which averages $12,300 per self or second-party audit for medium-sized companies. Id. Thus, third-party PSM audits cost anywhere from $21,300 to $99,700 more per audit than second-party audits for medium-sized companies. This range is based solely on hourly rates, and, in reality, is most likely a low estimate—the comparison assumes that the number of hours spent on a single audit is identical for each type of audit. However, as will be explained later in this section, ACC members report that third-party audits are lengthier than self/second-party audits. Thus, ACC believes that the true cost of third-party audits is significantly higher than $21,300 to $99,700. Even more, as explained in Exhibit 1, “[m]any companies have several facilities that would need to be audited each year. Thus, this cost would be multiplied several times over. Given that the majority of PSM-regulated facilities are at small and medium-sized companies, this presents a significant cost burden.” Id. Again, there is no proof that this cost yields corresponding safety benefits.

Also, third-party auditors do not significantly lessen the burdens of onsite engineers and other support personnel, who frequently must accompany third-party auditors and engage in the extremely time-consuming activity of explaining basic onsite procedures already known to internal staff. This leads to intra-company productivity and opportunity losses, in addition to the direct cost of hiring third-party auditors. Overall, third-party audits are lengthier and involve larger audit teams, without necessarily yielding corresponding safety benefits. Lengthier audits present logistical challenges and loss of efficiency at a plant, occupying those involved in plant safety for extensive periods of time (possibly adversely impacting a plant’s safe operation) and consuming a much greater amount of plant resources. All told, the annual costs would be disproportionate to the benefit.

Furthermore, ACC has serious security concerns with third-party auditors not present with second-party and/or self-audits. Third-party auditors would be granted unprecedented access to intimate details of a company’s operations. The required use of third-party auditors exposes a company’s intellectual property to financial and even security risks. Allowing external personnel to review technical details, company confidential business information, and trade secrets may impact a company’s otherwise protected intellectual property and discourage innovation. More broadly, ACC remains skeptical regarding the qualifications of third-party
auditors. Right now, based on ACC members’ experiences, there is a dearth of quality third-party contractors available for PSM audits.

In conclusion, ACC firmly believes that owners/operators should have the discretion to choose the audit method most suited to their unique operations. This Working Group should not overlook the plethora of benefits that stem from company audits, which are missing entirely from third-party audits. Given these legitimate concerns, ACC suggests that the EO Working Group consider and analyze alternate routes to reinforce the efficacy of audits such as additional guidance, information, tools, and/or training materials on how to conduct quality audits. For outlier facilities or those requiring additional assistance in the safe use and handling of ammonium nitrate, the use of targeted non-regulatory approaches such as increased Section 1910.109(i) awareness, training, and enforcement would be the most productive way to improve the safety of workers, the surrounding community, and the environment.

Option 2(I): “Process Safety Improvement and Modernization – Policy, Regulatory, or Guidance Options by the Agencies”

2(I)(a) Should EPA and OSHA modernize, clarify, and harmonize the PSM and RMP programs through rulemaking, policy change, or guidance development? If so, please provide specific suggestions. The agencies are considering whether to initiate rulemakings for updating the PSM standard and RMP rule. EPA and OSHA have collaborated on implementation of these programs, and are considering a number of options for modernization of regulations, policy, and guidance that would maintain parallel requirements and ensure harmony between the regulations. Although some of these specific options are discussed below, EPA and OSHA seek input on any additional opportunities to modernize, clarify, or harmonize these programs.

Rulemaking Should Not Proceed Without First Establishing The Existence Of Significant Risk; Harmonization Of PSM And RMP Would Be Confusing And Ineffectual

A collaborative effort on the part of OSHA, EPA and industry to clarify regulatory expectations through guidance documents would be more appropriate than attempting to “modernize” standards that are still adequate as written through rulemaking. This collaborative effort should initially identify what part(s), if any, of these standards is “outdated,” and the basis for such determination. Merely passing additional regulations would fail to address the problem of outlier companies that are unfamiliar with the PSM and RMP standards. Instead of rulemaking, ACC encourages education, training, awareness efforts, and enforcement for these outlier companies, or those requiring additional assistance.

A. General Comments And Concerns Regarding Future Rulemaking

As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Executive Summary), the Occupational Safety and Health Act of 1970 (OSH Act) authorizes the Secretary of Labor to “promulgate, modify, or revoke any occupational safety or health standard” that is “reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” See 29 U.S.C. §§ 652(8), 655(b). In Benzene, the U.S. Supreme Court held that “before he can promulgate any permanent health or safety standard, the Secretary is required to make a threshold finding that a place of employment is unsafe—in the sense that significant risks are
present and can be eliminated or lessened by a change in practices.” 448 U.S. 607, 642 (1980) (J. Stevens, plurality) (“[A] workplace can hardly be considered ‘unsafe’ unless it threatens the workers with a significant risk of harm.”) (emphasis added)). The Court warned that accepting the possibility of deadly consequences—for example when driving a car—is a tradeoff for participating in society. The real question is not whether the consequence is serious, but rather the likelihood that the consequence occurs (i.e., the risk). Hazards are always present, even at the best-managed facilities, and to improve safety, agencies must shift focus to risk. Ultimately, the Supreme Court refused to give OSHA the unchecked “power to impose enormous costs that might produce little, if any, discernible benefit,” explaining that it would be “unreasonable to assume that Congress intended to give the Secretary the unprecedented power over American industry.” Id. at 645. The Court specified that risk, not consequence, should be the basis for any proposed changes to the standard.

Pursuant to Section 304 of the Clean Air Act Amendment of 1990 (CAAA), OSHA promulgated the current PSM standard, which ACC believes has been successful in addressing significant risks associated from catastrophic releases of toxic, reactive, flammable and explosive chemicals. As explained in our comment to OSHA (see Exhibit 1), ACC now is concerned by OSHA’s RFI on PSM because we see virtually no reference to findings of significant risk to justify such a dramatic shift from the PSM standard and other rules (e.g., 29 C.F.R. § 1910.106) already in place. While ACC supports OSHA’s stated goal of increasing workplace safety through the PSM standard, ACC cautions OSHA against taking any steps to implement changes that increase burdens on employers without first establishing significant risk of harm through data and science-based analyses. ACC understands that OSHA published its recent RFI as part of an effort to collect “data and information on its PSM standard” in response to the Executive Order 13650 process. See 78 Fed. Reg. 73757. In the meantime, however, ACC would not support any changes to the current standard without such risk analysis from OSHA. The real issue, ACC believes, is not with the current PSM standard, but with compliance deficiencies and demonstrated problems with implementation and enforcement of existing PSM requirements. Changing the regulations alone will not improve safety for companies that know how to fulfill the requirements of the current standards and consistently do so.

ACC believes that process-related risks are well managed and controlled where covered employers fully comply with OSHA’s current PSM regulations. Instead, safety accidents, including those cited throughout OSHA’s RFI and EO Section 6(a), often involve outlier companies that fail to comply with some or all aspects of the current PSM standard. Ultimately, compliance with the regulations already in place minimizes the significant risk of PSM hazards. As such, ACC believes that OSHA should focus its time and resources on increasing PSM training and education efforts, as well as enforcement for companies with a history of noncompliance, rather than increasing burdens on the industry across the board with no discernible reduction of risk.

If any agency decides to proceed with subsequent rulemaking, ACC encourages transparency and sufficient opportunity for stakeholder participation in every step of the rulemaking. Specifically, the agency should issue an Advance Notice of Proposed Rulemaking (ANPR) to provide stakeholders with sufficient time to evaluate the impact of such broad and weighty rule changes. Regarding the required studies and analyses mentioned above, the agency should grant stakeholders sufficient time and opportunity to participate in the OMB-required
peer review process for scientific information used in risk assessments. Moreover, ACC is confident that any proposed revisions to the PSM rule, if enacted, would have a significant economic impact on a substantial number of small business entities. In fact, over half of ACC’s membership consists of small businesses. As such, if rulemaking is anticipated, the agency would be obligated to convene a Small Business Advocacy Review Panel under the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), which recognizes the importance of protecting the interests of small businesses when developing regulations.

B. Comments Regarding Harmonization

While both the PSM standard and EPA’s Risk Management Plan Rule, 40 C.F.R. § 68.150-196 (RMP Rule), are intended to decrease the likelihood of accidental releases, ACC cautions against the harmonization of OSHA’s PSM and EPA’s RMP Rule. In 1990, Congress passed the CAAA Section 304, which required the Secretary of Labor to promulgate a chemical process safety standard to prevent accidental releases of chemicals that could pose a threat to employees. The CAAA requires that the standard include a list of highly hazardous chemicals with associated threshold quantities, including toxic, flammable, highly reactive, and explosive substances.

Likewise, upon passing the CAAA, Congress required the EPA Administrator to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances to prevent accidental releases that impact the surrounding community and environment. The CAAA identifies specific duties for EPA relative to the prevention of accidental releases, mandating the development of a list of chemicals and associated threshold quantities, along with a Risk Management Plan. EPA also passed the RMP Rule to implement CAAA Section 112(r), 42 U.S.C. § 7412(r). The RMP Rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program and conduct a hazard assessment that details the potential effects of an accidental release on the surrounding community and environment.

To comply with both PSM and RMP rules, operators of covered processes must carefully examine the list of regulated substances, as well as both the EPA and OSHA thresholds for these substances. Because OSHA and EPA promulgate their rules separately, the two programs’ lists of substances and thresholds differ. In some cases, one program may list a substance that the other program does not, and where EPA and OSHA do list the same substances their triggering thresholds may differ significantly. The threshold quantities are different because the targeted population is different. OSHA’s PSM standard works to prevent accidental releases of highly hazardous chemicals that may pose a risk to employees, while EPA’s RMP Rule focuses on preventing releases that may impact the surrounding community and environment. ACC fears that merging the lists would create confusion, and would likely cover too few facilities under PSM and too many facilities under the RMP Rule. In the 20-plus years since the implementation of these regulations, industry has become familiar with the lists and established how to address discrepancies between them.
2(I)(b) How should OSHA clarify the exemption for retail facilities under PSM? OSHA’s RFI explains this option in further detail

**OSHA Should Not Change Enforcement Policy For Retail Facility PSM Exemption**

As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 16), OSHA should not change its enforcement policy for the retail facility PSM exemption. ACC understands OSHA’s concerns regarding the ill-defined PSM exemption for retail facilities. Simply altering enforcement policies without changing the regulation’s language on coverage, however, would amount to regulation by enforcement. ACC categorically discourages any such back-door rulemaking by imposing new substantive requirements through enforcement and without the opportunity for stakeholders to have any input (as would be the case through Administrative Procedure Act (APA) rulemaking). As with manufacturing and storage facilities, if OSHA believes that retail facilities present a significant risk of harm—and OSHA establishes significant risk through studies and analyses—it should amend the standard to include coverage of so-called “retail facilities” associated with such risks. In sum, OSHA should continue analyzing hazards and risks for retail establishments as required for rulemaking, and should not merely pursue a change in enforcement policy for retail facilities.

2(I)(c) Should OSHA adopt EPA’s RMP policy for determining PSM coverage of concentrations of PSM-listed chemicals (replacing OSHA’s existing interpretation that applies the concept of maximum concentration commercially available to determine threshold quantities of covered chemicals)? The Executive Order refers to this issue as the commercial grade exemption. OSHA’s RFI explains this in further detail.

**OSHA Must Undertake Scientific Analyses And Establish Significant Risk Before Any Enforcement Changes Are Made, And EPA Criteria Would Be Ineffectual For OSHA**

OSHA’s PSM Appendix A lists highly hazardous chemicals and threshold quantities that must be met to establish coverage. Although Appendix A provides specific concentrations for 11 of its listed chemicals, the standard does not address concentrations for the remaining 126 listed chemicals. As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 17), ACC recommends that OSHA use a formal scientific-based approach to evaluate chemicals so that OSHA can demonstrate that any proposed changes to the PSM standard are justified, and that the modifications to enforcement would actually enhance worker safety. ACC further urges OSHA and EPA to develop and publish their research and data-gathering methodology for identifying, defining, and quantifying the hazards associated with a chemical. OSHA and EPA should use a formal, scientific-based approach to evaluate chemicals and, ultimately, to demonstrate that any proposed additions to the list of covered chemicals are justified and would actually enhance worker safety.

ACC agrees with OSHA that the language in the standard addressing mixtures containing listed chemicals is unclear and requires clarification. However, ACC does not agree that OSHA
should adopt the EPA’s policy, or that a change in enforcement policy is justified. It would not be feasible to use the EPA 1% concentration criteria in OSHA’s PSM standard because there are multiple additional requirements to establish a full EPA RMP Prevention Program (Program 3) in the EPA RMP Rule. These additional criteria, such as off-site injury and distances to toxic or flammable endpoints for worst-case release assessments, are related to off-site impacts and are not within OSHA’s scope. In addition, these supplemental criteria substantiate that the mixture poses an off-site hazard. Although EPA policy requires evaluation of all mixtures with a greater than 1% concentration, only those mixtures that have concentrations large enough to be a potential off-site hazard require establishment of a full EPA RMP Prevention Program (Program 3).

Instead, in its response to OSHA’s RFI, ACC encouraged OSHA to clarify the requirements for chemicals listed in Appendix A without specific concentrations. In particular, mixtures containing more than the threshold quantity as set forth in Appendix A in the mixture, but are at such a low concentration so as not to constitute a hazard, should be explicitly identified as outside the scope of PSM’s coverage.

2(I)(e) Should EPA, OSHA, and PHMSA initiate rulemaking, policy changes, or guidance to account for human factors in process safety, management of change, facility operating procedures, incident investigation, training, process hazard analysis, and other elements? If so, please provide specific recommendations on how the agencies should better address these?

OSHA’s RFI discusses and requests comment on additional management-system elements.

**Additional Steps Need Not Be Taken To Account For Human Factors**

ACC notes that OSHA interpretation letters, along with existing regulatory language, are clear regarding how to “account for human factors.” Additional rulemaking is not necessary. Beyond OSHA, tools exist to help employers account for human factors. For example, CCPS, Mary Kay O’Connor Process Safety Center (MKOPSC), and consulting companies all provide guidance and training on human factors and how to address them within existing process safety elements. ACC strongly believes that no additional rulemaking can occur without a showing of need, and no such need exists here where effective information and training already is utilized and available.

2(I)(g) Would it be beneficial for the agencies to develop and publish guidance for employers or operators on conducting root-cause analysis following significant incidents or releases? Root-cause analysis involves identifying the systemic causes of incidents as opposed to the immediate causes. EPA, OSHA, and PHMSA plan to determine what level of root-cause analysis is appropriate and feasible.

**ACC Cautions Against Publishing Guidance And, If Published, Encourages Industry Input**

ACC does not believe that new guidance is required on conducting root-cause analysis following significant incidents or releases. Although not explicitly required, root-cause analyses are already conducted under PSM for incident investigations under Section 1910.119(m) as well as Responsible Care. Further, numerous private sector resources are available for root-cause methodology training.
Moreover, ACC notes that we discourage imposing any new substantive requirements through enforcement or guidance without the benefit of APA notice and comment. If the EO Working Group develops guidance on root-cause analyses, ACC would appreciate the opportunity to provide input. ACC believes that we would have valuable input based on the practical experiences of our members.

2(I)(h) Would it be beneficial for OSHA to develop and publish PSM guidance for small businesses, particularly those that handle highly hazardous chemicals that are not the employer’s primary product? Small businesses often lack the resources and expertise of larger businesses for PSM elements such as training and process hazard analysis, and may require additional consultation or guidance from OSHA in order to meet PSM requirements. Businesses that handle highly hazardous chemicals that are not the facility’s primary product may similarly lack PSM expertise and require special guidance.

Similarly Here, ACC Cautions Against Any Rulemaking Through Guidance And Encourages Industry Input

First, ACC again notes that it categorically opposes any such back-door rulemaking by imposing new substantive requirements through enforcement or guidance. No guidance can be given the weight of rules, which allow the opportunity for stakeholders to have any input through APA rulemaking. If OSHA undertakes an effort to develop and publish PSM guidance, ACC would appreciate the opportunity to provide input. OSHA also should collaborate with other trade organizations and groups such as CCPS and MKOPSC. ACC believes that OSHA would benefit from these groups’ input to understand the practical challenges that employers face.

2(I)(f) Should EPA, OSHA, and PHMSA initiate rulemaking, policy changes, or guidance to use existing leading and lagging indicators to better evaluate performance over time? If so, please provide recommendations on how the agencies may address this and what indicators are most meaningful. An indicator is any metric that can be used, modeled, or trended to predict future events. Lagging indicators may include frequency of injuries or incidents. Leading indicators include frequency of maintenance orders, frequency of maintenance orders completed late vs. on-time, number of equipment inspections, or percentage of sampled management of change orders that satisfy regulatory/internal compliance. OSHA’s RFI also discusses and requests comments on this issue.

Additional Management-System Elements, Particularly Those Based On Leading And Lagging Indicators, Need Not And Should Not Be Added

OSHA noted in the RFI that CCPS recommends additional management-system elements such as Conduct of Operations, PSM Metrics, and performing periodic Management Reviews of PSM programs. As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 6), each of these CCPS additional elements are supportive management tools, which are applied to improve the efficacy of the existing elements in the OSHA PSM standard. They do not create a work product of their own, and therefore are inappropriate in the performance-based PSM standard. ACC agrees that these types of cultural process safety elements may lend themselves
to individual organizational continuous improvement actions. However, such elements are not well suited to prescriptive regulation or to consistent, rational enforcement by government agencies. They would be ineffectual and confusing as regulatory requirements, and, as such, should not be added to the current regulations.

ACC also notes that no agency has provided any evidence indicating that the existing PSM regulation has not adequately included process safety elements necessary to develop an effective performance-based PSM system, and ACC believes that no such evidence exists. OSHA’s RFI cited incidents where existing management system elements were not adequately performed. These examples, however, demonstrate a problem with implementation and enforcement; they do not constitute evidence of the need for additional elements. Imposing unnecessary added regulations on all covered employers ignores the root problems—that certain outlier organizations have chosen not to address regulations already in place in their entirety through the implementation and maintenance of existing regulatory process safety management elements, or perhaps do not realize that they are covered by the regulation.

Furthermore, lagging PSM metric indicator collection and evaluation should not be required by regulation. While lagging indicators may provide insight into an organization’s past process safety performance, there are limits to how this data can be utilized as a meaningful measurement and comparison point. Organizations like ACC, International Council of Chemical Associations (ICCA), American Petroleum Institute (API), AFPM and CCPS have been working to standardize and harmonize process safety metric collection and analysis to provide consistency in reporting; however, this standardization has not yet come to fruition and may not be achievable. ACC would support a single, global, harmonized set of process safety lagging indicators that can be applied by chemical manufacturers worldwide when such a set is developed. The advantages of a single scheme are numerous and include simplified reporting and benchmarking, teachable experiences that can be disseminated across all facilities, continuous process safety improvement, and mitigation and elimination of risks. However, such a harmonized set of metrics does not exist at this point, and even if such a set is developed, ACC does not see the need for a regulatory requirement.

In addition, leading PSM metrics cannot be effectually regulated. Even more than for lagging metrics, leading metrics simply do not lend themselves to standardization and cannot be successfully employed across organizations or industries, as they tend to be very specific to an organization and often to an individual site. By way of comparison, occupational safety lagging metrics such as days away and total recordable injuries—which ACC and other organizations still have struggled to standardize across the industry—tend to be numerical and quantitative in nature, whereas leading indicators such as behavioral-based audits, employee observations, and employee participation in safety committees are extremely subjective and site-specific. These metrics cannot be universally applied or regulated. In sum, ACC believes that the existing PSM management-systems elements required by OSHA in 29 C.F.R. § 1910.119 represent the key components needed for a successful PSM program, and additional requirements suggested by OSHA in its RFI would not provide any corresponding safety benefits and are not amenable to regulatory implementation.

Finally, ACC notes that when EPA promulgated 40 C.F.R. Part 68, the EPA aligned Section 68.15 of the RMP rule (requiring facilities to develop a management system) with § 1910.119 PSM elements. ACC believes that OSHA should consider the EPA’s precedent and
maintain consistency between PSM and RMP program elements. This would drastically reduce the burden on employers complying with two distinct programs.

2(I)(j) Should inspector and compliance officer training be expanded to include best practices and to improve process safety beyond regulatory requirements? EPA, OSHA, USCG, and PHMSA recognize that specialized training would allow inspectors and compliance officers to go beyond enforcement and recommend additional best practices to regulated entities to protect their workers, the surrounding community, and the environment. USCG already plans to enhance training and provide additional guidance to shippers of products.

**ACC Cautions That Training Beyond Regulatory Requirements Would Lead To Inconsistency In Enforcement**

While in theory this concept sounds like an attractive option, ACC believes that training that does not specifically support inspection and compliance functions (i.e., training beyond regulatory requirements) will only serve to confuse the issue and dilute already scarce resources. There are many other, more efficient avenues for companies to obtain Good Engineering Practice information than as a part of an enforcement or inspection visit. Agencies should consider adding such training only as it supports their primary function of inspection and compliance.

ACC also would like to note the distinction between inspection/regulatory compliance and improvement beyond regulations. Due to the nature of performance-based regulations, if any training is conducted, there must be clear separation between (1) regulatory expectations and (2) continuous improvement and best practices. Without clear separation, some regions may insist on and/or enforce a “best practice” that is not in fact required, while other regions may take a different approach or focus on a different practice that they think is “best.” Ultimately, only the employer, which has intimate knowledge of its own facilities, knows what constitutes “best practices.” This is the reason that PSM, for example, was written as a performance-oriented standard in the first place. Programs such as VPP have been successful in promoting best practices and improvements beyond regulatory compliance; however, even these programs have had difficulties with consistency of requirements from region to region. The confusion (not to mention subsequent litigation) that would come from trying to combine enforcement/compliance with continuous improvement would be a counterproductive distraction.

2(I)(l) Should EPA, OSHA and PHMSA evaluate the implementation of a “safety case” regulatory model to reduce risks in complex industrial processes as low as reasonably practicable? This option could be used to replace, or in the environmental context supplement, existing PSM and RMP safety requirements with a system that requires employers to present to regulators a structured argument, supported by a body of evidence, that provides a compelling, comprehensible and valid case that a system is safe for a given application in a given operating environment. The safety case regulatory model provides employers with increased flexibility and allows regulators to set health and safety standards that are proportionate to the risk involved. For example, a description of the United Kingdom’s safety case regulation can be found at [http://www.hse.gov.uk/comah/](http://www.hse.gov.uk/comah/). The agencies recognize this would be a major departure from the current regulatory model, and it would likely require legislative action to implement.
ACC Believes That A Safety Case Regulatory Regime Would Detract From Safety And Is Wholly Unjustified

ACC has strong concerns regarding the establishment of a safety management regulatory framework based on “safety case” principles. ACC disagrees with the EO Working Group’s statement that the “safety case regulatory model provides employers with increased flexibility and allows regulators to set health and safety standards that are proportionate to the risk involved.” ACC believes that the safety case framework would not actually achieve the desired safety benefits for covered workplaces. As fully explained in our January 3, 2014 comment to the CSB in response to CSB Regulatory Report No. 2012-03-I-Ca (attached hereto as Exhibit 2) (CSB Report), ACC believes that its members, through OSHA’s current PSM standards and voluntary programs such as Responsible Care, already address the continuous improvement goals set forth in the CSB Report to justify the safety case regime. We have significant concerns that the drastic changes that would come with a safety case framework would result in a wide variety of practical problems if implemented. As outlined in detail below in Subsections A to F, ACC believes that a safety case regime ultimately would detract from worker safety and create an atmosphere of uncertainty and confusion for employers and regulators alike.

A. ACC Has Significant Legal Concerns (Including Due Process Concerns) Regarding Any Recommendation To Implement New Requirements Without Rulemaking

A safety case regime would not be a mere addition to or engagement of current process safety management regulations. It would be a complete overhaul of the current method used, despite the lack of any evidence that a safety case program would provide any process safety improvement over the existing regulations. ACC appreciates the EO Working Group’s comment that “agencies recognize this would be a major departure from the current regulatory model, and it would likely require legislative action to implement.” ACC has significant legal concerns, including due process concerns, with any recommendation to implement safety case requirements without rulemaking. Specifically, the CSB Report included the following recommendation: “Ability to adapt and implement safety requirements in response to newly identified hazards, advances in technology, lessons learned from major accidents, and improved safety codes without the need for new rule-making.” See Exhibit 2, CSB Report at 90 (emphasis added); see also id. at 89 (“The safety case provides the adaptability necessary to keep current with improving standards and advancing technology, without requiring lengthy and often unproductive rulemaking on the part of the regulator.” (emphasis added)); id. at 48 (“The cumbersome rulemaking process and lack of flexibility that has resulted in stagnant and static OSHA standards can be contrasted with the structure of the safety case regulatory regime, which facilitates adaptability and enables the regulator to improve industry safety performance and practices without requiring a major rule change.” (emphasis added)).

The CSB press release issued on December 16, 2013 in connection with the release of the CSB Report provided further clues as to this approach: “Under a safety case system, changing safety standards, new technologies, and findings from accident investigations are required to be
incorporated by facilities.” The CSB further stated in this press release that one of the justifications for this approach was that it had issued a number of process safety regulations from its investigations, yet “none of these important regulatory recommendations have been implemented.” See CSB Press Release (Dec. 16, 2013). In effect, the CSB approach would grant unprecedented leeway in setting requirements beyond the current legislative checks and balances, and would open the door for short-circuiting the rulemaking process altogether.

This recommended back-door rulemaking is of grave concern to ACC and the general public. ACC members would be faced with the obligation to implement “advances in new technology” without any regulator having to determine through APA rulemaking whether there is significant risk and without having to establish the necessary feasibility requirements. ACC members would then be obligated to follow these new requirements without the opportunity to participate in the APA rulemaking process (and presenting any input and/or practical issues with any such proposal). ACC has the same concerns regarding the obligation to implement “improved safety codes” or “changing safety standards” without the regulator establishing the need for such requirements under APA rulemaking.

The CSB Report also suggested that any employer subject to the recommended safety case framework, if implemented, would automatically be required to follow a wide variety of new requirements without the opportunity to participate in any transparent rulemaking process, and without clear direction as to which of the new technology, accident, or safety recommendations would actually have to be implemented by employers. If this regime were implemented without rulemaking, employers would not know who sets deadlines for implementation and compliance. Also unclear is what agency would enforce the regime and actually evaluate compliance with these recommendations. Furthermore, ACC cannot be required to follow each prescriptive requirement from consensus standards without the opportunity to participate in the rulemaking process. Without proper rulemaking procedures, employers would not know who would decide what consensus standards, if any, would need to be followed, or what recommendations in the CSB Report are mandatory, given the CSB’s lack of enforcement mechanisms.

ACC completely disagrees with the discussion in Appendix B to the CSB Report wherein the CSB contended that the safety case regime would somehow allow changes to process safety requirements without APA notice and comment rulemaking. See Exhibit 2, CSB Report at 105-06. It is one thing for an agency to issue guidance to provide more details on compliance to existing regulatory requirements, and yet another to suggest (as the CSB does in its Report) that completely new substantive requirements, based on new technology, incident investigation reports, and safety codes (such as consensus standards) could be imposed on employers without the opportunity and due process rights to participate in its development. ACC further disagrees with the CSB’s conclusion in Appendix B that the safety case regime (as proposed by the CSB) is somehow consistent with the Regulatory Flexibility Act and its underlying principles. The purpose of the Regulatory Flexibility Act is to ensure adequate opportunity to participate in transparent rulemaking. See 5 U.S.C. §§ 601 et seq.
B. A Safety Case Regulatory Regime Represents A Drastic Policy Change From The Current Regulatory Framework With No Corresponding Benefits For Workplace Safety

The CSB Report described the safety case regulatory regime as a “rigorous prescriptive and goal-setting regulatory approach applied globally both onshore and offshore.” See Exhibit 2, CSB Report at 9. Under this regime, “[a] written case for safety, known as the safety case report, is generated by the duty holder and is generally rigorously reviewed, audited, and enforced by highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee.” See id. Moreover, “[i]n order for the facility to begin operation or remain in operation, the regulator must ‘accept’ the facility’s safety case report.” See id. at 39.

This CSB’s proposed framework would shift the burden to the regulator to review and evaluate a wide set of site-specific information, which regulators will be ill-equipped to handle, without any real objective measures. As fully explained in our comment to the CSB (see Exhibit 2), ACC believes that the current framework of PSM is better suited to enhance workplace safety. In fact, under the current well-recognized regulatory framework, which provides employers with the necessary discretion to tailor safety processes to the specific conditions of each worksite, ACC members supplement the PSM elements and implement a program that includes many of the elements in the safety case framework.

Under OSHA’s PSM standard, an employer team with expertise in engineering and process operations must address the hazards of the process, identification of prior incidents that had potential for catastrophic consequences, engineering and administrative controls (and their interrelationships and the consequences of their failures, including a qualitative evaluation of possible safety and health effects on employees), facility siting, and human factors. See 29 C.F.R. § 1910.119(e)(3). After notice and comment rulemaking, OSHA modified Subsection 1910.119(e) “so that employers are not required to implement every recommendation offered by a Process Hazard Analysis Team,” although employers must consider all recommendations. See Preamble to Process Safety Management of Highly Hazardous Chemicals, Explosives and Blasting Agents, 57 Fed. Reg. 6356-01 (Feb. 24, 1992) (PSM Preamble) (emphasis added). As clearly stated in the PSM Preamble, “[i]t is critically important that a PHA Team have freedom to make broad recommendations, at risk of being wrong . . . . [W]hen a team recommendation is incorrect, the employer can analyze it and then document in writing why the recommendation is not being adopted or is being adopted with modification.” See id. (emphasis added). OSHA intentionally delegated the responsibility to evaluate and reject or implement site-specific recommendations to the employer. The employer, after all, is most familiar with the site, safety concerns, and practical hurdles to and consequences of operational changes.

In contrast to the current OSHA programs, under the proposed safety case regime, regulators who are not intimately familiar with technical aspects of the worksite or involved in process safety analyses would make the ultimate decision to accept or reject a safety program. Again, the CSB Report’s safety case regime requires up-front “acceptance” from “highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee.” See Exhibit 2, CSB Report at 9. General industry knowledge from inspectors, however, may not be enough; ACC respectfully submits that individual facilities, with onsite safety experts and engineers who are intimately familiar with the jobsites, have the most sophisticated understanding of site-specific safety conditions. ACC is concerned that a safety
case regulatory regime ultimately would rob employers of the necessary discretion over how best to handle safety on their particular worksites. Prior acceptance by inspectors with unknown backgrounds who are unfamiliar with the jobsites would impede employers’ ability to make safety decisions quickly and effectively. ACC believes that shifting responsibility to approve safety decisions from employers to inspectors, who inevitably will be less familiar with the jobsites, would be ill-advised.

C. **Employers—Not Regulators—are In A Better Position To Implement Many Of The Elements Of The Safety Case Regime**

The CSB justifies its recommendations for the safety case regulatory framework based on an assumption that the current PSM framework is “reactive” and “activity based,” and that the PSM has become static and does not address the development of new technologies, new safety approaches, and “advancing best practices.” See Exhibit 2, CSB Report at 9. The CSB contends that the current system is so focused on specific tasks and activities that it does not drive the achievement of continuous risk reduction. See id. Thus, the CSB advances the argument (relying on an unsupported third-party report) that the PSM system is a “minimum cost” and “compliance based approach,” in which employers purportedly take the approach that if it is not a “regulatory requirement,” then they will not actually comply. See id. at 30. The CSB also raises the concern that the PSM regulatory framework does not direct employers to develop a holistic safety management system approach to process operations. See id. at 29-32.

In the alternative, the CSB outlines what it describes as the “key features” of an “effective major accident prevention” approach such as the safety case regime: (1) duty holder safety responsibility, including a written case for safety; (2) continuous Risk Reduction to As Low As Reasonably Practical (“ALARP”); (3) adaptability and continuous improvement; (4) active workforce participation; (5) Process Safety Indicators that drive performance; (6) regulatory assessment, verification and intervention; and (7) an independent, competent, well-funded regulator. See id. at 36.

ACC strongly disagrees with these purported observations and conclusions. The chemical industry, without the direction of regulators, continues to challenge its understanding of process safety through the ongoing development of hazard identification and analysis tools. For example, the industry has gone beyond the requirements of PHA through enhanced self-analytical processes with layer of protection analyses (“LOPAs”), fault tree and event tree analyses, as well as full-blown quantitative risk analyses.

Since promulgation of the Process Hazard Analysis (PHA) and PSM, the chemical industry continues to strive for improvement. For example, ACC and its members already have taken the lead in developing a new paradigm of process safety that not only complements the current regulatory structures (PSM and RMP), but goes beyond the current regulatory requirements to require the broad framework of a safety management system. This system results in a culture of continuous improvement, all without the intervention of a regulator and under the discretion of the employer, who has better understanding of the specific workplace conditions. ACC requires each member to achieve certain goals in the Responsible Care® Management System and the RC14001 Technical Specifications, including the following: (1) to make continual progress toward the aim of no accidents, injuries, or harm to human health or the
environment; (2) to design and operate facilities in a safe, secure, and environmentally sound manner; (3) to install a culture throughout all levels of member organizations to continually identify, reduce, and manage process safety risks; (4) to support research on the health, safety, and environmental effects of member products and processes; and (5) to communicate product, service, and process risks to our stakeholders. Conformance to these goals and practices is confirmed through voluntary third-party audits conducted on ACC members.

Specifically, each ACC member must commit to implementing and adhering to the following process safety management practices:

(1) Leadership and Culture – Senior management and leadership are committed to establishing and communicating process safety as a core value and enforcing high standards of performance at all levels within the organization. Company leadership also promotes and develops a process safety culture within the organization, encouraging openness to raise concerns and identify opportunities for improvement.

(2) Accountability – Process safety roles and responsibilities across the organization are clearly defined and include an expectation to identify, and authority to respond to, process safety concerns. Senior leaders are held accountable for process safety performance, while employees understand the importance of process safety as it applies to their jobs and are responsible for following and contributing to the work processes to achieve improvement in company process safety performance.

(3) Knowledge, expertise and training – Process safety competency requirements are established and executed for management, engineering, and operational personnel, as well as contractors and third-party service providers, commensurate with the activities performed.

(4) Understanding and prioritization of process safety risks – Member companies identify and understand the hazards and risks of their processes and implement systems for documenting and accessing comprehensive and current information on process-related hazards and risks to enable informed decision-making.

(5) Comprehensive process safety management system – Member companies design systems to manage and mitigate identified risks with adequate safeguards. Management of process safety considers passive controls; engineering controls; operational controls; inherently safer approaches; inspection, maintenance, and mechanical integrity programs; management of change procedures; and scenario planning.

(6) Information sharing – Member companies establish processes fostering two-way flow of information between management, employees, contractors and other stakeholders to share process safety information, ensuring that experiences from process safety reviews, inspections, audits, and incident and near-miss investigations are shared, as relevant, across the company in a timely manner.

(7) Monitoring and improving performance – Senior management and leadership continually monitor process safety performance through routine evaluation of process safety management systems, independent of regulatory audits, to confirm that the desired results are achieved, using appropriate leading and lagging indicators. Results are
reviewed at planned intervals to determine progress against process safety performance expectations and to take action to improve performance when needed.

Under the Responsible Care® program, each ACC member is required to demonstrate compliance with each of these elements. Thus, members not only already implement so-called “key features” identified by the CSB as the justifications for the safety case proposal, but, in fact, go beyond what the CSB suggests in its safety case proposal.

For example, the CSB states that one of the “key strength[s]” of the safety case regime is that it provides the regulator “with the tools to drive continuous improvement” to reduce risks to ALARP, rather than “focusing on compliance with activity-based regulatory requirements.” See Exhibit 2, CSB Report at 43. Yet, ACC members already implement a wide variety of steps to achieve the goal of continuous improvement and risk reduction to ALARP; those steps include the development and implementation of a comprehensive process safety management system to manage process risks and the development of a safety culture to manage those same risks. In fact, ACC members already undergo voluntary audits to demonstrate compliance with this program. ACC believes that its members are best situated to take the lead role in developing and overseeing programs suited for their particular facilities, rather than the approach envisioned by the safety case regime where the regulator (without any history or knowledge of a particular facility) must review and oversee the program. Further, ACC does not agree with the CSB regarding the need to completely redesign the approach to process safety where ACC members already have a program in place addressing the “key features” cited by the CSB to justify the safety case regime.

D. Regulators’ Review Of Subjective Criteria Without Objective Benchmarks Under The Recommended Safety Case Framework Would Be Difficult To Implement And Follow

The safety case regime described in the CSB Report would require inspectors to review a safety case for “acceptance” through use of subjective criteria that lack objective benchmarks. Although the report calls for “highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee,” inspectors’ ability to accurately evaluate these factors, and to do so consistently across local offices of regulators and facilities, is questionable. These factors are inherently subjective and difficult to review without extensive training and knowledge of the site, the organization, and its history.

Allowing inspectors to evaluate such subjective criteria raises practical issues over what various regulators will require. Currently, the standard that would be imposed by investigators for approval is vague and provides little notice of what constitutes compliance. For example, the anticipated application of the ALARP standard by regulators is extremely unclear—how will inspectors evaluate whether a facility has satisfied the “reasonably practical” standard? Will different offices of the regulatory agency have differing positions on what is required to be in compliance with these inherently subjective factors? How would an inspector be able to ascertain ALARP standards without a roadmap for tracing the unit’s assessment process for each element under question? An employer, and not a regulator, is in the best position to know what is reasonably practical within the framework of its own risk evaluation process, experience, incident history, engineering assessment, and other self-analytical tools.
Along the same lines, the CSB does not explain what standard a regulator must follow before an employer’s safety case is “accepted.” Unless quantified and/or delineated criteria are published, the regime will be ineffective and provide little notice as to what is actually required of employers. There will be a strong risk that disparate, incongruous “acceptable” solutions will exist, depending on the individual inspectors involved, simply because there are no set standards. In short, the safety case framework purports to be a prescriptive regime that requires employers to meet a minimum benchmark of acceptability, yet the CSB Report fails to set forth any clear benchmarks or articulate how such benchmarks would actually be developed and ultimately communicated to stakeholders.

This uncertainty created by the CSB proposal raises legal issues as well. A regulation is “unconstitutionally vague under the due process clause of the Fifth or Fourteenth Amendments if it ‘forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application.’” Ga. Pac. Corp. v. Occupational Safety & Health Review Comm’n, 25 F.3d 999, 1005 (11th Cir. 1994) (citation omitted) (finding the phrase “obstructs forward view” to be insufficiently defined, and therefore unconstitutionally vague); see also Diamond Roofing Co. v. Occupational Safety & Health Review Comm’n, 528 F.2d 645, 649 (5th Cir. 1976) (“[A]n occupational safety and health standard must give an employer fair warning of the conduct it prohibits or requires.”). Simply put, ACC believes that the elements of the safety case regime that an employer is required to follow before the safety case is “accepted” by the regulator (to allow the employer to use or operate its facility) are unacceptably subjective and unclear. The entire essence of the CSB proposal for safety case is succinctly stated on page 37 of the Report: “the onus is on the duty holder [i.e., employer] to prove to the regulator that the company’s processes, methodologies used to assess risks, and reasoning for choosing one control over another have substantially reduced risks to as low as reasonably practicable (ALARP), or equivalent.” See Exhibit 2, CSB Report at 37 (emphasis added). In practical reality, employers would simply not have notice as to what is required of them. Employers—including ACC members—would be subject to oversight by a regulator (no matter how well trained) with less of an understanding of the wide range of complex issues at a particular site at stake in the development of the appropriate process safety.

E. **No Agency Should Move Forward With A Safety Case Regime Without A Realistic Cost Assessment**

Finally, ACC emphasizes the huge financial and personnel commitments necessary to implement a safety case regime, not to mention the resource commitment required to ensure that such a regime is in any way effective. For example, the CSB Report stated that the safety case regime could only succeed if the relevant state or federal agency undertook significant commitments to its implementation, including:

- an “independent, well-funded, well-staffed, technically competent regulator”; and
- a compensation system to ensure that the regulator can attract employees “with the necessary skills and experience to ensure regulator technical competency.”

See Exhibit 2, CSB Report at 90-91 (outlining recommendations to California and OSHA). A safety case program could only work if fully staffed with experts to implement the regime’s
procedures and set its limits, including staff with appropriate technical backgrounds and industry experience to evaluate and approve Safety Case Plans.

Yet, similar upfront inspection goals have failed due to resource limitations, such as, for example, the inability of the EPA to conduct proactive audits of RMPs. See Exhibit 2, CSB Report at 62-63 (the “EPA has not effectively implemented the audit and inspection elements” of RMP; according to IG report, 50 percent of high-risk RMP sites have never received an on-site inspection and over 65 percent of all RMP sites have never received an on-site inspection since the program began in 1999). ACC understands that there are approximately 14,000 RMP sites in the United States, and, of note, ACC believes that the number of refineries and other facilities envisioned to be covered under the CSB’s proposed safety case regime would be even greater. At the end of the day, ACC believes that the lack of staff sufficiently trained to properly evaluate and enforce such complex regulatory requirements would lead to a chaotic and ineffective regulatory regime, and would doom this program to failure.

F. ACC Has Seen No Persuasive Justification For A Safety Case Regulatory Regime

ACC has seen no persuasive evidence to support the view that a safety case regime would be safer than enforcement of the current regulation. To move forward with a safety case regime, agencies should establish what deficiencies in the current regulations, if any, the safety case regime would address. ACC remains skeptical that quantitative, scientifically-based support for the safety case regime exists.

For example, the CSB Report maintains that “regulatory approaches similar to the safety case regulatory regime, which require risk reduction to ALARP or equivalent, have been implemented in the nuclear sector by the Nuclear Regulatory Commission (NRC) and the aerospace sector by NASA.” See Exhibit 2, CSB Report at 11; see also id. at 34-35 (explaining that (1) the NRC has adopted a performance-oriented regulation with a license requirement that includes overall goals to reduce risks to as low as reasonably achievable, or ALARA, and (2) NASA utilizes the goal of a safety system that reduces risk to as safe as reasonably practicable, or ASARP). Drawing conclusions for chemical facilities and refineries from NASA’s and/or the NRC’s experiences with safety case regimes, however, is inappropriate. NASA and the NRC deal with extremely narrow and specific technologies, equipment, and operations, involving high consequence of failure on a scale completely different than that presented by the chemical industry. NASA’s and NRC’s coverage is in sharp contrast to the broad-base and wide range of facilities of ACC members, with vast differences in size, scope and operation. What might work in a narrowly defined operation, such as NASA’s role in space exploration or the NRC’s role in oversight of the nuclear power industry, simply would not work in the environment within which ACC members operate.

Moreover, the incidents listed in the CSB Report as justifications for the imposition of the safety case regime largely involve accidents that are in dispute and/or otherwise inapplicable and insufficient to support the shift to this completely different regulatory approach. For example, the CSB Report Appendix A lists “Significant Petroleum Refinery Incidents in 2012,” yet ACC remains skeptical that this list appropriately captures so-called significant petroleum refinery incidents. Based on information provided by our members, we understand that several
incidents listed are minor or highly disputed. ACC would like more information regarding how the list was compiled and the extent to which it influenced policy and/or supported an argument for a safety case regime. ACC believes that these incidents cannot support the imposition of the burdensome safety case regulatory regime.

2(I)(m) Should the agencies evaluate the implementation of safer alternatives and best practices, and what are the best methodologies for accomplishing this? Safer alternatives and practices involve improving safety by reducing or eliminating hazards inherent in industrial processes. These alternatives and practices may involve reducing the amount of a hazardous substance kept on-site, or entirely eliminating the hazardous chemical by utilizing an alternative chemical pathway or safer intermediate chemicals. Promoting the use of safer alternatives and practices could occur through industry programs (e.g., Responsible Care, ChemStewards, and Responsible Distribution), by issuing alerts and guidance under EPA’s RMP program and OSHA’s PSM standard to increase knowledge and awareness of industry standards, through development and broad availability of a resource center where process safety experts share safer alternative techniques, and through potential rulemaking. Several stakeholders also have suggested incorporating “inherently safer technologies” into risk and process safety programs and the agencies are requesting additional information on how this would be defined, accomplished, and measured. In addition, the agencies are requesting comment on the potential costs and benefits of implementing such an approach as opposed to other approaches.\(^5\)

While ACC Encourages Voluntary Consideration Of Inherently Safer Technologies, ACC Strongly Opposes Its Incorporation Into Regulation

ACC and our member companies proactively work to continuously improve process safety standards and practices with comprehensive management systems that include consideration of inherently safer technologies. Process safety is only one part of safety. The business of chemistry has a culture of safety going back many years. The nature of our operations requires it. This culture of safety has created what Labor Department data reveals is one of the safest industries in the United States. As a result, ACC’s Responsible Care companies have a worker safety rate that is five times better than the U.S. manufacturing sector as a whole, and nearly three times better than the business of chemistry overall. ACC member companies have reduced the number of safety incidents that result in a product spill, fire, explosion or injury by 58% since 1995. This commitment to safety is expressed through Responsible Care®, our industry’s initiative for improving performance; our adherence to, and support for, governmental standards and research; and our longstanding and effective partnerships with local, state and federal government agencies. ACC believes that the EO Working Group should promote the use of safer alternatives and practices by (1) encouraging industry programs (e.g., Responsible Care, ChemStewards, and Responsible Distribution), (2) issuing alerts and guidance under EPA’s RMP program and OSHA’s PSM standard to increase knowledge of industry standards, and (3) developing resource centers where process safety experts can share safer alternative techniques and approaches. These suggestions would be far more effective and address site-specific needs better than what could be accomplished through additional regulation.

\(^5\) The comment to Option 2(I)(m) also applies to Option 1(e), which asks for input regarding safer alternatives and best practices for ammonium nitrate.
ACC believes that a regulatory approach focusing on safer alternatives would be counterproductive. The EO Working Group is charged with examining best practices to reduce safety and security risks in the production and storage of hazardous chemicals, including the use of safer alternatives. To meet this charge, instead of incorporating safer alternatives, the EO Working Group should involve throughout its efforts stakeholders who possess the requisite knowledge and experience to help identify best chemical risk management practices and to establish the definition and scope of what is considered a “safer” alternative, when compared to an existing process or chemical. As described in the CCPS and AIChE Report\(^6\) on the definition of IST, “safer” only has a meaning when placed in proper context—factors such as risk shifting, unintended consequences, feasibility, and economic impact must be considered. This definition, along with other well-established industry references on IST, should be used in the EO Working Group’s discussions of safer alternative best practices.

In addition, the suggestion that legislation is needed to require the use of IST irrespective of the cost, risks, or an engineering analysis raises concerns. IST decisions must be process- and/or site-specific, feasible, and avoid shifting risk. In many cases, regulation-based mandatory IST policies are not feasible because they do not consider the numerous factors related to processes, facilities and society at large. As such, many proposed regulatory approaches have failed to address the potential for trading one risk for another. A regulatory program focused exclusively on eliminating a safety hazard would overlook other important considerations for a process change. While IST is a widely recognized chemical engineering philosophy, no methodology or relative comparisons are available to apply IST to a regulatory framework.

EPA understood the complexity of IST decisions when it promulgated the regulations for the RMP Rule. EPA stated that it did not believe that an IST requirement would produce additional benefits beyond those existing under the general program structure.\(^7\) EPA acknowledged that assessment of inherently safer design alternatives has the greatest benefit in the development of new processes. Industry generally examines new process alternatives to avoid the addition of more costly administrative or engineering controls to mitigate a design that may be more hazardous in nature. Although some existing processes may be superficially judged to be inherently less safe than other processes, EPA believed these processes could be safely operated through management and control of the hazards without spending resources searching for unavailable or unaffordable new process technologies. If EPA is considering changing its view, stakeholder input would be essential.

Inherently safer approaches or safer alternatives have been and will continue to be considered by facilities as a matter of course. In fact, one of the key elements under ACC’s Responsible Care Process Safety Code requires ACC member companies to consider safer alternatives as one of many risk reduction measures when conducting a risk assessment. The facility operator is in the best position to have a comprehensive picture of what may or may not


work and how the facility environment will be impacted by process changes. Companies must be permitted to continue to use all risk management tools and options at their disposal, and the consideration of available options must be placed in the context of the complexities of their unique operating environments. Because of these complexities, regulating the use of “safer alternatives” is not feasible. No one regulatory program addresses the holistic safety and security environment of a given facility. No agency can fully appreciate the entirety of a facility’s operations, and therefore no agency can effectively regulate use of “safe alternatives.”

For example, EPA, under RMP, is concerned with preventing accidental releases of hazardous chemicals offsite and mitigating the consequences of such releases. Separately, OSHA’s PSM is concerned with preventing or mitigating the consequences of catastrophic releases of industrial processes in the workplace. While it is important to recognize that there may be overlap between the programs, they, by design, do not address the same issues. Therefore, any “safer approach” requirement that might be proposed to enhance any one of these programs would have to be limited in scope. Taken together for individual employers, however, the array of existing regulatory programs encourages facilities to consider and implement site-specific safer alternatives where necessary.

In the end, ACC’s members and industry are committed to chemical safety and recognize IST as one of many potential tools to achieve this goal. See Multi-Association Letter on IST (attached hereto as Exhibit 3); CCPS Executive Director Scott Berger, Comments to US Senate Environment and Public Works Committee Hearing (March 6, 2014) (attached hereto as Exhibit 4); CCPS Executive Director Scott Berger, Comments to the EPA Listening Session (February 27, 2014) (attached hereto as Exhibit 5). Recommendations to require the documented use of inherently safer systems analysis is inappropriate and founded upon erroneous suppositions. IST is a complex concept that requires a holistic risk assessment approach. Current regulatory programs, as well as corporate practices, already encourage facilities to incorporate IST. As they exist today, OSHA’s PSM standard, EPA’s RMP Rule, the U.S. Department of Transportation’s (DOT’s) Hazardous Materials regulations under the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the U.S. Department of Homeland Security’s (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) all require operators to comprehensively examine operations and take all steps necessary to make the processes and environment safe and secure. Creating complex new IST regulations would provide little benefit and may hinder the federal government’s ability to implement existing safety and security programs by emphasizing IST over other potentially more appropriate process safety and security techniques.

A. Definitions

The term IST encompasses several terms of art, including inherent safety, that are used by experts in the field of process safety. ACC has adopted the definitions of these terms that were developed by DHS’s Chemical Security Analysis Center (CSAC) and CCPS. CSAC and CCPS “produced a short, scientific definition of IST” as follows:

**INHERENTLY SAFER TECHNOLOGY DEFINITION**

Inherently Safer Technology (IST), also known as Inherently Safer Design (ISD), permanently eliminates or reduces hazards to avoid or reduce the consequences of
incidents. IST is a philosophy, applied to the design and operation life cycle, including manufacture, transport, storage, use, and disposal. IST is an iterative process that considers such options, including eliminating a hazard, reducing a hazard, substituting a less hazardous material, using less hazardous process conditions, and designing a process to reduce the potential for, or consequences of, human error, equipment failure, or intentional harm. Overall safe design and operation options cover a spectrum from inherent through passive, active and procedural risk management strategies. There is no clear boundary between IST and other strategies.

- **ISTs are relative:** A technology can only be described as inherently safer when compared to a different technology, including a description of the hazard or set of hazards being considered, their location, and the potentially affected population. A technology may be inherently safer than another with respect to some hazards but inherently less safe with respect to others, and may not be safe enough to meet societal expectations.

- **ISTs are based on an informed decision process:** Because an option may be inherently safer with regard to some hazards and inherently less safe with regard to others, decisions about the optimum strategy for managing risks from all hazards are required. The decision process must consider the entire life cycle, the full spectrum of hazards and risks, and the potential for transfer of risk from one impacted population to another. Technical and economic feasibility of options must also be considered.

CCPS & DHS, *Final Report: Definitions for Inherently Safer Technology in Production, Transportation, Storage, and Use* at Section 3.1 (July 2010).

Further, inherent safety is an element of plant design, process and transportation safety, and customer applications. While IST has been implemented within our industry for decades, certain high-profile incidents have been the catalyst for agency rationalization that inherent safety could provide benefits by minimizing the consequences of a chemical incident. However, by its very definition, “inherent safety” means safety and security elements that are built into a process in the early stages of its life cycle, thereby limiting the need to add these elements as “layers of safety” as a part of the process risk management program. Process risk management, which is illustrated in Figure 1 below, involves “collective efforts to manage process risks through a wide variety of strategies, techniques, procedures, policies and systems that can reduce the hazard of a process, the probability of an accident, or both.” *See CCPS Concept Book, Inherently Safer Chemical Processes, A life Cycle Approach*, at 11 (2d ed. 2008).

**B. Inherent Safety Strategies**

The strategies used in chemical process engineering to reduce or eliminate risks associated with containment of hazardous chemicals or energy are listed below:

1. **Minimization/Intensification.** Using smaller quantities of hazardous substances within the process. This can be accomplished by a variety of
means, such as reducing or eliminating in-process storage, using fewer pieces of equipment, or using equipment that holds smaller volumes.

2. **Substitution.** Replacing a particular material with a less hazardous substance is sometimes possible if the chemistry of the process will allow it. For example, helium, which does not burn, is an inherently safer source of buoyancy for blimps than hydrogen, which is highly combustible. Likewise, water-based paints are inherently safer than oil (solvent)-based paints.

3. **Moderation/Attenuation.** Adopting practices that support less hazardous conditions (such as lower temperature or pressure) or a less hazardous form of material can be utilized if the chemistry of the process allows it. An example might be the use of a catalyst to lower the temperature of a reaction required to achieve the same level of conversion.

4. **Simplification/Error Tolerance.** Designing to eliminate or tolerate operating errors; making the plant more user-friendly and reliable. A simple example is the redesign of pop tops on aluminum beverage cans so that the tab does not come off when opened, thus eliminating the prospect of the person opening the can (or anyone else) getting cut by the top. An extreme example, Safety Instrumented Systems, eliminates the interaction of the operator with the process altogether.

See id. at 13. It is important to understand that even when properly implemented, these strategies cannot reduce process-related risk to zero, and that “there are often, and perhaps always, conflicting benefits and liabilities associated with the different options.” See id. at 30. Reducing one hazard may create a new hazard and/or increase the magnitude of an existing hazard. This highlights the need for those making IST decisions to have intimate knowledge of all the hazards associated with a process and its alternatives.
C. History Of IST Application

The concept of inherent safety was developed decades ago by an industry chemist. Inherently safer design and technology have long been core elements of process safety, plant design and sound business practices in the chemistry industry. Recent public debate around IST demonstrates a fundamental lack of knowledge about the presence of IST throughout the United States chemical industry. The debate also highlights the potential heterogeneity within the industry regarding the application of IST.

EPA and OSHA regulations also drive consideration of inherently safer approaches. OSHA’s PSM standard and EPA’s RMP Rule both require the use of PHA. These federal
programs mirror ACC’s Responsible Care management system for process safety, on which those two regulations are modeled. Under this approach, a PHA is defined as “periodic assessment and documentation of process hazards, and implementation of actions to minimize risks associated with chemical operations, including the possibility of human error.” When EPA promulgated the RMP Rule, some commenters asked EPA to require facilities to conduct “technology options analyses” to identify inherently safer approaches. EPA declined to do so, stating:

PHA teams regularly suggest viable, effective (and inherently safer) alternatives for risk reduction, which may include features such as inventory reduction, material substitution, and process control changes. **These changes are made as opportunities arise, without regulation** or adoption of completely new and unproven process technologies. . . . EPA does not believe that a requirement that sources conduct searches or analyses of alternative processing technologies for new or existing processes will produce additional benefits beyond those accruing to the rule already.


**D. Rationale For Consideration Of IST**

Because “inherently safer” is a way of thinking and involves a risk management approach, any legislative and regulatory approaches to addressing IST cannot be prescriptive. The chemical industry can and does consider inherently safer principles as a part of individual company risk management processes and mitigation techniques, including the use of formal risk-assessment and risk-minimization technology, which are already being applied to chemical processes. This approach must consider total risk\(^8\) and the economic burden to potentially regulated facilities – as potential hazard does not always equate to potential risk, and cost could far outweigh potential benefit.

The public is best protected by focusing on risks, not hazards. As the United States Supreme Court explained in the *Benzene* case, 448 U.S. 607 (1980) (J. Stevens, plurality), accepting the possibility of even deadly consequences (for example when driving a car) is a part of participating in society; the real question is not whether the consequence is serious, but rather the risk, the likelihood that the consequence occurs. While many groups focus only on reducing hazards, the best way to protect workers, community and the environment is to focus on risks, that is, to analyze which hazards are most significant and which threats are most likely. Then resources can be allocated in the most effective and efficient way. If the focus is only on hazard reduction, the most important risks are overlooked and resources squandered on less important initiatives. The challenges associated with regulating employers’ consideration of IST include the following:

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\(^8\) The total risk approach in this context seeks to minimize risks overall from the transportation, storage and use of chemicals.
• Acknowledging that risk elimination is not possible in all cases. Without such acknowledgement, industry would be required to continually attempt to evaluate and implement some form of IST, with no real safety benefit and at a potentially significant cost. It is conceivable that without proper definition of an acceptable endpoint, industry could be required to continually modify processes due to a constantly changing understanding of IST, resulting in a never-ending cycle of modification and increasing cost.

• Clarifying regulatory implications of the meaning of “consideration of safer alternatives.” For example:
  o What decision-making criteria will be required for acceptance/rejection of IST at various stages of an IST evaluation process? Are economic considerations alone enough to reject an IST solution in favor of some other method of protection (such as instrumented safety systems (active protection))?  
  o When should an IST evaluation process be carried out during the plant life cycle, and in relationship to (potential) scientific developments behind the IST?

• Establishing the role of existing federal/state/local requirements and of existing facility inherently safer measures.

• The limitations for a company’s ability to modify processes due to trade secret and proprietary information issues. See ACC IST Materials, Factors that Affect IST Decision Making & Examples of Limitations of Mandating Inherently Safer Approaches (attached hereto as Exhibit 6, Attachment 1).

• Adapting the process risk management approach to a regulatory framework.

• Risk-shifting from one potentially exposed population to another. How would the agencies envision evaluating risk-shifting in determining what is inherently safer?

The EO Working Group will need to address these issues and questions if it is to develop and advocate a regulatory framework with any IST requirements.

E. **Rationale Against Mandatory IST**

While certain types of existing processes can accommodate retrofit IST, many cannot. There are now a sufficient number of both theoretical and actual, well-intended examples of IST approaches that are meant to solve what appear to be straightforward safety and risk issues, but could or have resulted in trading one risk for another. Thus, mandatory, regulated IST would frequently create risks to workers and the public greater than before. Placing the decision of technology selection into the hands of regulators will never be the answer to the complex questions of if, what, how and when IST should be implemented. It is simply beyond the ability of any single regulatory entity to understand and make good judgments about what would constitute an inherently safer approach in every relevant setting. The administrative decision-making process is not well suited to making decisions based on risks, tradeoffs, and predictions about future risks that are unavoidable in inherently safer approaches.

Even if the burden of making choices was left up to facilities via a “performance-based” requirement, it would be unreasonable to create civil and criminal liability for facilities’ inability to have 100% foresight about future risks, or to make the right choices when there are no right answers. Factors that complicate mandating IST are described in ACC IST Materials, Example of IST scenario involving proprietary information (attached hereto as Exhibit 6, Attachment 2),
along with examples of the unintended adverse consequences of certain real and theoretical IST decisions.

2(I)(n) How should EPA and OSHA use RMP accident data to identify trends and use the information to develop guidance or regulatory changes, compliance priorities, and technical assistance? If so, what are the ways that this might be done? RMP covered facilities are required to submit accidental release data to EPA when a release meets certain criteria, such as causing on- or off-site injuries or significant property damage. OSHA and EPA are interested in recommendations on how best to analyze this data, and what trends may be developed to indicate industry safety performance. Data are available from EPA via the Freedom of Information Act.

ACC Knows Of No Complete And Accurate Data Set From Which To Identify Trends And Justify Regulation

In December 2007, a Final Report was issued for Cooperative Agreement R-83033301 between the Risk Management and Decision Processes Center within the Wharton School of the University of Pennsylvania, and the U.S. Environmental Protection Agency Office of Emergency Management. The study, entitled “Accident Epidemiology and the RMP Rule: Learning from a Decade of Accident History Data for the U.S. Chemical Industry,” culminates some 15 years of research on the RMP Rule in close cooperation with the Office of Emergency Management (OEM) at the EPA. The report describes analysis undertaken by an interdisciplinary team of researchers on accident history data collected under the Clean Air Act Section 112(r) (which was enacted as part of the Clean Air Act Amendments of 1990 and is referred to as the “Risk Management Program” or “RMP Rule”).

The EO asks how EPA and OSHA can use RMP accident data to identify trends to justify the development of guidance, regulatory changes, compliance priorities and/or technical assistance. ACC reviewed the report and found no valid EPA RMP data trends that would justify a shift in RMP or PSM program management. Moreover, the study had limitations on the data collection process that would likely bias the results of the quantitative analysis and compromise the conclusions. For example, the study confirmed that the first wave of filings9 contained “data entry errors by responding facilities” in the number of deaths reported and how the location of a facility was reported. There were similar challenges to the validity and reliability of the data surrounding understanding and selection of North American Industry Classification System (NAICS) manufacturing processing codes, ambiguity of size of facility (as measured by full-time equivalent employees), and the reporting chemicals held onsite — all of which would ultimately impact whether or not a facility is covered under RMP. These matters regarding key data elements raise concerns about the quality of data obtained under RMP*Info (the database resulting from the study) in the initial submissions in 1999-2000 and could be interpreted in dissimilar manners, leading to under- or over-reporting of hazardousness. Thus,

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9 Data were collected in 1999-2000 on 15,145 facilities in the United States that stored or used listed toxic or flammable chemicals believed to be hazardous to the environment or to health of facility employees or off-site residents of host communities. A second major set of data under the RMP Rule became available in 2004-2005, covering 12,065 facilities, of which some 10,500 were facilities that also filed in 1999-2000, allowing, therefore, a comparative assessment for these facilities of accident trends over the 10-year period 1995-2005.
ACC cautions the agencies from using EPA RMP accident data drawn from the RMP*Info database to rationalize regulatory changes or compliance priorities.

**Option 2(II): “Process Safety Improvement and Modernization – Options for Collaborating with Private Organizations on External Standards”**

2(II)(p) What opportunities exist for EPA, OSHA, and NPPD to work with industry associations to leverage industry programs and improve process safety and security through the industry programs and consensus standards, and encourage best practices, as well as to improve regulatory efficiency, especially for small businesses? The working group is aware of many different industry programs aimed at improving chemical safety and security. Federal agencies could work with industry members to identify existing programs that might be worth leveraging and/or expanding, as well as to identify potential areas where industry-led programs could be developed to improve chemical safety and security.

**ACC Strongly Encourages The EO Working Group To Connect With Industry And Review Continuous Improvement Programs Such As ACC’s Responsible Care Program**

ACC encourages the EO Working Group and agencies to reach out to affected employers, trade associations such as ACC, and organizations like CCPS and MKOPSC for input on process safety issues. These entities have great insight on the day-to-day challenges and realities faced by the chemical industry. ACC believes that this will allow agencies to engage in dialogue with industry, and obtain a broad perspective on emerging trends.

ACC believes there is ample opportunity for EPA, OSHA and DHS to leverage continuous improvement programs such as ACC’s Responsible Care Program. Such a public/private partnership could help to achieve many of the goals and objectives of the EO, including the facilitation of security plan reviews and approvals, sharing industry practices and reaching outlier facilities. ACC believes there would be a considerable advance in the state of chemical safety and security through the leveraging of such programs. Moreover, there are several examples where we have had success in this area, including the designation of the Responsible Care Security Code as a Qualified Anti-Terrorism Technology under DHS’s SAFETY Act and recognition by the United States Coast Guard of the Security Code as an Alternative Security Program under the Maritime and Transportation Security Act (MTSA). EPA, OSHA and DHS could recognize facility compliance with certified industry programs in a way that substantially expedites compliance and implementation of the regulatory programs while maintaining the integrity of the process. Such an approach would be consistent with the goals and objectives of the EO by helping to streamline the regulatory process, focus enforcement, and reach outliers that need assistance.

Numerous opportunities exist throughout the year to participate in sharing industry security practices through industry conferences, workshops and summits. Some examples include the DHS Chemical Sector Security Summit, which is held every July in Baltimore, Maryland. This event consistently draws between 300-500 participants. The program includes a mix of technical and policy topics. Industry shares security practices on such topics as personnel safety, background check procedures, theft and diversion prevention techniques, and alternative
security plans. Other similar venues include the annual ACC ChemSECURE Conference; the annual AFPM Security Conference; and the ASIS International 60th Annual Seminar and Exhibit. DHS could play a more significant role in these events by providing lessons learned from the CFATS compliance process and the voluntary protection program—keeping in mind that protected and sensitive security information must be maintained at all times.

2(II)(q) In which consensus standard groups should EPA and OSHA participate to stay current on industry best practices and improve chemical process safety? For example, NFPA-400 consolidates fundamental safeguards for the storage, use, and handling of hazardous materials in all occupancies and facilities, including ammonium nitrate; ANSI K61.1/CGA G-2.1 addresses the safety requirements for the storage and handling of anhydrous ammonia, including standards for the design, construction, repair, alteration, location, installation, and operation; and CCPS is an initiative of the American Institute for Chemical Engineers and is a non-profit organization that addresses process safety within the chemical, pharmaceutical, and petroleum industries. EPA and OSHA seek ideas on additional consensus standard groups for potential participation.

ACC Encourages Active Participation In Groups Like CCPS And MKOPSC But Cannot Endorse Specific Consensus Standards

ACC hesitates to recommend specific consensus standards that EPA and OSHA should participate in to stay current on industry best practices and improve chemical process safety. This is because there is no single code, standard, or methodology that would be congruous to the diverse nature of chemical industry operations. Employers consider a wide range of standards, and it ultimately is the employer’s responsibility to select which standards to follow to best manage risk based on the employer’s intimate knowledge of its particular operations.

Instead, ACC encourages active participation in groups like CCPS and MKOPSC by OSHA personnel. This recommendation applies to both agency headquarters and regional administrators alike. ACC believes that this will allow agencies to engage in dialogue with industry, and obtain a broad perspective on emerging trends.

Option 3: “Coverage of Additional Hazardous Chemicals or Categories of Chemicals under Process Safety and Security Regulations”

3(a) Should OSHA and EPA initiate rulemaking to cover additional hazardous chemicals under the PSM standard and RMP rule? If so, how should the agencies identify these chemicals? OSHA’s RFI contains a detailed discussion of this option. The list of highly hazardous chemicals in the PSM standard has remained unchanged since the standard was initially published, and the regulated substances originally listed in the RMP rule have been narrowed without the addition of any substances. OSHA’s RFI also discusses and requests comments on this issue.

3(b) Is there a method, other than periodically updating the PSM and RMP lists of covered chemicals through rulemaking, that OSHA and EPA could use to expand their lists of covered chemicals? As noted above, the list of highly hazardous chemicals in the PSM standard has remained unchanged since the standard was initially published, and the regulated substances
originally listed in the RMP rule have been narrowed without the addition of any substances. OSHA’s RFI also discusses and requests comments on this issue.

The Existing Lists Are Comprehensive And Should Not Be Amended Without Scientific Analysis Establishing Significant Risk

At present, although OSHA stated in its RFI that “Appendix A has remained unchanged since OSHA promulgated the PSM standard in 1992,” OSHA has provided no further justifications for updating the list. See 78 Fed. Reg. 73769. As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 5), ACC is not aware of any significant change or development to justify the opening of the standard. ACC therefore requested in its comment to OSHA’s RFI that OSHA identify any issues with the current rule before moving forward with any potentially unjustified changes. ACC believes that it is OSHA’s duty to perform a significant risk analysis on an industry basis, as well as demonstrate that each chemical the agency intends to regulate exposes employees to a significant risk of harm. ACC trusts that, by completing these required steps in the rulemaking process, OSHA would be able to more efficiently focus its resources on the workplaces and hazards that pose the most potential risk.

ACC hereby expresses the same concerns for any change in regulated substances listed in the EPA’s RMP Rule. ACC is not aware of significant changes that would justify the opening of the RMP standard. ACC encourages action from OSHA and EPA only where actual data warrants the incorporation of additional chemicals. ACC urges the agencies to develop and publish its research and data-gathering methodology for identifying, defining, and quantifying the hazards associated with a chemical. EPA and OSHA should use a formal, scientific-based approach to evaluate chemicals and, ultimately, to demonstrate that any proposed changes to the PSM or RMP standard are justified and would actually enhance worker safety.

For OSHA, ACC notes that many chemicals that are not specifically listed by name in Appendix A of 29 C.F.R. § 1910.119 are covered under 29 C.F.R. § 1910.119(a)(1)(ii) on processes which involve a Category 1 flammable gas (as defined in 29 C.F.R. § 1910.1200(c), and further defined in Appendix B to 29 C.F.R. § 1910.1200 regarding physical hazard criteria). Only highly hazardous chemicals that were intended to be addressed by the regulation or that have been identified and justified using scientific methods that define purported hazards and concerns should be included in the list. Diluting the list with a large range of chemicals that do not represent high hazards will reduce the overall effectiveness of any process safety program.

In sum, ACC believes that the existing lists in the PSM and RMP are comprehensive, and adding additional chemicals should be approached with caution through the rulemaking process. If incident data supports the need for rulemaking on highly hazardous chemicals, ACC would be happy to collaborate with EPA and/or OSHA to establish revision criteria and help ensure that updates are technologically feasible and cost-effective and, most importantly, actually enhance environmental and/or worker safety.

3(c) What additional chemicals should NPPD consider adding to the existing CFATS COI list? NPPD could consider adding additional chemicals to the list of CFATS COI to expand CFATS coverage to potential high-risk chemical facilities that might not currently be identified based on the existing list of CFATS COI. This could include, among other things, coverage of toxic and poisonous chemicals under CFATS.
The Existing List in Appendix A Is Comprehensive, And DHS’s National Protection And Programs Directorate (NPPD) Should Only Add Chemicals After Establishing Risk Based On Scientific Data

On November 20, 2007, DHS published in the Federal Register the Final Rule on the Appendix A List of Chemicals of Interest (COI) and Screening Threshold Quantities (STQ). In determining the list of COIs in the final Appendix A, DHS did not rely on any single, existing list as its sole source. Instead, DHS used multiple sources, so it could obtain a more complete picture of the universe of facilities that may qualify as high-risk. Further, in identifying the chemicals and STQs, DHS sought to strike a balance between being sufficiently inclusive and being overly restrictive. DHS determined the list of COIs for preliminary screening purposes by considering specific security issues for each chemical—based on the belief that each chemical would have the potential to create significant harm to human life if intentionally released into the atmosphere; stolen and diverted; and/or contaminated.

Based on its analysis, DHS has included more than 300 COIs on Appendix A, covering a broad range of chemicals used in commerce across the United States. Based on this list, more than 40,000 Top Screens submittals were voluntarily submitted to DHS by the chemical industry and analyzed, resulting in more than 7,000 facilities being preliminarily identified as potentially high-risk chemical facilities and subject to CFATS regulations. However, numerous of the preliminarily high-risk facilities made material changes to their operations, resulting in a significant reduction and/or elimination of COIs below the CFATS screening thresholds, thus dropping the facilities out of the program. Today, the number of high-risk chemical facilities covered by the CFATS regulation is approximately 4,300.

In general, ACC believes that the initial work of DHS in determining the current list of Appendix A chemicals of interest addresses the vast majority of chemicals that should be considered for CFATS regulation. While ACC generally agrees that a periodic review of the Appendix A list should be conducted, we recommend that a robust, risk-based, scientific, and economic analysis be the basis for reviewing such lists. Stakeholder input must also be considered to ensure that risks are considered in the context of real-world factors, including potential impacts to the nation’s economy, in addition to public health and safety.

DHS should amend Appendix A only where actual data warrants it. To this end, DHS should develop and publish its research and data-gathering methodology for identifying, defining, and quantifying the threat associated with a specific chemical. DHS should use a formal, scientific, risk-based approach to evaluate chemicals and, ultimately, to demonstrate that any proposed changes to the COI list is justified and would actually enhance chemical facility security.

It is DHS’s obligation to perform a risk analysis on an industry sector basis, as well as demonstrate that each chemical the agency intends to regulate presents a significant risk of terrorism. By completing these required steps in the rulemaking process, DHS will be able to more efficiently focus its resources on the facilities and chemicals that pose a security risk.

In sum, the existing list in Appendix A is comprehensive. Adding additional chemicals should be approached with caution. If DHS determines that the scientific data supports the need
for rulemaking on COIs, DHS should establish revision criteria and help ensure that updates are technologically feasible and cost-effective and, most importantly, actually enhance the security of chemical facilities.

Since launching CFATS in June 2007, DHS has accumulated a wealth of information regarding the chemical holdings, inventory levels, and types of security issues being addressed by high-risk chemical facilities across the United States. ACC recommends that DHS use this information to help inform the revision of Appendix A and consider dropping those COIs from the list that are rarely or have never have been found to trigger CFATS coverage. Likewise, COIs that are not commonly found at the listed STQs should be candidates for removal from the Appendix A list of COIs.

3(d) Should DHS attempt to harmonize security requirements at chemical facilities exempt from CFATS with the requirements applicable to CFATS-regulated facilities and, if so, how? Certain chemical facilities are either exempt from coverage under CFATS or are subject to additional security regulations under other regulatory programs. Harmonization of appropriate standards might increase consistency in requirements and reduce any duplicative or conflicting regulatory requirements.

**CFATS Should Be Harmonized With Other Safety And Security Programs,While Maintaining The MTSA Exemption**

ACC agrees that DHS should and could do more to improve regulatory efficiency and effectiveness while minimizing burden on the CFATS community by harmonizing the CFATS program with other safety and security programs. However, policymakers should maintain the MTSA exemption for maritime facilities. This will maintain consistency across our nation’s ports by eliminating duplication and ensuring that MTSA-covered facilities deal exclusively with Coast Guard inspectors and are not burdened with multiple inspections by multiple agencies, including DHS.

Areas that should be explored include the Alternate Security Program, the Transportation Worker Identification Credentialing program, and inspector training and coordination. Improved agency tools for data exchange and cross coordination of covered facility information between Federal and State agencies, if done properly, would help DHS with its identification and outreach to potential outlier sites, thus eliminating duplicative requests for information from the universe of chemical facilities.

**Option 4: “Chemical Reactivity Hazards”**

4(a) Should OSHA and EPA initiate rulemaking, policy changes, or guidance to cover chemical reactivity hazards under the PSM standard and RMP rule? If so, what definitions, terms, and conditions should be used to best define hazards that can lead to reactive incidents? The U.S. Chemical Safety and Hazard Investigation Board (CSB) has recommended that OSHA extend PSM coverage and EPA extend RMP coverage to chemicals based on a class of highly reactive properties, similar to the way PSM defines a class of flammable liquids or gases. A number of the chemicals listed in the regulations are highly reactive chemicals based on a variety of metrics, including consensus standard sources, but the lists do not cover all highly reactive chemicals. OSHA’s RFI also discusses and requests comments on this issue.
4(b) Should EPA, OSHA, and NPPD develop a definition of high risk chemical reactivity hazards for future rulemaking, policy changes, or guidance, and if so, what should be the basis of that definition? Currently, there is no consistent definition for reactivity or reactive chemicals. Various consensus groups (such as the NFPA and CCPS) and state laws (New Jersey’s Toxic Catastrophe Prevention Act and Delaware’s Hazardous Chemicals Act) utilize many different techniques for defining and protecting against reactive chemical hazards, but there is no consensus on the best approach to regulate reactive chemical hazards in the United States.

Current Regulations Already Adequately Cover Reactivity Hazards And Expansion Is Unjustified

ACC believes that reactivity hazards cannot be adequately addressed through regulatory listing approaches beyond those requirements currently in place. ACC agrees with the advice given by CSB in 2002 that “[u]sing lists of chemicals is an inadequate approach for regulatory coverage of reactive hazards. Improving reactive hazard management requires that both regulators and industry address the hazards from combinations of chemicals and process-specific conditions rather than focus exclusively on the inherent properties of individual chemicals.” See CSB, Report No. 2001-01-H, Hazard Investigation: Improving Reactive Hazard Management, at 87 (Oct. 2002) (emphasis added). As the PSM rule is essentially a list-based rule, ACC believes that this statement is as true today as when it was published, and that no new data in the intervening 12 years contradicts this conclusion. For pairs of chemicals, which make up the vast majority of reactive substances, extrinsic process and location-specific conditions must be considered in any hazard assessment.

ACC supports efforts to reduce any significant risk associated with reactivity. Before any additional rulemaking step is taken by any agency, however, ACC requests sound scientific analysis and technical evaluation to justify expanding PSM coverage and requirements for reactives. Any agency should investigate and explain what the risk is of some threshold unacceptable hazardous consequence from a reaction—at what quantity/concentration will an explosion occur? Would the potential explosion be a significant risk? Only after the regulatory body has established through sound scientific analysis that reactives impose a substantial risk and hazard should any rulemaking proceed.

As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 4) and with this background in mind, ACC has several recommendations regarding any later expansion of regulatory coverage for reactivity hazards, which could only occur after undergoing a risk and hazard analysis. If and only if such an assessment occurs and justifies an expansion of coverage, ACC would recommend that the agency prioritize reactivity hazards by (1) focusing on compounds that are highly hazardous independent of processing technology or conditions (namely, compounds that are strongly self-reactive, or react violently with air and/or water), and (2) establishing threshold quantities based on a hazard and risk assessment for that compound. For example, the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (3rd ed. 2009) provides a framework from which specific compounds could be identified for evaluation:

- Self-Reactive Substances, Types A to C (but not D, E, F & G)
- Pyrophoric Liquids
• Substances which, in contact with water, emit flammable gases, Categories 1 & 2.

Other classes of reagents (i.e., runaway reactions and intentional reactive chemistry) simply are not amenable to a broad regulatory approach. These classes depend on situation-specific factors such as use or proximity to other substances that react; they can only be evaluated through the application of industry tools and resources on the specific technology and conditions in which they are utilized. By contrast, self-reactive substances and substances that are reactive with air and water are more amenable to a list-based rule because they are intrinsically-based hazards—for example, much like materials already covered by OSHA’s PSM Appendix A such as flammables. By intrinsic, we mean that the hazard is not situation or application dependent, which is clearly the case with binary pair reactive chemicals.

Even within the high-priority class of chemicals that are self-reactive or violently reactive with air and/or water, it is imperative that the rulemaking body not categorically adopt the aforementioned classes without first developing a valid, consistent methodology to identify threshold hazard quantities or concentrations. ACC is willing to work with any agency to establish any such methodologies and/or criteria. In fact, ACC already has identified useful consensus standards and other resources that should be used to identify any reactivity hazards (again, only after the agency first justifies coverage through hazard and risk analyses):

(1) Specifically, CCPS, an industry-technology alliance of AIChE, produced and published, with the financial backing of OSHA, EPA, Society of Chemical Manufacturers and Affiliates (SOCMA) and ACC, the book “Essential Practices for Managing Chemical Reactivity Hazards” (Johnson, Unwin and Rudy, 2003), available at https://www.aiche.org/ccps/publications/books/essential-practices-managing-chemical-reactivity-hazards, which provide tools for identification and further evaluation of reactivity hazards. Through the financial support of the above-mentioned organizations, this book was made available via electronic download free of charge for three years after publication, resulting in more than 12,000 electronic downloads. Additionally, CSB gave CCPS an “Exceeds Expectation” rating for its recommendation as a part of the CSB’s 2002 study when the book was published.

(2) Furthermore, the National Oceanographic and Atmospheric Administration (NOAA) has also contributed significantly to the management of reactivity hazards through its publication of the Chemical Reactivity Worksheet (now Version 3.0, and soon to be upgraded), available at http://response.restoration.noaa.gov/reactivityworksheet. This electronic worksheet creates potential reaction interaction matrices, as well as for generic classes of chemicals, in a succinct, referenced, easily transmitted format. This tool is also the centerpiece of CCPS’s Reactivity Management Tool (RMT), available at http://www.aiche.org/ccps/resources/tools/reactivity-management-tool.

Together, these and other similar resources provide a much more effective means for reactivity hazard management than could ever be accomplished for reagents through a list-based rule. Ultimately, ACC believes that the EO Working Group can most effectively accomplish its goal of reactivity risk reduction not through regulation, but by promoting awareness of the existing industry evaluation tools, references and guidance on how to evaluate reactive hazards.
**Option 7: “Coverage of Bulk Storage of Flammable Liquids under Process Safety and Security Regulations”**

7(b) Should OSHA clarify the PSM standard's exemption, through regulation, for atmospheric storage tanks, and, if so, what should the exemption cover? 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 interpretation of this aspect of the PSM standard, which was that the standard covers all stored flammables when connected to, or in close proximity to, a process. The CSB recommended that OSHA address relevant hazards through rulemaking. OSHA’s RFI discusses and requests comment on this issue.


As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 1), ACC believes that OSHA must demonstrate, through a sound scientific analysis of any risk posed by the current usage of atmospheric storage tanks, that a significant risk warrants the reopening of 29 C.F.R. § 1910.119(a)(1)(ii). Before moving forward with any regulation, OSHA must substantiate that the current regulation is insufficient to protect workers in covered jobsites. Indeed, ACC believes that the reopening of the standard is not warranted and that workers are fully protected under the current standard and other related standards such as 29 C.F.R. § 1910.106.

Moreover, as ACC has already stated in our written response to CSB’s Request for Comments Recommendation No. 2001-05-I-DE-1, ACC believes that revisiting Paragraph (a)(1)(ii)(B) to include flammable liquids in atmospheric storage tanks within or connected to a PSM-covered process has been fully and adequately addressed through the following vehicles:

- *Secretary of Labor v. Meer Corporation* (1997) (O.S.H.R.C. Docket No. 95-0341);
- OSHA interpretation memorandum distributed to Regional Administrators from the Director of Compliance Programs (Subject: Coverage of Stored Flammables Under the Process Safety Management Standard, dated May 12, 1997); and
- OSHA letter of interpretation (Subject: Clarification of PSM applicability to processes that are based partly or solely on quantities in connected atmospheric storage tanks, dated February 11, 2003).

29 C.F.R. § 1910.106 provides additional regulatory protection for atmospheric storage tanks. Under this regulation, atmospheric tanks must be “built in accordance with acceptable good standards of design,” including standards published by Underwriters’ Laboratories, Inc. and the American Petroleum Institute. See 29 C.F.R. § 1910.106 (regulating the design, construction, storage, and other required steps in the handling of atmospheric storage tanks). Among other
requirements, this regulation makes clear that “[a]tmospheric tanks shall not be used for the storage of a flammable liquid at a temperature at or above its boiling point.” See id. It also outlines venting obligations for atmospheric storage tanks and establishes hazardous areas surrounding tanks “for the purpose of installation of electrical equipment under normal circumstances.”

In addition, other work practices required by OSHA and EPA, such as lockout/tagout, hot work, emergency action plan/HAZWOPER, and confined space, also apply to facilities with atmospheric storage tanks. These regulations provide another layer of protection to atmospheric storage tanks. For example, EPA’s Spill Prevention, Control, and Countermeasure (SPCC) regulations apply PSM-like elements such as mechanical integrity and operational elements to owners or operators of oil facilities that could reasonably be expected to discharge oil into navigable waters. See, e.g., 40 C.F.R. § 112.1. In sum, ACC believes that the management of atmospheric storage tanks and associated hazards is adequately covered by existing OSHA standards, namely 29 C.F.R. § 1910.106 and the additional aforementioned measures.

7(c) Should OSHA update its Flammable Liquids and Spray Finishing standards to reflect the latest consensus standards? 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 may therefore be out of date, and could be updated based on the latest applicable consensus standards. OSHA’s RFI discusses and requests comment on this issue.

**OSHA Must Demonstrate Significant Risk Before Revising 29 C.F.R. §§ 1910.106 And 107 To Incorporate The Current Version Of NFPA 30**

ACC understands that the current version of 29 C.F.R. § 1910.106 is based on the 1971 version of National Fire Protection Association (NFPA) 30. As explained in ACC’s response to OSHA’s RFI (Exhibit 1 at Change Option 14), ACC has undertaken a detailed side-by-side evaluation of 29 C.F.R. 1910.106 and the current version of NFPA 30 (2012). There are, as noted in the RFI, significant formatting changes. However, many of the substantive technical requirements in the current version of NFPA 30 are identical, or nearly identical, to the information contained in 29 C.F.R. § 1910.106.

ACC does not believe that updating the PSM regulations for formatting reasons alone warrants a reopening of the 29 C.F.R. § 1910.106 standard. Instead, OSHA should perform its own comprehensive comparison, identify changes that OSHA considers substantive, and propose, if appropriate, changes to 29 C.F.R. § 1910.106 based on its analysis, noting the differences from current requirements and the reasons for change.

**Option 8: “Process and Hazardous Chemical Security”**

8(a) What options should NPPD consider to incorporate economic and mission criticality into the CFATS risk-tiering methodology? Currently, facilities are determined to be high risk chemical facilities subject to CFATS based solely on risks associated with consequences to human life.
ACC Strongly Encourages Transparency In Risk-Tiering Methodology And Engaging Industry For A Complete Understanding Of Criticality

ACC agrees that the risk-based tiering structure will allow DHS to focus and prioritize its efforts on the highest-risk facilities. Additionally, ACC supports the framework of four risk-based tiers of high-risk facilities, ranging from high (Tier 1) to low (Tier 4). DHS uses a variety of factors in determining in which tier facilities will be placed, including information about the public health and safety risk, economic impact, and mission critical aspects of the given chemicals and Threshold Quantities (TQs) of the chemicals. However, ACC remains concerned about the lack of transparency in the factors that DHS uses to determine risk. ACC strongly recommends that DHS improve the transparency of its risk determination process and more fully engage the CFATS-regulated community during the process.

DHS should clarify what criteria are used for determining economic criticality and mission criticality for CFATS coverage and risk-tiering purposes. ACC believes that economic criticality should be determined based on truly national impacts to the nation as a whole. While impacts to the local economy/workforce are important, the scale of the CFATS program should address those issues that have a potential catastrophic effect on the national economy, which would more likely be the target of terrorism.

Mission criticality should be clarified to address national defense and significant effects on critical infrastructure that could pose a catastrophic effect on our ability to provide essential government services to the public, including emergency response, health care, electricity and flow of commerce.

Stakeholders, including the regulated industry, must be included in every step of the process for determining economic criticality. DHS must recognize the complexity of estimating potential economic or mission impacts stemming from the loss of certain manufacturing (or other) capacity. Accordingly, to accomplish an effective analysis of economic and mission criticality, DHS must engage facility owners early on to provide a sufficiently clear picture of the chemical industry as a system. The rationale and basis for determining criticality must be transparent and based on sound economic principles that are widely recognized within the industry.

**Option 9: “Identifying Facilities Covered under Existing Process Safety and Security Regulations”**

9(b) How can DHS most effectively identify entities that have not submitted required CFATS’ Top-Screens? DHS believes that it has received CFATS Top-Screens from the majority of facilities that should have submitted them, but like any regulatory program that relies in part on self-reporting, 100% compliance is difficult to achieve. The expansive and dynamic nature of the business communities that use CFATS COI further increases the difficulty of doing so under CFATS. Nevertheless, DHS is committed to pursuing all reasonable measures to identify potential high-risk chemical facilities that are not among those that have already complied with initial CFATS requirements, and we will continue to work to get those facilities into compliance.
ACC Recommends Significant Outreach To Industry As Well As Intergovernmental Cooperation

DHS has undertaken efforts to better identify outlier facilities that should have submitted Top Screens but failed to do so. The administration needs to strengthen coordination with other federal entities, such as EPA, Coast Guard, and state and local authorities.

When implementing a new regulatory program like CFATS, significant outreach to the regulated community is a key element of success. Stakeholders need to ensure that chemical safety and security regulations are being implemented fully and properly and that the agency and department officials have the necessary resources to do their jobs. In addition, federal officials at all levels need to work together, share information, and coordinate their activities across all regulatory programs. In addition to the cadre of CFATS inspection personnel, Protective Security Advisors should be leveraged to provide a local resource for informing members of the community about their regulatory obligations. DHS should establish a close relationship with state and local emergency response organizations such as the State Fire Marshalls Office.

III. CONCLUSION

Based on the experiences of its members, ACC believes that compliance with the standards already in place adequately manages process safety risks. ACC observes that agencies and the EO Working Group have yet to publish sufficient data to justify many suggested changes to current regulations, and ACC remains skeptical that any such data exists. ACC encourages OSHA and other agencies to conduct sound scientific analyses of any risk allegedly posed by current regulations before moving forward with costly and ineffective changes, which may detract from worker safety by diverting resources, as well as creating an atmosphere of confusion.

In fact, ACC believes that the current set of regulations are not the real issue—instead, process safety-related accidents consistently involve outlier companies that disregard some or all aspects of the current PSM regulation. ACC believes that the biggest step agencies could take to improve worker safety is through increased process safety awareness, training, and enforcement for these outlier companies. Proposed changes to regulations will not improve safety for companies that have already created a safe environment through fulfillment of the current applicable OSHA, EPA, and other standards. Consequently, ACC encourages the EO Working Group and agencies to reach out to affected employers, trade associations such as ACC, and organizations like CCPS and MKOPSC for input on process safety issues. These organizations and others have helpful insight on the day-to-day challenges and realities faced by the chemical industry.

Given the diverse nature of chemical industry operations, ACC knows that a flexible and performance-oriented approach to process safety will best protect workers from risk of harm. Each employer is in the best position to make process safety decisions by evaluating its own equipment, onsite materials and chemicals, expertise, organizational structure, and operations. Agencies such as OSHA should capitalize on the chemical industry’s knowledge and capability to address all manner of site-specific safety concerns.
As such, ACC would like to underscore the following:

(1) ACC reemphasizes our opposition to mandating the incorporation of “inherently safer technologies” (IST) into safety programs. Inherently safer approaches or safer alternatives have been and will continue to be considered by facilities as a matter of course. However, only facility operators know whether IST is appropriate given the complexities of their unique operating environments—no one program will work for all facilities.

(2) ACC strongly opposes replacing PSM or RMP with a safety case regulatory regime. The safety case framework would be a drastic overhaul of the current system. Against this, no real data establishes its value in the context of process safety for the chemical industry. ACC believes that shifting responsibility to approve safety decisions from employers to inspectors, who inevitably will be less familiar with the jobsites, would detract from worker safety.

(3) ACC believes that the mandated use of third-party auditors would be overly burdensome and unjustified. Employers must be afforded the discretion to choose among self-audits, second-party audits, and third-party audits. Company-led audits can be far more effective in actually addressing issues uncovered during an audit, due to the company auditor’s intimate knowledge of the organization and how it functions.

ACC supports the EO Working Group’s overall goal of improving chemical facility safety and security and appreciates the vital role of the EO Working Group and agencies in effectuating this goal. Given the many site-specific variables and complexities within the chemical industry, ACC urges the EO Working Group to carefully consider its approach. To best achieve its goals, ACC believes that the EO Working Group should consider non-regulatory approaches with input and support from ACC and other organizations focused on chemical safety.

ACC hopes that the EO Working Group will find these comments helpful. Should you have questions about ACC’s input, please contact me by phone at (202) 249-6426 or by e-mail at Rachel_meidl@americanchemistry.com. Thank you for the opportunity to submit comments on this matter.

Respectfully submitted,

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EXHIBIT 1

ACC RESPONSE TO OSHA’S PSM RFI
ACC COMMENT ON EXECUTIVE ORDER 13650
March 31, 2014

OSHA Docket Office
Docket No. OSHA-2013-0020
Technical Data Center
Room N-2625
U.S. Department of Labor
200 Constitution Avenue, NW
Washington, D.C. 20210

Via Electronic Submission: http://www.regulations.gov


To the Docket:

The American Chemistry Council (ACC)\(^1\) is pleased to respond to the U.S. Department of Labor’s (DOL’s) Occupational Safety and Health Administration (OSHA or the Agency) Request for Information (RFI), Docket No. OSHA-2013-0020, published in the Federal Register on December 9, 2013 at 78 Fed. Reg. 73756-73768.

ACC is America’s oldest trade association of its kind, representing companies across the United States engaged in the business of chemistry. ACC supports OSHA’s commitment, as expressed in the present RFI on Process Safety Management and Prevention of Major Chemical Accidents, to protect the safety and health of workers, the public, and the environment from chemical accidents. ACC shares OSHA’s goal of ensuring that process safety is handled and implemented as safely as possible, as workplace safety and process safety are top priorities for ACC and its members. In fact, to become a member of ACC, a company must commit to the highest standards for protecting health, safety, and the environment through participation in ACC’s Responsible Care® program.

ACC members would be directly affected by OSHA’s promulgation of new Process Safety Management (PSM) standards or changes in enforcement policy. While ACC shares OSHA’s goal of ensuring process safety, ACC has a number of concerns about the proposed candidates

\(^1\) ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people’s lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $770 billion enterprise and a key element of the nation’s economy. It is the largest exporting sector in the United States, accounting for 12 percent of U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation’s critical infrastructure.
for rulemaking or enforcement changes identified by the Agency in this RFI, as outlined within our comments. We believe that the signaled changes represent a drastic departure from the current PSM regulatory framework without corresponding benefits to workplace or employee safety. ACC believes that the most influential development OSHA could take to improve worker safety is through increased PSM awareness, training, and enforcement for outlier companies.

The American Chemistry Council encourages OSHA to consider the fundamental concerns outlined in the subsequent comments as the Agency proceeds with the next step in the rulemaking process. As an alternative to formal rulemaking, ACC recommends that the Agency evaluate the use of non-regulatory means to help OSHA achieve its goal of creating a safer workplace for our nation’s employees and surrounding communities.

Thank you for the opportunity to submit comments on this matter.

ACC hopes that OSHA will find our contribution helpful. Should you have questions about our input, please contact me by phone at (202) 249-6426 or by e-mail at Rachel_meidl@americanchemistry.com.

Respectfully submitted,

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March 31, 2014

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Via Electronic Submission: http://www.regulations.gov


To the Docket:

The American Chemistry Council (ACC) is America’s oldest trade association of its kind, representing companies across the United States engaged in the business of chemistry. ACC members would be directly affected by the Occupational Safety and Health Administration’s (OSHA’s) promulgation of new Process Safety Management (PSM) standards or changes in enforcement policy. ACC supports OSHA’s commitment, as expressed in the present Request for Information (RFI) on Process Safety Management and Prevention of Major Chemical Accidents, to protect the safety and health of workers, the public, and the environment from chemical accidents.

Furthermore, ACC shares OSHA’s goal of ensuring that process safety is handled and implemented as safely as possible. Workplace safety and process safety are top priorities for ACC and its members. In fact, to become a member of ACC, a company must commit to the highest standards for protecting health, safety, and the environment through participation in ACC’s Responsible Care® program. As a part of this commitment, in 1990, ACC adopted the Responsible Care Process Safety Code of Management Practices, identifies specific activities that chemical companies must implement as part of their Responsible Care obligations.

ACC and its members continuously focus on EHS improvement. For example, we recently developed and then finalized a new Process Safety Code in November 2012. This code was built off of existing process safety performance requirements under Responsible Care and is further evidence of ACC members’ commitment to safety throughout our chemical processing operations, safety management systems, and leadership. The Process Safety Code requires companies to develop and implement a comprehensive process safety management system to manage risk and seek opportunities to improve performance, including the consideration of safer alternatives. Companies must understand and prioritize process safety risks and ensure that all
employees have the required knowledge, expertise, tools, and training to manage process risks in their operations.

The Process Safety Code is intended to complement existing regulatory requirements, including OSHA’s PSM standard and the Environmental Protection Agency’s (EPA’s) Risk Management Program (RMP) rule. Regulatory standards, by necessity, focus on process safety at an individual facility. In contrast, the Process Safety Code addresses issues at a more universal level, such as across a division or corporation, and includes a company commitment to set expectations regarding process safety, define accountability for process safety performance and allocate adequate resources to achieve performance expectations. These higher-level considerations, contained within the Process Safety Code, are critical elements of effective management of process safety.

Further, the Process Safety Code is a manifestation of the leadership that Responsible Care companies will undertake to seek systematic continuous improvement in process safety, drawing from the most current learning and advances. When implemented alongside the integrated Responsible Care management systems, this Process Safety Code will help advance the chemical industry’s commitment to process safety by embedding state-of-the-art concepts within Responsible Care, strengthening process safety leadership, culture, management and ultimately, performance. Implementation of the Process Safety Code is mandatory for all ACC Responsible Care companies.

ACC appreciates the opportunity to submit our comments in response to OSHA’s RFI on Process Safety Management and Prevention of Major Chemical Accidents. While ACC shares OSHA’s goal of ensuring process safety, ACC has a number of concerns about the proposed candidates for rulemaking or enforcement changes identified in this RFI. As outlined in detail below, ACC believes that the signaled changes represent a drastic departure from the current PSM regulatory framework without any corresponding benefits to workplace or employee safety. PSM, with its performance-oriented approach encourages flexibility in problem-solving with accountability for results. This flexibility allows the employer to promote continuous improvement with innovative and efficient workplace-specific solutions. Furthermore, ACC believes that these signaled changes to the PSM regulatory framework would result in disruption, confusion, and increased costs and create an atmosphere of uncertainty for employers, employees and governmental regulators such as OSHA. ACC does support OSHA’s overall goal to improve process safety, but ACC urges OSHA to carefully consider its approach and recognize the many variables and complexities inherent in regulating PSM.

I. EXECUTIVE SUMMARY

ACC emphasizes that one of PSM’s greatest strengths is its design as a performance-oriented standard. Given the diverse nature of chemical industry operations, ACC knows that a flexible and performance-oriented approach to process safety best protects workers from risk of harm. Each employer is in the best position to make site-specific process safety decisions by evaluating its own equipment, onsite materials and chemicals, expertise, organizational structure, and operations. For this reason, ACC opposes prescriptive recommendations that will chip away at the necessary discretion given to employers. Any one-size-fits-all approach to PSM would limit employers’ ability to react to real facts on the ground.
ACC fears that suggested change options would, in practice, weaken PSM’s highly effective, flexible performance-oriented approach. Given our concerns, ACC would like to underscore the importance of maintaining a performance-oriented approach for the following topics:

(1) Employers must be able to shape RAGAGEP for a particular site based on their own selection of applicable internal standards, consensus codes, and/or engineering determinations and analyses. Employers must be allowed to consider extrinsic factors that are situational or location-specific in determining which approach among multiple approaches will best achieve the ultimate goal of safety. The concept of RAGAGEP recognizes that there is almost always more than one way to successfully address safety and security issues, and that RAGAGEP should include analysis and evaluation far beyond the rote application of consensus standards to allow onsite professionals to address individual situations and circumstances.

(2) Employers must be afforded the discretion to choose between self, second-party, and third-party audits. Second-party and self-audits have many safety benefits that are lost with third-party audits, and the use of third-party auditors should remain a choice for employers, who have the greatest understanding of the unique potential risks, hazards, and challenges facing their worksites. Under OSHA’s performance-oriented standard, the primary goal should be safety—not the elevation of one method over another without factoring in site-specific considerations.

Next, ACC takes issue with all suggested change options where OSHA has not established the existence of significant risk of harm. ACC cautions OSHA against trying to fix something not shown to be “broken.” As OSHA is well aware, the Occupational Safety and Health Act of 1970 (OSH Act) authorizes the Secretary of Labor to “promulgate, modify, or revoke any occupational safety or health standard” that is “reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” See 29 U.S.C. §§ 652(8), 655(b). In the landmark U.S. Supreme Court decision, Industrial Union Department v. American Petroleum Institute (the Benzene case), the Court held that “before he can promulgate any permanent health or safety standard, the Secretary is required to make a threshold finding that a place of employment is unsafe—in the sense that significant risks are present and can be eliminated or lessened by a change in practices.” 448 U.S. 607, 642 (1980) (J. Stevens, plurality) (emphasis in original) (“[A] workplace can hardly be considered ‘unsafe’ unless it threatens the workers with a significant risk of harm.”). The Court refused to give OSHA the unchecked “power to impose enormous costs that might produce little, if any, discernible benefit,” explaining that it would be “unreasonable to assume that Congress intended to give the Secretary the unprecedented power over American industry.” Id. at 645. As OSHA stated in its Preamble to the Final PSM Rule, “OSHA rulemaking is thus constrained first by the need to demonstrate that the standard will substantially reduce a significant risk of material harm, and then by the requirement that compliance is technologically capable of being done and not so expensive as to threaten economic instability or dislocation for the industry. Within these parameters, further constraints such as the need to find cost-effective measures and to respond rationally to all meaningful comment militate against regulatory extremes. Finally, it is axiomatic that significant departures from prior practice must be justified.” See Final PSM Rule, 78 Fed. Reg. 6400 (Feb. 24, 1992) (emphasis added).
Pursuant to Section 304 of the Clean Air Act Amendment of 1990, OSHA promulgated the current PSM standard, which ACC believes has been successful in addressing significant risks associated with catastrophic releases of toxic, reactive, flammable and explosive chemicals. ACC is concerned by OSHA’s RFI on PSM because we see virtually no reference to findings of significant risk of harm to justify a dramatic potential shift from the PSM standard and other rules (e.g., 29 C.F.R. § 1910.106) already in place. While ACC supports OSHA’s goal of increasing workplace safety through the PSM standard, ACC cautions OSHA against taking any steps to implement changes that increase burdens on employers without first establishing the existence of a significant risk of harm through data and science-based analyses. ACC understands that OSHA published the present RFI as part of an effort to collect “data and information on its PSM standard” in response to the Executive Order 13650 process. See 78 Fed. Reg. 73757 (Dec. 9, 2013). In the meantime, however, ACC will not support any changes to the current standard without such risk analysis from OSHA. The real issue, ACC believes, is not with the current PSM standard, but with compliance deficiencies and demonstrated problems with implementation and enforcement of existing requirements. Changing the regulations alone will not improve safety for companies that know how to fulfill the requirements of the current standards and consistently do so. Change also will not increase the safety of workers at companies that are not in compliance with existing regulations.

In fact, ACC believes that process related safety hazards are extremely rare where covered employers fully comply with OSHA’s current PSM regulations. Instead, safety accidents, including those cited throughout the RFI, often involve outlier companies that disregard some or all aspects of the current PSM standard. Full compliance with the regulations already in place would eliminate the significant risk of PSM hazards. As such, OSHA should focus its time and resources on increasing PSM training and education efforts, as well as enforcement for companies with a history of noncompliance, rather than increasing burdens on the industry across the board with no discernible reduction of risk.

Finally, if OSHA decides to proceed with subsequent rulemaking after considering stakeholder comments in the present RFI, ACC encourages OSHA to be transparent and allow sufficient opportunity for stakeholder participation in every step of the rulemaking. Specifically, should OSHA decide to re-open the PSM standard and other regulations referenced in the RFI, ACC hereby requests that OSHA issue an Advance Notice of Proposed Rulemaking (ANPR). Given the broad scope but limited detail within this RFI, an ANPR is necessary to provide stakeholders with sufficient time and information to evaluate the impact of any proposed rule changes. Regarding the required studies and analyses mentioned above, OSHA should grant stakeholders sufficient time and opportunity to participate in the OMB-required peer review process for scientific information used in risk assessments. Moreover, ACC is confident that any proposed PSM rule, if enacted, would have a significant economic impact on a substantial number of small business entities. In fact, over half of ACC’s membership consists of small business. As such, if rulemaking continues, OSHA would be obligated to convene a Small Business Advocacy Review Panel under the Small Business Regulatory Enforcement Fairness Act of 1996 (“SBREFA”), which recognizes the importance of protecting the interests of small businesses when developing regulations. In general, ACC looks forward to participating in an open dialogue with OSHA on any rulemaking involving OSHA’s PSM standard, given the current standard’s vital role in setting process safety policy and procedures throughout the American chemical community.
II. RESPONSES TO OSHA RULEMAKING TOPICS / CHANGE OPTIONS

A. ACC Comment On Atmospheric Storage Tanks (Change Option 1)

OSHA CHANGE OPTION 1

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 interpretation [FN2] 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.


OSHA’s proposal to revise paragraph (a)(1)(ii)(B) to “improve the safety of workers” is not supported by a sound scientific analysis of any risk posed by the current usage of atmospheric storage tanks, nor a showing that a significant risk of harm warrants the reopening of 29 C.F.R. § 1910.119(a)(1)(ii). ACC respectfully emphasizes that OSHA must substantiate that the current regulation is insufficient to protect workers in covered jobsites. Specifically, ACC believes that the reopening of the PSM standard is not warranted and that workers are fully protected under the current standard and other related standards such as 29 C.F.R. § 1910.106.

Moreover, as ACC stated in our written response to the Chemical Safety Board’s (CSB’s) Request for Comments regarding Recommendation No. 2001-05-I-DE-1, ACC believes that revisiting Paragraph (a)(1)(ii)(B) to include flammable liquids in atmospheric storage tanks

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2 For ease of reference, in text boxes placed throughout this submission, ACC has included excerpts from OSHA’s RFI of each Change Option to which ACC offers comment.
within or connected to a PSM-covered process is not needed and has been fully and adequately addressed through the following vehicles:

- *Secretary of Labor v. Meer Corporation* (1997) (O.S.H.R.C. Docket No. 95-0341);
- OSHA interpretation memorandum distributed to Regional Administrators from the Director of Compliance Programs (Subject: Coverage of Stored Flammables Under the Process Safety Management Standard, dated May 12, 1997); and
- OSHA letter of interpretation (Subject: Clarification of PSM applicability to processes that are based partly or solely on quantities in connected atmospheric storage tanks, dated February 11, 2003).

Additional regulatory protection for atmospheric storage tanks is provided in 29 C.F.R. § 1910.106. Under this regulation, atmospheric tanks must be “built in accordance with acceptable good standards of design,” including standards published by Underwriters’ Laboratories, Inc. and the American Petroleum Institute. See 29 C.F.R. § 1910.106 (regulating the design, construction, storage, and other required steps in the handling of atmospheric storage tanks). Among other requirements, this regulation makes clear that “[a]tmospheric tanks shall not be used for the storage of a flammable liquid at a temperature at or above its boiling point.” See *id*. It also outlines venting obligations for atmospheric storage tanks and establishes hazardous areas surrounding tanks “for the purpose of installation of electrical equipment under normal circumstances.” OSHA has noted, and ACC recognizes, that Section 1910.106 is one of the oldest standards in place. As such, ACC recommends that OSHA undertake an analysis of the current version of NFPA 30, and if necessary and supported by data, propose changes to Section 1910.106 where technical (not formatting) changes have been made. For additional information on the relationship between NFPA 30 and Section 1910.106, see ACC’s comment to Change Option 14 set forth below (“However, we believe that many of the substantive technical requirements in the current version of NFPA 30 are identical, or nearly identical, to the information contained in 29 C.F.R. § 1910.106. ACC does not believe that updating for formatting reasons alone warrants a reopening of the 29 C.F.R. § 1910.106 standard.”).

In addition, other work practices required by OSHA and EPA, such as lockout/tagout, hot work, emergency action plan/HAZWOPER, and confined space, also apply to facilities with atmospheric storage tanks. These regulations provide another layer of protection to atmospheric storage tanks. For example, EPA’s Spill Prevention, Control, and Countermeasure (SPCC) regulations apply PSM-like elements such as mechanical integrity and operational elements to owners or operators of oil facilities that could reasonably be expected to discharge oil into navigable waters. See, e.g., 40 C.F.R. § 112.1. In sum, ACC believes that the management of atmospheric storage tanks and associated hazards is adequately covered by existing OSHA standards, namely 29 C.F.R. § 1910.106 and the additional aforementioned measures.

**B. ACC Comments Regarding Chemistry Issues (Change Options 4 & 5)**

**OSHA CHANGE OPTION 4**

**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
A process which involves a Category 1 flammable gas (as defined in 1910.1200(c)) or a flammable liquid with a flashpoint below 100 °F (37.8 °C) on site in one location, in a quantity of 10,000 pounds (4535.9 kg),” 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.

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 ratings [FN3] of one [FN4] and two, [FN5] respectively. However, 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), 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 TCPA, 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 TCPA 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 TCPA.

**Appendix A Already Adequately Cover Reactivity Hazards, And An Expansion Of PSM Coverage And/Or Requirements For Reactivity Hazards Is Unjustified**

ACC notes that PSM already covers a number of substances that are highly reactive. As the RFI itself states, 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.” See 78 Fed. Reg. 73759. In addition to the requirements imparted by this list, evaluation of reactivity also occurs during the Process Hazard Analysis, pursuant to 29 C.F.R. § 1910.119(e)(1), which requires employers to “identify, evaluate, and control the hazards involved in the process.”

Beyond these requirements currently in place, reactivity hazards cannot be adequately addressed through regulatory listing approaches. ACC agrees with the advice given by CSB in 2002 that “using lists of chemicals is an inadequate approach for regulatory coverage of reactive hazards. Improving reactive hazard management requires that both regulators and industry address the hazards from combinations of chemicals and process-specific conditions rather than focus exclusively on the inherent properties of individual chemicals.” See CSB, Report No. 2001-01-H, Hazard Investigation: Improving Reactive Hazard Management, at 87 (Oct. 2002) (emphasis added). As the PSM rule is essentially a list-based rule, ACC believes that this statement is as true today as when it was published, and that no new data in the intervening 12 years contradicts this conclusion. For pairs of chemicals, which make up the vast majority of reactive substances, extrinsic process and location-specific conditions must be considered in any hazard assessment.

ACC supports OSHA’s efforts to reduce any significant risk associated with reactivity. However, ACC believes that before OSHA takes any additional steps, OSHA must first conduct a sound scientific analysis and technical evaluation to justify expanding PSM coverage and requirements for reactives. OSHA must investigate and explain what the risk is of some threshold unacceptable hazardous consequence from a reaction—at what quantity/concentration will an explosion occur? Would the potential explosion be a significant risk? ACC respectfully recommends that OSHA fulfill its statutory requirement to demonstrate whether updating the standard is required. Only after OSHA has established through sound scientific analysis that reactives impose a substantial risk and hazard should any rulemaking proceed.

With this in mind, if OSHA completes a risk and hazard assessment which justifies a proposal to expand PSM’s coverage, ACC recommends that OSHA prioritize reactivity hazards by (1) focusing on compounds that are highly hazardous independent of processing technology or conditions (namely, compounds that are strongly self-reactive, or react violently with air and/or water), and (2) establishing threshold quantities based on a hazard and risk assessments for specific compounds. For example, the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (3rd edition 2009) provides a framework from which specific compounds could be identified for evaluation:

- Self-Reactive Substances, Types A to C (but not D, E, F & G)
- Pyrophoric Liquids
Substances that, in contact with water, emit flammable gases, Categories 1 & 2.

Other classes of reactives (i.e., runaway reactions and intentional reactive chemistry) simply are not amenable to a broad regulatory approach. These classes depend on situation-specific factors such as use or proximity to other substances that react; they can only be evaluated through the application of industry tools and resources on the specific technology and conditions in which they are utilized. By contrast, self-reactive substances and substances that are reactive with air and water are more amenable to a list-based rule because they are intrinsically-based hazards, much like the materials already covered by PSM Appendix A such as flammables. By intrinsic, we mean that the hazard is not situation- or application-dependent, which is clearly the case with binary pair reactive chemicals.

Even within the high-priority class of chemicals that are self-reactive or violently reactive with air and/or water, it is imperative that OSHA not categorically adopt the aforementioned classes without first developing a valid, consistent methodology to identify threshold hazard quantities or concentrations. ACC is willing to work with OSHA to establish any such methodologies and/or criteria. In fact, ACC already has identified useful consensus standards and other resources that should be used to identify any reactivity hazards (again, only after OSHA first justifies coverage through hazard and risk analyses):

1. The Center for Chemical Process Safety (CCPS), an industry-technology alliance of the American Institute of Chemical Engineers (AIChE), produced and published, with the financial backing of OSHA, EPA, SOCMA, and ACC, the book “Essential Practices for Managing Chemical Reactivity Hazards” (Johnson, Unwin and Rudy, 2003), available at https://www.aiche.org/ccps/publications/books/essential-practices-managing-chemical-reactivity-hazards, which provides tools for identification and further evaluation of reactivity hazards. Through the financial support of the above-mentioned organizations, this book was made available via electronic download free of charge for three years after publication, resulting in more than 12,000 electronic downloads. Additionally, CSB gave CCPS an “Exceeds Expectation” rating for its recommendation as a part of CSB’s 2002 study when the book was published.

2. The National Oceanographic and Atmospheric Administration (NOAA) has also contributed significantly to the management of reactivity hazards through its publication of the “Chemical Reactivity Worksheet” (now Version 3.0, and soon to be upgraded), available at http://response.restoration.noaa.gov/reactivityworksheet. This electronic worksheet creates potential reaction interaction matrices, as well as for generic classes of chemicals, in a succinct, referenced, and easily transmitted format. This tool is also the centerpiece of CCPS’s Reactivity Management Tool (RMT), available at http://www.aiche.org/ccps/resources/tools/reactivity-management-tool.

Together, these and other similar resources provide a much more effective means for reactivity hazard management than could ever be accomplished for reactives through a list-based rule. Ultimately, ACC believes that OSHA can most effectively accomplish its goal of reactivity risk reduction by promoting awareness of the existing industry evaluation tools, references, and guidance on how to evaluate reactive hazards.
OSHA CHANGE OPTION 5

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;
- *73760* U.S. Department of Transportation’s Emergency Response Guidebook;
- 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.

**Before Any Changes Are Made To The List Of Highly Hazardous Chemicals In Appendix A Of The PSM Standard, OSHA Must Undertake Scientific Analyses And Establish Significant Risk**

Appendix A of 29 C.F.R. § 1910.119 contains a list of 137 highly hazardous chemicals, compiled from numerous sources, that present a potential for a catastrophic event at or above the
threshold quantity of the standard. ACC encourages OSHA to amend Appendix A only where actual data warrants the incorporation of additional chemicals. To this end, ACC urges OSHA to develop and publish its research and data-gathering methodology for identifying, defining, and quantifying the hazards associated with a chemical. OSHA should use a formal, scientific-based approach to evaluate chemicals and, ultimately, to demonstrate that any proposed changes to the PSM standard are justified and would actually enhance worker safety.

At present, although OSHA states in the RFI that “Appendix A has remained unchanged since OSHA promulgated the PSM standard in 1992,” OSHA has provided no justifications for updating the list other than the fact that it has remained unchanged since 1992. See 78 Fed. Reg. 73769. The passage of time, in and of itself, is not a sufficient reason to embark on a new rulemaking and ACC is not aware of any reason or development to justify the reopening of Appendix A. ACC therefore requests that OSHA identify any issues with the constitution of the current list before moving forward with any potentially unjustified changes. ACC believes that it is OSHA’s duty to perform a significant risk analysis on an industry basis, as well as demonstrate that each chemical the Agency intends to regulate exposes employees to a significant risk of harm. ACC trusts that, by completing these required steps in the rulemaking process, OSHA will be able to more efficiently focus its resources on the workplaces and hazards that pose the most potential risk.

ACC notes that many chemicals that are not specifically listed by name in Appendix A of 29 C.F.R. § 1910.119 are covered under 29 C.F.R. § 1910.119(a)(1)(ii) through processes that involve a Category 1 flammable gas (as defined in 29 C.F.R. § 1910.1200(c), and further defined in Appendix B to 29 C.F.R. § 1910.1200 regarding physical hazard criteria). Only highly hazardous chemicals that were intended to be addressed by the regulation or that have been identified and justified using scientific methods that define purported hazards and concerns should be included on the list. Diluting the list with chemicals that have not been demonstrated to represent high hazards will reduce the overall effectiveness of any process safety program.

In sum, ACC believes that the existing list in Appendix A of 29 C.F.R. § 1910.119 is comprehensive, and adding additional chemicals should be approached with caution. If incident data supports the need for rulemaking on highly hazardous chemicals, ACC would be happy to collaborate with OSHA to establish revision criteria and help ensure that updates are technologically feasible and cost-effective and, most importantly, actually enhance the safety of workers.

C. ACC Comments Regarding Additional Management System Elements (Change Option 6)

OSHA CHANGE OPTION 6

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.[FN6] 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.” [FN7]
- 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.” [FN8]

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 elements not included in the PSM standard. In its SEMS II Fact Sheet (April, 2013) [FN9], 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.
OSHA is soliciting comments on a possible revision to the PSM standard to require additional management-system elements that would “modernize” the scope of PSM. Yet OSHA has not provided any evidence indicating that the existing PSM regulation has not adequately included the process safety elements necessary to develop an effective performance-based PSM system. In the present RFI, OSHA cited incidents where existing management system elements were not adequately performed. These examples, however, demonstrate a problem with implementation and enforcement; they do not constitute evidence of the need for additional elements or expansion of regulatory coverage. Imposing unnecessary added regulations on all covered employers ignores the root problems—that certain outlier companies have chosen not to address the regulation in its entirety through the implementation and maintenance of existing regulatory PSM elements, or perhaps do not realize that they are covered by the regulation.

When EPA promulgated 40 C.F.R. Part 68, it aligned Section 68.15 of the RMP rule (requiring facilities to develop a management system) with Section 1910.119 PSM elements. Here with management-system elements, OSHA should consider EPA’s precedent and maintain consistency between PSM and RMP program elements. Although there are significant differences between RMP and PSM, there is a broad level of consistency that needs to be maintained between the two programs. For example, employers have enacted compliance programs based on the overlapping philosophies in management of change and RMP. Consistency would drastically reduce the burden on employers complying with two distinct programs.

OSHA notes in the RFI that CCPS recommends additional management-system elements such as Conduct of Operations and PSM Metrics, as well as performing periodic Management Reviews of PSM programs. Each of these CCPS additional elements are supportive management tools, which are applied to improve the efficacy of the existing elements in the OSHA PSM standard. They do not create a work product of their own, and therefore are inappropriate in the performance-based PSM standard. ACC agrees that these types of cultural process safety elements may lend themselves to individual organizational continuous improvement actions. However, such elements are not well suited for prescriptive regulation or to support (consistent, rational) enforcement actions by government agencies. They would be ineffectual and confusing as PSM elements, and, as such, should not be added to the current regulations.

Furthermore, lagging PSM metric indicator collection and evaluation should not be required by regulation. While lagging indicators may provide insight into an organization’s process safety performance, there are limits to how this data can be utilized as a meaningful measurement and comparison point. Organizations like ACC, ICCA, API, AFPM, and CCPS have been working to standardize and harmonize process safety metric collection and analysis to provide consistency in reporting; however, this standardization has not yet come to fruition and may not be achievable. If it existed, ACC would support a single, global, and harmonized set of process safety lagging indicators that could be applied by chemical manufacturers worldwide. The advantages of a single scheme are numerous and include simplified reporting and benchmarking, teachable experiences that can be disseminated across all facilities, continuous process safety improvement, and mitigation and elimination of risks. However, such a
A harmonized set of metrics does not exist at this point, and even if such a set is developed, ACC does not see the need for its inclusion as a regulation.

In addition, leading PSM metrics cannot be effectually regulated. Even more than lagging metrics, leading metrics do not lend themselves to standardization and cannot be successfully employed across organizations or industries, as they tend to be very specific to an organization and often to an individual site and are not, by definition, specific to one root cause. By way of comparison, occupational safety lagging metrics such as days away and total recordable injuries—which ACC and other organizations still have struggled to standardize across the industry—tend to be numerical and quantitative in nature, whereas leading indicators such as behavioral-based audits, employee observations, and employee participation in safety committees are extremely subjective and site-specific. These metrics cannot and should not be universally applied or regulated.

Also in the RFI, OSHA noted that the Bureau of Safety and Environmental Enforcement (BSEE) included additional management systems elements, such as (1) stop work authority, (2) ultimate work authority, and (3) employee participation plans, in the offshore Safety and Environmental Management System (SEMS) regulation. OSHA seeks comment on including these concepts in the PSM standard. ACC does not believe that these examples support adding management-system elements to the PSM standard. OSHA emphasizes the offshore industry in all three examples. Offshore platforms are substantially different from onshore facilities, with different issues and challenges. The isolated nature and minimal management staffing of offshore industries does not closely correlate to land-based chemical facilities, which have adequate staffing, communications, and geographic proximity to make ultimate operating authority clear and effective without any need for additional regulatory elements. Moreover, identification of stop work authority is already required in existing PSM regulation Section F—Operating Procedures (1)(i)(D)—and does not need to be repeated in a separate element. In sum, ACC believes that the existing PSM management-systems elements required by OSHA in 29 C.F.R. § 1910.119 represent the key components needed for a successful PSM program, and additional requirements suggested by OSHA in the present RFI would not provide any corresponding safety benefits and are not amenable to regulatory implementation.

D. ACC Comments Regarding RAGAGEP (Change Options 7 & 8)

OSH A CHANGE OPTION 7

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 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 *73761 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.

ACC Submits That OSHA Need Not Amend PSM To Explicitly Require Employers To Document Their Evaluations Of Updates In Codes And Standards Under RAGAGEP

A strict mandate to evaluate all updates to codes and standards would be extremely costly to implement and impractical, with little or no corresponding risk reduction. Employers should not be forced to re-document their safety evaluations every time an update to a standard is published. PSM-covered equipment or processes do not become “less safe” merely because a code or standard is updated. ACC believes that current OSHA regulations adequately protect worker safety and already ensure that employers examine all pertinent safety updates applicable to “recognized and generally accepted good engineering practices,” also known as RAGAGEP.

ACC has strong legal and practical concerns regarding any government requirement that employers evaluate standards and codes, many of which are privately published, each time they are updated. As explained in OSHA’s recent presentation to the Global Congress on Process Safety:

Incorporation of consensus standards by reference has benefits to both OSHA and the regulated community. However, OSHA must incorporate a specific version of a standard. When the consensus standard is updated, OSHA’s incorporated standard becomes dated and can only be updated through the rulemaking process. Commenters on OSHA’s ANPRM realized this, and this resulted in a different approach, the introduction of the RAGAGEP concept.
See Lisa Long, James Lay, P.E., Michael Marshall, P.E. & Jeffrey Wanko, P.E., C.S.P, OSHA Presentation to 9th Global Congress on Process Safety: RAGAGEP 101 (April 28–May 1, 2013) (referred to below as “RAGAGEP 101”). As OSHA stated in Part I Question 8 of the present RFI, any required evaluation of all potentially applicable consensus standards is problematic given “difficulties in obtaining relevant codes and standards” and “potential confusion on which codes were required by OSHA in a given situation.” See 78 Fed. Reg. 73761. For these reasons, OSHA explained in the Preamble to the Final PSM Rule (Feb. 24, 1992) that the “Agency did not intend to incorporate by reference into the [RAGAGEP] standard all of the codes and standards published by these consensus groups. As noted above, the purpose of this proposed provision is to make sure that process equipment is inspected and tested properly, and that the inspections and tests are performed in accordance with appropriate codes and standards,” including internal standards. See 57 Fed. Reg. 6390. Clearly, OSHA never intended employers to be bound by all codes and standards published by consensus groups through RAGAGEP; by extension, employers should not be bound to evaluate all updates to consensus codes and standards. RAGAGEP eliminates the need for covered employers to document their evaluation of every applicable standard and code amendment by creating a broader, all-encompassing standard based on RAGAGEP. Inherent in the concept of RAGAGEP is an ongoing evaluation of all pertinent safety updates that together make up “recognized and generally accepted good engineering practices.”

Indeed, the legal and practical implications of such a mandate would be exceptionally problematic, considering the hundreds of continually updated codes and standards that may be applicable to a particular worksite’s RAGAGEP. Would employers be required to evaluate in writing even minor changes to standards? Would employers be required to evaluate changes that have no effect on safety? If so, how could OSHA justify this tremendous burden? If not, how would OSHA distinguish, monitor, and enforce the evaluation of changes that affect safety from changes with no safety consequences? What would happen if there was a significant disagreement within the consensus organization that had issued a specific standard or set of standards, or where there was continuing internal review and appeal of a standard—what would OSHA’s enforcement position be? Given these ambiguities, ACC is strongly opposed to OSHA’s proposal to explicitly require employers to document their evaluation of all updates in codes and standards.

Furthermore, constant monitoring and evaluation of updates to all codes and standards that may apply to RAGAGEP would impose a significant economic burden on industry. Consensus standards are not typically free to the public, and subscriptions to all potentially applicable standard publications represent a significant cost, especially to small businesses. In addition, the task of evaluating all updates (including minor updates and updates where prior practices remain safe) would be extremely time-consuming for any company, and unjustifiably expensive for smaller enterprises. Lastly, this requirement could encourage unnecessary and excessive updates to consensus standards, creating (1) economic disincentives for affected employers to support the activities of the standard developers and (2) substantial economic incentives for those who financially benefit from continual updates. By contrast, OSHA has provided no data to show that concrete benefits and enhanced worker safety would result from imposing this requirement.
Importantly, the current PSM framework already has mechanisms in place to ensure that processes are safe on an ongoing basis, even if equipment was originally designed or constructed to comply with standards or practices no longer in use. Under 29 C.F.R. § 1910.119(d)(3)(iii), “[f]or existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use, the employer shall determine and document that the equipment is designed, maintained, inspected, tested, and operating in a safe manner.” (Emphasis added.) Employers have the duty to ensure that equipment is operated in a safe manner, regardless of the codes and standards originally employed. Moreover, 29 C.F.R. § 1910.119(j)(4), which focuses on mechanical integrity, mandates inspection and testing be performed on process equipment as frequently as required by “applicable manufacturers’ recommendations and good engineering practices, and more frequently if determined to be necessary by prior operating experience” and by following “recognized and generally accepted good engineering practices.”

The bottom line is that current PSM requirements already ensure that employers consider pertinent safety updates applicable to RAGAGEP. In fact, OSHA clarified in a Letter of Interpretation that after the employer makes a baseline safety determination (with corresponding documentation of the determination) under 29 C.F.R. § 1910.119(d)(3)(iii), other PSM elements address continuing safety:

Generally speaking, OSHA intended for the employer determination and documentation required by 29 CFR 1910.119(d)(3)(iii) to be completed prior to the implementation of the original PHA or startup of a PSM-covered process. Therefore, once an employer is in compliance with this requirement, there is no additional requirement per 29 CFR 1910.119(d)(3)(iii) for future determinations/documentation simply because a code or standard related to the covered equipment has been revised. After the employer has made this baseline determination and documentation, other PSM elements such as management of change, mechanical integrity, PHA-revalidation, pre-startup safety review, etc., are intended to address on-going safe operation and maintenance of PSM-covered equipment.

See OSHA Letter of Interpretation to Mr. Durham Regarding Section 1910.119(d)(3)(iii) (dated Jan. 20, 2001 and corrected June 2, 2005) (emphasis added). ACC believes that steps listed above—including management of change, mechanical integrity, PHA-revalidation, and pre-startup safety review—appropriately require employers to evaluate process safety of all equipment under current standards. Adding a new requirement of employers to document that they have evaluated all updates to safety codes is unnecessary, unjustified, and overly burdensome.

Finally, ACC would like to highlight that RAGAGEP is a large and diverse subject—not a single code, standard, practice, or update. As OSHA has stated, the PSM standard outlines a management system framework “upon which employers build.” See RAGAGEP 101. The employer’s responsibility for selecting and implementing actions to manage risk is a key component of the entire foundation of the PSM framework:
The PSM standard is not prescriptive because of the number and types of industries, facilities, chemicals, and technologies covered by the standard. Employers have latitude to develop and initiate the required management systems in a manner that is flexible and takes into account the attributes of their covered processes and equipment while still achieving safe operations.

. . .

Because OSHA is not in a position to be expert in any industry, use of RAGAGEP is critical to the success of a performance standard such as PSM. Using the collective wisdom and experience of industry experts, RAGAGEP helps achieve safe operations throughout industries using highly hazardous chemicals.

Id. OSHA has acknowledged that employers have the discretion and responsibility to select “the appropriate RAGAGEP with which to comply.” Id. Ultimately, there is no single code, standard, or methodology that would be congruous to the diverse nature of chemical industry operations.

OSHA CHANGE OPTION 8

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.

**To Best Achieve The Goal Of Workplace Safety, RAGAGEP Must Be Performance-Oriented And Allow Employers To Evaluate And Individualize Their Own Internal Standards**

To best protect workplace safety, “recognized and generally accepted good engineering practices” must remain a fluid concept that allows employers to tailor PSM to the realities and challenges of their particular worksites. RAGAGEP cannot be a single document, code, standard, or practice. Instead RAGAGEP must include both industry consensus guidance and appropriate internal standards that have been evaluated and adopted by employers, leaving room for determinations by onsite engineers.

The inclusion of internally developed standards in this definition is a key feature that allows RAGAGEP to be a valuable process safety tool. By allowing employers to tailor industry consensus guidance documents, RAGAGEP adapts to the highly unique demands of complex chemical equipment and operations. RAGAGEP recognizes the reality of chemical operations—that there is no one singular way to solve a given problem that provides similar levels of risk reduction for the diverse set of equipment, processes, and chemicals utilized in the United States, even across a single chemical company. Covered employers must be able to tailor consensus guidance to situations presented at their individual workplaces. Even standards with highly prescriptive, consequence-only methods (such as API 753) contain language that permits, and even encourages, tailoring through detailed first-principal-based engineering analyses. Any “all or nothing” RAGAGEP definition would be as ineffectual as it is unjustified; instead, employers must be allowed discretion in the manner and extent of adopting specific parameters.

Under RAGAGEP, employers are responsible for appropriately analyzing and evaluating safety issues and addressing them through adoption of existing industry consensus standards, guidance, and/or appropriate internal standards tailored to the unique facts presented in that workplace. To effectively protect workers and the public, RAGAGEP must be a performance-oriented standard. As OSHA itself recently explained:

The PSM standard is not prescriptive because of the number and types of industries, facilities, chemicals, and technologies covered by the standard. Employers have latitude to develop and initiate the required management systems in a manner that is flexible and
takes into account the attributes of their covered processes and equipment while still achieving safe operations.

See RAGAGEP 101. Under RAGAGEP, employers must be allowed to consider extrinsic factors that are situational or location-specific in determining which approach among multiple approaches (not all of which are published in consensus documents) will best achieve the ultimate goal of safety.

RAGAGEP provides employers with both the responsibility and accountability to identify and implement proper standards and monitor onsite safety. Part of the justification for making employers responsible for developing RAGAGEP is the recognition of the unique expertise of employers’ engineers and other specialists. These onsite specialists apply their knowledge and skills to evolving situations presented in the particular workplace. To best protect worker safety, employers, with the support of their engineers and other professionals, must decide which “recognized and generally accepted good engineering practices” may be applicable to the individual workplace by analyzing the specific conditions and challenges presented.

ACC notes that although the phrase “appropriate internal standards” is used throughout the present RFI, OSHA has not defined this phrase through guidance or rulemaking. In the original Preamble to the Final PSM Rule, OSHA specifically and repeatedly stated that RAGAGEP “would include appropriate internal standards of a facility, as well as codes and standards published by NFPA, ASTM, ANSI, NFPA, etc.” See 57 Fed. Reg. 6390 (Feb. 24, 1992). OSHA further explained that:

Several rulemaking participants . . . suggested that if this provision is to be truly performance-oriented, employers should have the flexibility to follow internal standards and manufacturers’ recommendations as well as applicable codes and standards. OSHA agrees with these rulemaking participants. Since the phrase “recognized and generally accepted good engineering practices” would include both appropriate internal standards and applicable codes and standards, the Agency has decided to use this phrase in this provision of the final rule.

Id. at 6390-91. As OSHA stated in the Preamble to the Final Rule, RAGAGEP was included in the final PSM rule because, at its core, RAGAGEP provided employers with the flexibility to use appropriate internal standards and/or consensus codes—consistent with the goal of making PSM a performance-oriented standard. Nowhere in the Preamble to the Final Rule did OSHA prioritize consensus codes and standards over internal standards. Moreover, in a recent Letter of Interpretation, OSHA acknowledged that consensus standards are merely one factor that should be considered among other factors in developing RAGAGEP:

The PSM standard is a performance-oriented standard. When not specified, the employer has flexibility in complying with the requirements of PSM, including recognized and generally accepted
good engineering practices. With respect to SIS [safety instrumented systems], OSHA does not specify or benchmark [ANSI/ISA’s 1996] S84.01 as the only recognized and generally accepted good engineering practice. Based on input from stakeholders, OSHA stated in the PSM final rule (see F.R., Volume 57, No. 36, pg 6390) that it did not intend to incorporate by reference into PSM all the codes and standards published by consensus groups. Therefore, in evaluating whether an employer's engineering practices with respect to SIS complies with PSM, OSHA would consider among other factors, whether the employer meets the requirements of S84.01.


Despite the clear inclusion of appropriate internal standard in RAGAGEP, OSHA has recently taken a more restrictive position on this issue, namely that internal standards will be deemed “appropriate” only where (1) they are based on sound engineering principles; (2) the existing consensus standard is outdated and no longer reflects a consensus on good engineering practices; (3) the internal standards fill gaps left by the consensus standards or apply general consensus standards to particular types of process equipment; or (4) the internal standards are more protective than consensus standards. See Petition for Discretionary Review, Sec’y v. BP Prods. N. Am., Inc., No. 10-0637 at 15 n.10 (O.S.H.R.C. Sept. 5, 2013) (citing Sec’y Post-Hearing Br. 90-91; 57 Fed. Reg. at 6390). ACC strongly opposes OSHA issuing “factors” that have enforcement consequences without first presenting and proposing them to the regulated community through proper notice (which would include OSHA’s rationale for proposing each of the above factors) and an opportunity to comment on that rationale and other issues.

Moreover, ACC strongly opposes factors (2) and (4). ACC opposes factor (2) because it implies that an existing consensus standard should be applied in the first instance (taking away the employer’s discretion to determine whether to apply a consensus standard or create an internal standard). In addition, factor (2) would place an impossible burden on an employer to show that a particular consensus document no longer reflects a “consensus” on good engineering practices. Among other hurdles, “recognized and generally accepted good engineering practices” vary drastically from worksite to worksite, as explained above. Further, ACC opposes factor (4)—the purpose of applying “internal standards” is so that an employer is given the ability to adopt and tailor existing standards to the facts presented by an individual workplace. ACC believes that “appropriate” internal standards should be no less protective than a consensus standard, but it is unacceptable for OSHA to require an employer to show that the internal standard is more protective. Internal standards are an alternative means of compliance that provide (at least) an equivalent level of protection compared to consensus standards. Use of an internal standard does not signal that an “exception” to a consensus standard is required, but that the employer best situated to understand onsite safety has decided to take an alternative approach. In fact, having to make a “more protective” showing would act as a disincentive against undertaking a more exhaustive review of specific workplace safety issues, which occurs when an employer seeks to create its own internal standards.
Along the same lines, any definition of RAGAGEP should recognize the importance of fundamental engineering skills and engineering analyses. Engineers must apply systemic thinking and engineering principles to the equipment, processes, and chemicals at issue to reach a performance threshold. In sum, the concept of RAGAGEP recognizes that there is almost always more than one way to successfully address safety and security issues, and that this necessarily involves analysis and evaluation far beyond the rote application of consensus standards to allow onsite professionals to effectively address individual situations and circumstances. As an example, while construction of unfired pressure vessels per ASME Code Section VIII is a very prescriptive methodology, the selection of construction materials, and the performance of such equipment under normal, transient (startup and shutdown), and upset conditions, cannot be accomplished through the application of any consensus standard. Such an analysis requires detailed, process-specific information (such as potential contaminants, temperature of utilities, local environmental conditions—salt air, extreme temperature, etc.). Application of first-principle science and engineering are vital to the success of such a design, regardless of the consensus standard to which the vessel is ultimately constructed.

Finally, ACC cautions OSHA against trying to fix something that it has not shown to be “broken” through an analysis of significant risk. ACC also fears that any overly prescriptive or narrow definition of RAGAGEP, and particularly its inclusion of “appropriate internal standards,” will be a disincentive to employers to carefully evaluate the individual risks presented in their workplace and addressing them through tailored engineering practices.

E. ACC Comments Regarding Mechanical Integrity (Change Option 9)

OSHA CHANGE OPTION 9

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.

The Current PSM Standard Already Requires Employers To Include All-Safety-Critical Equipment In Their Mechanical Integrity Programs

ACC needs OSHA to provide more information and identify the “safety-critical equipment” purportedly not covered by the existing standard—equipment that, according to OSHA, is addressed through use of the General Duty Clause, before it can offer comprehensive comments on this issue. In addition, OSHA has yet to publish any data supporting any purported deficiency in Paragraph (j). If OSHA has data regarding the cause of process safety incidents to justify an expansion of the list in Paragraph (j), ACC requests that such information be published before any rulemaking continues.

Based on the experiences of our members, ACC strongly believes that the six categories currently listed in Paragraph (j) of the standard sufficiently cover safety-critical equipment involved in the handling of highly hazardous chemicals. As OSHA recognizes in its RFI, the Preamble to the Final PSM Rule clearly explained that employers have a duty to include other safety-critical equipment in their mechanical integrity programs. See 57 Fed. Reg. 6389 (“[I]f 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.”). Thus, by extension as part of this duty, the employer has the responsibility to understand, identify, and define safety-critical equipment.

ACC endorsed a risk-based approach to mechanical integrity in its Responsible Care Process Safety Code. While developing the new Process Safety Code, ACC recognized that process safety hazards may vary by company, by process technology, and by the complexity of the facility. Even within a single company, risk differs drastically based on a variety of factors such as the equipment used. The existing regulation has adequate language in the process safety information, mechanical integrity, and process hazard analysis sections to include other process-safety-critical equipment if identified.

ACC believes that a risk-based approach, similar to what is required under ACC’s Process Safety Code, already exists in the current PSM and satisfactorily protects mechanical integrity safety. No further expansion is needed. Furthermore, any expanded list of covered equipment that is not risk-based could result in an undesired situation in which resources such as money, time, and expert attention are pulled from critical site-specific equipment to address less-critical equipment listed in Paragraph (j) for all sites regardless of actual risk.

Finally, ACC notes that OSHA’s RFI did not offer any specific examples or a definition of “critical.” Any definition should be based on what the employer deemed to be reasonably
foreseeable, and not the hindsight of compliance officers. 29 C.F.R. § 1910.119 covers process safety management of highly hazardous chemicals. As such, all mechanical integrity requirements under this regulation must be restricted to process-safety-critical equipment.

F. ACC Comments Regarding Management Of Change (Change Option 10)

OSHA CHANGE OPTION 10

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,[FN10] 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 Fairfax,[FN11] 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. 2005-04-1-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.

Paragraph (L) Need Not Be Amended To “Explicitly” Require That Employers Manage Organizational Changes

ACC believes that reopening the PSM standard to include an explicit requirement that employers manage and address organizational changes is not warranted. As previously expressed in ACC’s written response to CSB’s Request for Comments regarding Recommendation No. 2005-04-1-TX-R9, current OSHA standards and other publications sufficiently address the PSM coverage of management of change.

To start, the issues raised in Change Option 10 have been fully and adequately addressed through OSHA’s interpretation memorandum referenced in the RFI (Subject: Management of Organizational Change (MOC), dated March 31, 2009). Therein, OSHA provided guidance and interpretation regarding when 29 C.F.R. § 1910.119(l) on MOC must be considered for organizational changes:

The MOC provisions of the PSM standard apply only to changes, including organizational changes, that impact safety in PSM...
covered processes. . . . Some organizational changes, such as changes resulting from mergers, acquisitions, reorganizations, staffing changes, or budget revisions, may affect PSM at the plant level and would therefore trigger a PSM MOC procedure. . . . If organizational changes necessitate changes to process chemicals, technology, equipment, procedures, or facilities, an MOC procedure would be required to ensure that the resulting changes are managed and implemented in a manner that assures continued safe operations. (Emphasis added.)

See id. (emphasis added). Through this interpretation, OSHA recognized that organizational changes connected to other existing PSM elements (including, but not limited to, operator training, operating procedures, mechanical integrity, and hazard evaluations) may require an MOC evaluation and communication of relevant changes to affected workers. Beyond this, as OSHA recognized in its interpretation memorandum, “management changes that do not impact PSM covered processes are not affected by the MOC provisions of the PSM standard.”

OSHA had good reason for clearly limiting PSM MOC provisions’ coverage to those changes that impact safety in PSM covered processes. Organizational change can present complex fact-intensive scenarios that cannot easily be addressed through an expanded or prescriptive regulatory requirement. Any explicit requirements beyond the current PSM MOC performance-based criteria may create conflicts with existing site-level Human Resources (HR) policies and labor management agreements, as well as business-level staffing decisions and organizational redesign. At many sites, companies may operate both covered and non-covered processes where organizational changes may impact one, both, or neither type of processes.

Similarly, “replacements in kind” may not be consistent with the organizational change requirements. For example, if a process safety technician retires and there are no gaps in process safety technician services/activities, the facility should not be required to complete a management-of-change form as long as the facility plans on hiring a new process safety technician and training that employee to the level of the retired employee; however, the elimination of the process safety technician position altogether may warrant inclusion. If the process safety technician retires and there is, for example, a gap until a replacement is hired and trained, the facility should conduct an MOC to ensure that the safety technician activities are being temporarily transferred to other qualified employees and completed. There should be no gaps in carrying out safety activities. Companies must ensure ongoing compliance with all existing regulatory obligations. Thus, consistent with the performance-based standard, facility owners should be provided with sufficient latitude to shape their MOC programs.

Personnel changes, including changes in staffing levels or staff experience, can similarly be a complex and a highly variable subject from site to site within a single company, much less across different companies and industry segments. Indeed, personnel changes are based on a multitude of factors, including, but not limited to, local organizational structures, leveraged offsite technical support from the parent company and/or a corporate function such as engineering, the use of a supplemental workforce such as contractor services, and service level agreements between companies with an industrial park layout. Staffing levels and expertise needs within the line organization can also fluctuate based on the life cycle of production operations at a given site—for example, when a new unit is constructed and brought on line or
when an obsolete unit has been permanently de-inventoried and idled. It is the responsibility of
the employer to define specific personnel needs and their levels of experience and competency in
order to meet all operating objectives and commitments, including regulatory compliance. The
adoption of any qualitative or prescriptive requirements for staffing and experience as part of the
MOC element would infringe upon the role and obligations of the operating entity in this arena.

ACC believes that MOC requirements for organizational changes must have limits. See
generally Preamble to the Final PSM Rule, 57 Fed. Reg. at 9393 (Feb. 24, 1992). For example,
mergers and acquisitions (M&As), in which two separate operating entities are joined under one
common set of internal policies and operating practices, typically are managed at an enterprise or
business (corporate) level. During the M&A process, a transitional period typically is set to
integrate the two organizations; however, both entities, as well as the newly formed joint
company, must meet all applicable regulatory requirements for existing operations at all times.
As a result, additional regulatory requirements in this area would not add to existing compliance
requirements defined in the current OSHA PSM standard. If OSHA were to expand enforcement
in arenas such as M&As, ACC would have concerns regarding OSHA injecting itself into private
business decisions.

Similarly, “budget cutting,” the act of adjusting organizational operating plans and
associated expenditures based on strategic financial (business) objectives, should not be
considered a policy change. Instead, budget cuts are part of the overall business or financial
strategic planning processes. Throughout time periods in which budget cuts are enacted,
companies have the continued responsibility to ensure ongoing compliance with all existing
regulatory obligations.

Recognizing that organizational change can cause permanent or transitory modifications
in workload, roles and responsibilities, and the manner in which work is done, ACC in 2003
developed a voluntary guide, “Management of Safety and Health During Organizational Change:
A Resource and Tool Kit for Organizations Facing Change.” This resource and tool kit is
intended for use by the safety and health professional or manager in a facility facing
organizational change. It describes a process that may be used to plan for and manage safety and
health during organizational change, and provides useful worksheets and checklists. The process
in this guide represents only one option for managing safety and health during organizational
change. It can be adapted as appropriate for the facility and integrated into any overall plant
effort to plan and implement the change.

In summary, ACC believes the subject of organizational change is complex and should
not be made more difficult by an unnecessary rule revision. As OSHA stated in its 2009
memorandum, OSHA currently has adequate tools and authority to evaluate organizational
change elements, as they relate to process safety systems under the existing MOC element of the
PSM standard. Further expansion to MOC language involving organizational change would
either be redundant or overly and unnecessarily prescriptive and thereby ineffective. Either way,
expansion would not improve process safety. If OSHA has additional data based on PSM-
related inspection results or incidents suggesting otherwise, OSHA should share that data with
the public before it proposes any regulatory change. Finally, resources such as CCPS’s
“Guidelines for Managing Process Safety Risks During Organizational Change” and ACC’s
“Management of Safety and Health During Organizational Change: A Resource and Tool Kit for
Organizations Facing Change” are examples of available tools that can assist companies in evaluating and addressing organizational change elements consistent with OSHA’s approach.

G. **ACC Comments Regarding Emergency Planning (Change Option 11)**

**OSHA CHANGE OPTION 11**

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 § 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.[FN12] 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).

ACC believes that the requirement for coordination with local emergency responders is already adequately addressed in multiple interconnected standards and regulations: OSHA (29 C.F.R. § 1910.38, stating that an emergency action plan must include at a minimum “[p]rocedures for reporting a fire or other emergency,” 29 C.F.R. § 1910.120, and 29 C.F.R. § 1910.1200); EPA (40 C.F.R. § 68.95(c)); DHS (6 C.F.R. Part 27); and DOT (29 C.F.R. Part 172 Subpart H) regulations. Adding a requirement to the PSM standard will simply add one more layer of confusion to the already difficult-to-navigate suite of federal requirements that Executive Order 13650 was intended to address and reduce. Moreover, if the communication and coordination between a facility and local emergency responders needs to be strengthened, the appropriate place to do so is in the Emergency Planning and Community Right to Know (EPCRA), not through the PSM standard. Congress gave the federal EPA, not OSHA, jurisdiction over this issue.
Currently, many ACC member companies already provide information regarding hazardous chemicals to various agencies and organizations as required by other regulatory requirements such as EPA’s Risk Management Plan, EPCRA, and Department of Homeland Security’s Chemical Facility Anti-Terrorism System (CFATS). ACC supports OSHA working with other government agencies and state/local organizations to access this information. OSHA should not revise the PSM standard to duplicate reporting requirements that already exist under other federal agencies.

H. ACC Comments Regarding Third-Party Compliance Audits (Change Option 12)

OSHA CHANGE OPTION 12

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

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.” [FN13 Guidelines for Risk Based Process Safety, CCPS. http://www.aiche.org/ccps.]

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 accident. As the CSB noted in its report, the resulting settlement agreement [FN14] 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.

The Mandated Use Of Third-Party PSM Auditors And The Increased Frequency Of Audits Are Both Overly Burdensome And Unjustified

ACC opposes an industry-wide mandated use of third-party auditors for PSM audits. OSHA has not demonstrated that current compliance auditing practices are deficient or negatively impact worker health or safety. Moreover, mandating third-party auditors would impose significant costs to companies, often while compromising the quality of the audits given the complexity of certain worksite-specific processes. OSHA can certainly require its own inspectors to be certified auditors, or even augment its own inspection efforts with third-party auditors. However, this burden should not be shifted to the private sector; the use of third-party auditors should remain a choice for employers, who have the greatest understanding of the unique potential risks, hazards, and challenges facing their worksites. ACC members, for example, vary greatly in their decisions to use either third-party auditors, second-party auditors (company auditors not directly responsible for the area being audited), or self-auditors for PSM compliance. ACC members consider their particular operations, equipment, onsite materials and chemicals, expertise, and organizational structure to determine which method is best suited to increase safety. In short, OSHA has not substantiated any alleged underlying problem with the current system, nor has OSHA established the efficacy of third-party audits over second-party or self-audits across the industry, to warrant an unnecessary and highly burdensome change.

In fact, second-party and self-audits have many safety benefits that are lost with third-party audits. Company-led audits can be far more effective in actually addressing issues uncovered during an audit, due to the company auditor’s intimate knowledge of the organization and how it functions. Using common audit questions and a standardized scoring system across the company also allows for the ready comparison of results across sites, including consistent report-writing and recommendation-tracking across the company. In ACC members’ experiences with PSM audits, using internal resources broadens PSM management system education while leveraging the auditor’s detailed knowledge of the organization and how it functions.

Many ACC members have found that company auditors have been more effective in identifying, understanding, and then taking appropriate actions to ensure that management resolves issues uncovered during an audit, as compared to temporary, unaffiliated contractors. Audit programs are just one element of a company’s safety management system, and company auditors are more likely to take ownership of the audit report process, revisit action items with the site, or advocate internally for additional resources on a continuous basis. In addition, many companies also have or implement a continuous improvement department/process that considers audits, metrics, and incident investigation findings in a holistic manner—these elements would

3 As part of the Responsible Care® program, all ACC members undergo voluntary third-party Responsible Care audits; these audits are separate from and different than OSHA PSM audits, which require review of all process safety management elements.
be absent with third-party audits. It is worth noting that some ACC members use third-party auditors merely to confirm the findings of second-party auditors or self-auditors. Ultimately, it should be the responsibility and choice of each owner/operator to decide how best to complete the compliance certifications through use of self, second, or third-party review, given the unique characteristics of the company.

OSHA’s National Emphasis Program (NEP) inspections have not demonstrated that company-led audits are cause for concern due to any alleged incapability of the audit team or deficiency in the audit protocols used. In March 2011, the DOL provided an update at the 7th Global Congress on Process Safety sponsored by AIChE, explaining that only 4% of the citations for the Refinery NEP were for PSM Compliance Audits. To support the need for a change in regulation in its RFI, OSHA cited to the CSB Baker Panel’s review of a single company and its finding that the company’s flawed internal audits contributed to an incident. See 78 Fed. Reg. 73762. OSHA should focus its efforts on the outlier employers that do not comply with current PSM auditing requirements and improve targeted enforcement practices rather than promulgating an unnecessary and prescriptive regulation applicable to everyone. As previously stated, changing the regulations alone will not improve safety for companies that already fulfill the requirements of the current standards and consistently do so. To improve the quality and effectiveness of audits, ACC recommends that OSHA develop practical non-mandatory materials (such as guidance and training) for these outlier employers. At present, ACC has observed a dearth of information regarding auditing on OSHA’s website.

Moreover, the CSB BP Texas City Report (Mar. 20, 2007) does not mention any issues with the audit team; rather, CSB identified significant problems with management implementation of the audit team recommendations. In fact, Section 8.3 of the Report stated that a “review of compliance audits at the Texas City refinery revealed that many of the process safety system deficiencies causal to the ISOM incident had been previously identified by BP auditors.” (Emphasis added.) These flaws would not be corrected or eliminated by use of a third-party audit team. Likely for this reason, the CSB Report did not contain a formal recommendation that OSHA revise its PSM auditing requirement. The data supporting the methodology on how audits are performed by companies from OSHA, CSB, or the EO13650 Working Group is not compelling, and certainly does not warrant the tremendous cost of requiring the use of third-party auditors.

Unquestionably, the mandated use of third-party auditors would be extremely costly to industry. Contractors have hourly rates of up to $500 per auditor for conducting PSM audits, not including payment for travel, expenses, and preparation time, as well as additional costs for certain expertise. ACC has investigated the cost of third-party PSM audits for its members. See Exhibit 1, ACC, Third-Party PSM Audit Analysis (Mar. 2013). Indeed, ACC roughly estimates that the cost of a single third-party PSM compliance audit for a medium-sized company could be as high as $33,600 to $112,000 per audit. Id. By contrast, the primary cost for self and second-party audits is the opportunity cost of a company’s PSM and other technical staff, which averages $12,300 per self or second party audit for medium-sized companies. Id. Thus, third-party audits cost anywhere from $21,300 to $99,700 more per audit than second-party audits for medium-sized companies. This range is based solely on hourly rates, and, in reality, is most likely a low estimate—the comparison assumes that the number of hours spent on a single audit is identical for each type of audit (self, second, and third-party). However, as will be explained
later in this section, ACC members report that third-party audits are lengthier than self and second-party audits. Thus, ACC believes that the true cost of third-party audits is significantly higher than $21,300 to $99,700. Even more, as explained in the attached exhibit, “[m]any companies have several facilities that would need to be audited each year. Thus, this cost would be multiplied several times over. Given that the majority of PSM-regulated facilities are at small and medium-sized companies, this presents a significant cost burden.” Id. Again, there is no proof that this cost yields an increase in corresponding safety benefits. In fact, as explained above, second-party and self-audits have many safety benefits that are lost with third-party audits.

Also, third-party auditors do not significantly lessen the burden of onsite engineers, who frequently must accompany third-party auditors and engage in the extremely time-consuming activity of explaining basic onsite procedures already known to internal staff. As explained above, this leads to intra-company productivity and opportunity losses, in addition to the cost of hiring third-party auditors. Overall, third-party audits are lengthier and involve larger audit teams, without necessarily yielding corresponding safety benefits. Lengthier audits present logistical challenges and loss of efficiency at a plant, occupying those involved in plant safety for extensive periods of time and consuming a much greater amount of plant resources. All told, the annual costs would be disproportionate to the benefit.

Furthermore, ACC has serious security concerns with third-party audits that are not present with self or second-party audits. Third-party auditors would be granted, by regulatory mandate, unprecedented access to intimate details of a company’s operations. The required use of third-party auditors exposes a company’s intellectual property to financial and even security risks. Allowing external personnel to review technical details, company confidential business information, and trade secrets may impact a company’s otherwise protected intellectual property and discourage innovation. More broadly, ACC remains skeptical regarding the qualifications of third-party auditors. If third-party audits are eventually required, ACC would want additional information regarding any mandatory threshold qualifications and background checks. Right now, based on ACC members’ experiences, there is a dearth of quality third-party contractors available for PSM audits.

ACC opposes increasing the frequency of audits, or any such measure for similar reasons, including lack of compelling reasons to do so. As described in greater detail directly above, PSM audits are extremely intensive by nature. Due to the high volume of PSM program elements that are reviewed, each audit represents a burden on the employer. Against this, OSHA has offered no persuasive supporting data to justify any such change. Moreover, revising Section 1910.119(o) to require specific mitigation timeframes will not increase worker safety. The current performance-based requirements in Section 1910.119(o) provide PSM-covered facilities the flexibility to address the deficiency in an appropriate timeframe to prevent worker injuries. Appropriate mitigation timeframes are dependent on the specific industry and facility, as well as the degree of hazard that is posed by the deficiency. No two audits and no two recommendations are identical, as some can be implemented prior to completion of the audit while others may take years, requiring significant capital investment for safe and effective implementation. In fact, requiring specific timeframes may have adverse safety impacts, such as encouraging “quick fixes” and under-prioritizing more urgent projects to meet deadlines. Instead, it should be acceptable for companies to have a written action plan for items requiring mitigation measures.
In conclusion, ACC firmly believes that OSHA must provide owners/operators the discretion to choose the audit method most suited to their unique operations. OSHA has not established that the required use of a third-party for PSM audits would increase safety industry-wide compared to the company audits now being conducted. OSHA should not overlook the plethora of benefits that stem from company audits, which are missing entirely from third-party audits. If OSHA has data that shows that some outlier companies are not conducting robust audits, ACC suggests that OSHA provide additional guidance, information, tools, and/or training materials on how to conduct quality audits.

I. ACC Comment On Revising 29 C.F.R. §§ 1910.106 And 107 To Incorporate NFPA 30 (Change Option 14)

OSHA CHANGE OPTION 14

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 standards.[FN17] OSHA seeks recommendations on updates that should be considered and comments on how such updates will lead to increased worker protection.

OSHA Must Demonstrate Significant Risk Before Revising 29 C.F.R. §§ 1910.106 And 107 To Incorporate The Current Version Of NFPA 30

ACC understands that the current version of 29 C.F.R. § 1910.106 is based on the 1971 version of NFPA 30. ACC has undertaken a detailed side-by-side evaluation of 29 C.F.R. § 1910.106 and the current version of NFPA 30 (2012). There are, as noted in the RFI, significant formatting changes. However, we believe that many of the substantive technical requirements in the current version of NFPA 30 are identical, or nearly identical, to the information contained in 29 C.F.R. § 1910.106.

ACC does not believe that updating for formatting reasons alone warrants a reopening of the 29 C.F.R. § 1910.106 standard. Instead, OSHA should perform its own comprehensive comparison, identify changes that OSHA considers substantive, and propose, if appropriate, changes to 29 C.F.R. § 1910.106 based on its analysis, noting the differences from current requirements and the reasons for a proposed change.

J. ACC Comments Regarding PSM Exemption For Retail Facilities (Change Option 16)

OSHA CHANGE OPTION 16

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
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:

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.


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.

OSHA Needs To Analyze The Data And Assess The Risk, If Any, Posed By Exempted Retail Facilities Before It Considers Revising The PSM Standard

ACC understands OSHA’s concerns regarding its inconsistent position on what facilities fall within the retail-facilities exemption. As with manufacturing and storage facilities, if OSHA believes that retail facilities present a significant risk of harm—and OSHA establishes significant risk through its data review and analyses—the Agency should propose specific amendments to the PSM standard to cover the “retail facilities” associated with such risk. In the meantime, OSHA enforcement should be based on existing law. Any expansion of coverage for retail facilities should proceed, if justified, through rulemaking and not through enforcement efforts.

K. ACC Comments Regarding Enforcement Policy For Appendix A (Change Option 17)

OSHA CHANGE OPTION 17

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 Direction 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.[FN20] 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. OSHA believes this represents a more practical, consistent, and straightforward approach to coverage of Appendix A chemicals under the PSM standard.

OSHA Must Undertake Scientific Analyses And Establish Significant Risk Before Any Enforcement Changes Are Made For Appendix A Chemicals

PSM Appendix A lists highly hazardous chemicals and threshold quantities that must be met to establish coverage. Although Appendix A provides specific concentrations for 11 of its listed chemicals, the standard does not address concentrations for the remaining 126 listed chemicals. ACC recommends that OSHA use a formal scientific-based approach to evaluate chemicals so that OSHA can demonstrate that any proposed changes to the PSM standard would actually enhance worker safety.

ACC agrees with OSHA that the language in the standard addressing mixtures containing listed chemicals is unclear and requires clarification. However, ACC does not agree that OSHA should adopt the approach used by EPA in the RMP. It would not be feasible to use the EPA 1% concentration criteria in OSHA’s PSM standard because there are multiple additional
requirements to establish a full EPA RMP Prevention Program (Program 3) in the EPA RMP rule. These additional criteria, such as off-site injury and distances to toxic or flammable endpoints for worst-case release assessments, are related to off-site impacts and are outside of OSHA’s jurisdictional scope. In addition, these supplemental criteria substantiate that the mixture poses an off-site hazard. Although EPA policy requires evaluation of all mixtures greater than 1%, only those mixtures that have concentrations large enough to be a potential off-site hazard require establishment of a full EPA RMP Prevention Program (Program 3).

Instead, ACC encourages OSHA to clarify the requirements for chemicals listed in Appendix A without specific concentrations. In particular, mixtures containing more than the threshold quantity as set forth in Appendix A, but are at such a low concentration so as not to constitute a hazard, should be identified as outside the scope of PSM’s coverage.

III. CONCLUSION

As reiterated throughout these comments, ACC believes that OSHA has not established the existence of substantial risk of harm in this RFI to justify reopening its PSM regulation (and related regulations, such as 1910.106). In fact, based on the experiences of our members, ACC believes that compliance with the standards already in place manages process safety risk. The current PSM regulation is not the real issue—instead, PSM-related safety accidents, including those cited throughout the RFI, consistently involve outlier companies that are not in compliance with some or all aspects of the current PSM regulation. ACC believes that the most valuable step OSHA could take to improve worker safety is through increased PSM awareness, training, and enforcement of existing regulations. Proposed changes to OSHA’s PSM regulation will not improve safety for companies that have already created a safe environment through fulfillment of the current standards and consistently do so over time. It also will not increase the safety of workers at companies that aren’t in compliance with existing regulations.

Certain proposed changes represent a drastic departure from the current PSM regulatory framework, without any showing of a corresponding benefit to workplace or employee safety. In particular, ACC opposes prescriptive recommendations that will chip away at the discretion given to employers through the performance-oriented PSM standard. Indeed, as explained in the Preamble to the Final Rule, the current standard received much support precisely because of its performance-oriented nature, which is built upon industry’s knowledge and capability to address all manner of site-specific safety concerns. See 57 Fed. Reg. at 6360 (Feb. 24, 1992). For all of these reasons, ACC disagrees with the RFI’s proposed changes that mandate a one-size-fits-all approach, thereby limiting employers’ ability to react to the real facts on the ground. For example, employers must be able to shape RAGAGEP applicable to a particular site based on internal standards, consensus codes, and/or engineering determinations and analyses. Given the diverse nature of chemical industry operations, ACC knows that a flexible and performance-oriented approach to RAGAGEP will best protect workers from risk of harm. Similarly, considering the numerous benefits of company-led audits over third-party audits, employers must be afforded the discretion to choose between self, second-party, and third-party audits. Ultimately, each employer is in the best position to make these and other similar safety decisions, by evaluating its own equipment, onsite materials and chemicals, expertise, organizational structure, and operations.
ACC supports OSHA’s overall goal of improving process safety and appreciates the vital role of OSHA’s PSM standard in effectuating this goal. ACC therefore urges OSHA to carefully consider its approach, recognizing that there are many variables and complexities inherent in regulating PSM.

Nonetheless, after considering ACC’s comments and those of others, if OSHA decides to proceed with a formal rulemaking, ACC believes it should do so by first issuing an ANPRM and presenting appropriate data and analyses to support any proposed revisions to the PSM standard. OSHA should also convene a SBREFA panel, and grant stakeholders sufficient time and opportunity to participate in the OMB-required peer review process.

We hope that OSHA will find our contribution helpful. Should you have questions about our input, please contact me by phone at (202) 249-6426 or by e-mail at Rachel_meidl@americanchemistry.com. Thank you for the opportunity to submit comments on this matter.

Respectfully submitted,

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EXHIBIT 1

THIRD-PARTY PSM AUDIT ANALYSIS
ACC COMMENT ON OSHA DOCKET NO. OSHA-2013-0020
BACKGROUND
In OSHA’s Request For Information (RFI) on potential revisions to its Process Safety Management Standard (PSM) (12/9/13), the agency requests comments on revising paragraph (o) of the PSM standard to require third-party compliance audits. Currently, many facilities conduct PSM compliance audits using expertise from within their own companies (self-audits or second-party\(^1\) audits) or by bringing in consultants (third-party audits).

CHALLENGES OF MANDATING THIRD-PARTY AUDITS
Because significant process safety and engineering expertise resides within companies regulated by PSM, self or second-party audits have been an effective tool for monitoring compliance with the PSM rule since 1992. Currently, companies typically only engage a consultant to conduct third-party audits when the expertise to conduct a comprehensive and thorough audit does not exist in-house or is otherwise unavailable. Beyond the higher cost of hiring a consultancy, there are several important considerations.

- Consultants may not be as familiar with a facility or process or may be inexperienced. Some process safety consultants are not trained to do “compliance” audits. Audits by inexperienced or under-experienced consultants are unlikely to improve safety.
- Audits can be technically challenging, including PHAs, evaluation of mechanical integrity, etc. It may be challenging to match the specific skills required with an audit.
- It is not clear that there is a sufficient number of qualified process safety consultants to conduct audits of roughly 10,000 PSM-regulated facilities\(^2\) each year.
- If there are issues, companies need an audit team that is able and willing to dig deep and go the extra mile to identify potential safety issues.
- Exclusive use of third-party auditors would limit learning opportunities for self or second-party auditors that can take back lessons learned to their own facilities.

PROCESS SAFETY AUDITS
A typical process safety audit team consists of 3-6 technical professionals with backgrounds in various engineering specialties in addition to regulatory requirements. These professionals work at other manufacturing facilities throughout the company and can also include corporate EH&S personnel. The composition of the audit team may depend on the type of process and materials at the facility, in addition to other variables. A typical audit includes the following elements.

- Preparation in advance of the audit (1-2 days)
- Audit (1-2 weeks depending on facility size/complexity)

\(^1\) Second-party auditors are company auditors not directly responsible for the area being audited.
\(^2\) There are approximately 30,000 PSM-regulated facilities. Each of the 30,000 facilities is audited once every three years. Thus, approximately 10,000 PSM-regulated facilities are audited each year.
- Post-audit review and report (1-2 days)
- Travel time and expense (varies)

The length of time to conduct the actual audit depends on the size and complexity of the facility being audited. Based on discussions with ACC members, below are some rough assumptions on the length of an audit and audit team sizes for small, medium, and large industrial chemical manufacturers:

<table>
<thead>
<tr>
<th></th>
<th>Hours per auditor</th>
<th>Number of auditors</th>
<th>Total audit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (fewer than 50 employees)</td>
<td>40</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td>Medium (50 - 300 employees)</td>
<td>40</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>Large (more than 300 employees)</td>
<td>80</td>
<td>6</td>
<td>480</td>
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</table>

Consultants vary considerably in both skill and cost. Hourly fees for consultants range from $150-$500 per hour. These hourly rates are nearly 3-9 times higher than the median hourly rate for chemical industry engineers that would likely participate in third-party audits. Thus, the cost of a single third-party compliance audit for a medium-sized company could be as high as $33,600 to $112,000. Even offsetting this with the opportunity cost of company personnel involved in self or second-party audits, the cost per audit remains high at $21,300 to $99,700. This range is based solely on hourly rates. Due to limitations regarding the timing of this submission, this number assumes that the number of hours spent on a single audit is identical for each type of audit (self, second, and third-party). However, ACC members report that third-party audits typically are lengthier than self or second-party audits. Thus, the true cost of third-party audits is greater than $21,300 to $99,700 per audit. In addition, the range of $21,300 to $99,700 merely represents the cost per audit. Many companies have several facilities that would need to be audited each year. Thus, this cost would be multiplied several times over. Given that the majority of PSM-regulated facilities are at small and medium-sized companies, this presents a significant cost burden.

<table>
<thead>
<tr>
<th></th>
<th>Third-Party (Low)</th>
<th>Third-Party (High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Auditors</td>
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<tr>
<td>Hours to Conduct Audit Activities</td>
<td>224</td>
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<tr>
<td>Pre-audit preparation</td>
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<tr>
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<tr>
<td>Average hourly wage</td>
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<td>$500</td>
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<td>Travel time and costs</td>
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<tr>
<td>Total Cost of Third-Party PSM Audit</td>
<td>$33,600</td>
<td>$112,000</td>
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CONCLUSION

While perhaps well-intentioned, the required use of third-party audits is unlikely to improve safety for reasons cited above. In addition, the requirement will add a significant cost burden to companies that have qualified and appropriate technical expertise on staff already, particularly to small and mid-size facilities.
EXHIBIT 2

ACC RESPONSE TO CSB SAFETY CASE REPORT
ACC COMMENT ON EXECUTIVE ORDER 13650
January 3, 2014

SUBMITTED VIA E-MAIL

U.S. Chemical Safety and Hazard Investigation Board
Office of Congressional, Public, and Board Affairs
2175 K Street, NW, Suite 650
Washington, DC 20037
By electronic submission: chevroncomments@csb.gov

Attn: R. Moure-Eraso

Interim Investigation Report: Chevron Richmond Refinery Pipe Rupture and Fire Regulatory Report

Dear Dr. Moure-Eraso:

The American Chemistry Council1 (ACC) is pleased to provide a written response to the U.S. Chemical Safety and Hazard Investigation Board’s (CSB) December 16, 2013, Regulatory Report of the Chevron Richmond Refinery Fire.

As you know, ACC and its member companies have a considerable interest in the CSB’s work. Safety has always been a primary concern of ACC members; both ACC and its individual companies have been recipients of and benefitted from CSB safety recommendations. We value CSB’s independent and technical insight and we utilize the lessons learned from incidents to improve performance as well as standards and practices. The CSB investigation of the Chevron Richmond refinery accident and subsequent recommendations will be important to help determine what actions might be considered based on the root causes of this incident and will ultimately influence the direction of the regulated community in that regard.

ACC’s comments focus on the agency’s recommendations concerning the safety case regulatory regime. We have a number of strongly held concerns regarding the potential implementation of the safety case regime which we have highlighted in our attached comment letter.

1 ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people’s lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $760 billion enterprise and a key element of the nation’s economy. It is the largest exporting sector in the U.S., accounting for 12 percent of U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation’s critical infrastructure.
ACC also supports the separate comments filed by the American Petroleum Institute and the American Fuel & Petrochemical Manufacturers.

We hope that CSB will find our contribution helpful. Should you have questions about our input, please contact me by phone at (202) 249-6426 or by e-mail at Rachel_meidl@americanchemistry.com.

Regards,

Rachel A. Meidl
Director, Regulatory & Technical Affairs
American Chemistry Council
700 Second Street, NE
Washington, DC 20002

Jonathan L. Snare
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004
January 3, 2014

U.S. Chemical Safety and Hazard Investigation Board
2175 K Street, NW
Washington, DC  20037

By electronic submission: chevroncomments@csb.gov

Re:   Comment on Regulatory Report No. 2012-03-I-Ca, Draft for Public Comment, Chevron Richmond Refinery Pipe Rupture and Fire (December 2013)

The American Chemistry Council ("ACC") is America’s oldest trade association of its kind, representing companies across the United States engaged in the business of chemistry. ACC appreciates and supports the U.S. Chemical Safety and Hazard Investigation Board’s ("CSB’s") efforts to protect the safety and health of workers, the public, and the environment from industrial chemical accidents. Furthermore, ACC shares the CSB’s goals of ensuring that process safety is handled and implemented as safely as possible. CSB incident investigations can play a key role in understanding accidents at chemical facilities and refineries and ensuring that similar accidents are prevented in the future.

Workplace safety and process safety are top priorities of ACC and its members. To become a member of ACC, a company must commit to the highest standards for protecting health, safety, and the environment through participation in the Responsible Care® program. All ACC members are required to implement the Responsible Care® Process Safety Code of Management Practices, which specifically addresses process safety concepts such as leadership, accountability and culture in order to drive overall process safety performance improvement. This code complements existing regulatory requirements, such as the Occupational Safety and Health Administration’s ("OSHA’s") Process Safety Management ("PSM") standard and the Environmental Protection Agency’s ("EPA’s") Risk Management Plan ("RMP") rule.

While ACC shares the CSB’s goals as described above, ACC has a number of concerns about the recommendations in the CSB’s December 2013 Draft Regulatory Report for Public Comment (the “CSB Report”) to the State of California regarding the establishment of a safety management regulatory framework based on “safety case” principles.² In particular, ACC believes that its members, through OSHA’s current PSM standard and voluntary programs such as Responsible Care®, already address the continuous improvement goals detailed in the CSB Report. ACC further believes that the recommended safety case regulatory regime is not justified by the reasons articulated in the CSB Report, nor would the safety case framework actually achieve the desired results and benefits for covered workplaces. ACC also is concerned that the drastic changes contemplated by the recommended safety case framework would result

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² ACC has similar concerns regarding the CSB’s recommendations to OSHA, which are less defined than those to California, to the extent that the CSB suggests the implementation of a safety case regime. The safety case regime described by the CSB starkly conflicts with OSHA’s performance-based PSM standard.
in a wide variety of practical problems if implemented. As outlined in detail below, ACC believes that certain recommendations in the CSB Report ultimately would detract from worker safety and create an atmosphere of uncertainty and confusion for employers and regulators alike.

A. The CSB’s Proposed Safety Case Regulatory Regime Represents A Drastic Policy Change From The Current Regulatory Framework With No Corresponding Benefits For Workplace Safety

The CSB Report describes the safety case regulatory regime as a “rigorous prescriptive and goal-setting regulatory approach applied globally both onshore and offshore.” See CSB Report at 9. Under this regime, “[a] written case for safety, known as the safety case report, is generated by the duty holder and is generally rigorously reviewed, audited, and enforced by highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee.” See id. Moreover, “[i]n order for the facility to begin operation or remain in operation, the regulator must ‘accept’ the facility’s safety case report.” See id. at 39.

This proposed framework shifts the burden to the regulator to review and evaluate a wide set of site-specific information, which regulators will be ill-equipped to handle, without any objective measures. ACC believes that the current framework of PSM is better suited to achieve the CSB Report’s purported justification of improved workplace safety. Under the current well-recognized regulatory framework, which provides employers with the necessary discretion to tailor safety processes to the specific conditions of each worksite, ACC members supplement the PSM elements and implement a program that includes many of the elements in the safety case framework. For more details, see Section C below.

Under OSHA’s PSM standard, an employer team with expertise in engineering and process operations must address the hazards of the process, identification of prior incidents that had potential for catastrophic consequences, engineering and administrative controls (and their interrelationships and the consequences of their failures, including a qualitative evaluation of possible safety and health effects on employees), facility siting, and human factors. See 29 C.F.R. § 1910.119(e)(3). After notice and comment rulemaking, OSHA modified Subsection 1910.119(e) “so that employers are not required to implement every recommendation offered by a Process Hazard Analysis Team,” although employers must consider all recommendations. See Preamble to Process Safety Management of Highly Hazardous Chemicals, Explosives and Blasting Agents, 57 Fed. Reg. 6356-01 (Feb. 24, 1992) (“PSM Preamble”) (emphasis added). As clearly stated in the PSM Preamble, “[i]t is critically important that a PHA Team have freedom to make broad recommendations, at risk of being wrong . . . . [W]hen a team recommendation is incorrect, the employer can analyze it and then document in writing why the recommendation is not being adopted or is being adopted with modification.” See id. (emphasis added). OSHA intentionally delegated the responsibility to evaluate and reject or implement site-specific recommendations to the employer. The employer, after all, is most familiar with the site, safety concerns, and practical hurdles to and consequences of operational changes.

In contrast to the current OSHA (as well as California OSHA) programs, under the proposed safety case regime, regulators who are not intimately familiar with technical aspects of the worksite or involved in process safety analyses would make the ultimate decision to accept or reject a safety program. Again, the CSB Report’s safety case regime requires up-front
“acceptance” from “highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee.” See CSB Report at 9. General industry knowledge from inspectors, however, may not be enough; ACC respectfully submits that individual facilities, with onsite safety experts and engineers who are intimately familiar with the jobsites, have the most sophisticated understanding of site-specific safety conditions. ACC is concerned that a safety case regulatory regime ultimately would deprive employers the necessary discretion over how best to handle safety on their particular worksites. Prior acceptance by inspectors with unknown backgrounds who are unfamiliar with the jobsites would impede an employers’ ability to make safety decisions quickly and effectively. ACC believes that shifting responsibility to approve safety decisions from employers to inspectors, who inevitably will be less familiar with the jobsites, would be ill-advised.

In addition to practical and efficacy concerns, the safety case regime outlined in the CSB Report represents a major policy shift that would create significant legal issues if implemented by the State of California as recommended by the CSB. See CSB Report at 90-91. If implemented in California first, without any corresponding change to the federal system, the end result will be two completely different regulatory regimes governing process safety. On one hand, for the federal system, ACC members are (and would continue to be) subject to OSHA’s PSM standard, which is a performance-based standard; yet, if California agreed to implement the CSB’s recommendations, ACC members in that state would be subject to a completely different regulatory regime. See CSB Report at 90-91. Section 18 of the Occupational Safety and Health Act of 1970 (“OSH Act”), 29 U.S.C. § 667, allows states to develop and operate their own safety and health programs in the workplace with approval and monitoring from OSHA. OSH Act Section 18(a) permits states to assert their own standards in the absence of federal laws: “Section 18(a) has been consistently interpreted by OSHA and the courts to bar the exercise of state jurisdiction over issues addressed by an OSHA standard, even where the state law may arguably be more stringent or where OSHA has not explicitly addressed a provision.” N.J. State Chamber of Commerce v. New Jersey, 653 F. Supp. 1453, 1464 (D.N.J. 1987) (citations omitted) (holding that a federal OSHA asbestos training program preempted a New Jersey program). ACC does not believe that California would have the legal authority to implement such a drastic change to the regulatory requirements for process safety—a change that is completely different from the federal regulation. If California did take steps to implement these recommendations, such a proposal likely would be pre-empted by federal OSHA. Simply put, any goal-oriented safety case regulatory regime in California would be on dubious legal footing, given OSHA’s preemption of this area of law through the performance-based PSM standard.

Moreover, state plan state programs must be “at least as effective in providing safe and healthful employment and places of employment as the standards promulgated [by federal OSHA].” OSH Act Section 18(c)(2) (emphasis added). Thus, under the OSH Act, federal OSHA establishes the baseline for worker safety that state plan states must meet or exceed. Here, ACC does not believe that the safety case regime is as effective as the federal PSM program, and the CSB has cited little to no statistical or other evidence establishing that a safety case regime would be as effective as the PSM. In fact, the CSB Report itself laments that “[u]nfortunately, there have been few objective studies conducted on the impact of the safety case regulatory approach on safety performance onshore and offshore.” See CSB Report at 109. Indeed, the ACC has identified studies that seriously call into question the efficacy of the safety
case regimes. See, e.g., Nancy Leveson, MIT White Paper on the Use of Safety Cases in Certification and Regulation (2011) (see sections on Potential Limitations of Safety Cases, Experience with Safety Cases, and Practical Considerations in the Use of Safety Cases). The CSB Report itself acknowledges many of these widely documented problems with the implementation of the safety case regime. See CSB Report, Appendix B at 110-12. Thus, any safety case regime implemented by the State of California would be subject to legal challenges under Section 18 of the OSH Act on that basis as well. Note that additional legal issues with the safety case regime, such as the use of vague and subjective evaluative criteria and the lack of objective benchmarks for employers to follow, and the resulting lack of notice to employers for compliance purposes, are discussed in greater detail below.

Finally, ACC believes that the CSB has grossly underestimated the budget and personnel resources necessary to implement a safety case regime, not to mention the resource commitment required to ensure that such a regime is in any way effective. The CSB Report does state that the safety case regime could only succeed if the relevant state or federal agency undertook significant commitments to its implementation, including:

- an “independent, well-funded, well-staffed, technically competent regulator”; and
- a compensation system to ensure that the regulator can attract employees “with the necessary skills and experience to ensure regulator technical competency.”

See CSB Report at 90-91 (outlining recommendations to California and OSHA). The CSB essentially admits that the program could only work if fully staffed with experts to implement the regime’s procedures and set its limits, including staff with appropriate technical backgrounds and industry experience to evaluate and approve Safety Case Plans. Yet, at the same time, the CSB acknowledges that programs with similar upfront inspection goals have failed due to resource limitations, such as, for example, the inability of the EPA to conduct proactive audits of RMPs. See CSB Report at 62-63 (the “EPA has not effectively implemented the audit and inspection elements” of RMP; according to IG report, 50 percent of high-risk RMP sites have never received an on-site inspection and over 65 percent of all RMP sites have never received an on-site inspection since the program began in 1999). ACC understands that there are approximately 14,000 RMP sites in the United States, and ACC believes that the number of refineries and other facilities envisioned to be covered under the CSB’s proposed safety case regime would be even greater. Taking these numbers as a baseline, ACC finds it difficult to believe that there is any realistic way for the federal government to find and hire sufficiently trained inspectors to handle the duties envisioned by the CSB. This same concern applies equally to the CSB’s proposal for California, as the same resource constraints would apply in proportion to the number of covered sites in that state. At the end of the day, ACC believes that the lack of staff sufficiently trained to properly evaluate and enforce such complex regulatory requirements would lead to a chaotic and ineffective regulatory regime, and would doom this program to failure.

In summary, ACC believes that the current framework under the PSM standard with performance-oriented requirements best addresses process safety management objectives. A dramatic shift to an entirely new regulatory framework is neither warranted nor justified. At this point, OSHA is in the process of undertaking a review of PSM to follow up on Executive Order

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3 ACC notes that it already implements a program that involves third-party audits under its Responsible Care® program (in addition to the continuous and ongoing efforts on process safety undertaken by ACC members at their facilities), as discussed in more detail in Section C of this letter.
No. 13650 (August 1, 2013) through the Request for Information ("RFI") on Process Safety Management and Prevention of Major Chemical Accidents (RIN 1218-AC82) issued on December 9, 2013. ACC looks forward to participating in the RFI and working with OSHA on these issues in a transparent Administrative Procedure Act ("APA") rulemaking process in the near future.

B. **Regulators’ Review Of Subjective Criteria Without Objective Benchmarks Under The Recommended Safety Case Framework Would Be Practically Difficult To Implement And Follow**

The safety case regime described in the CSB Report would require inspectors to review a safety case for “acceptance” through use of subjective criteria that lack objective benchmarks. Although the Report calls for “highly technically competent inspectors with skill sets familiar to those employed by the industries they oversee,” inspectors’ ability to accurately evaluate these factors, and to do so consistently across local offices of regulators and facilities, is questionable. These factors are inherently subjective and difficult to review without extensive training and knowledge of the site, the organization, and its history.

Allowing inspectors to evaluate such subjective criteria raises practical issues over what various regulators will require. Currently, the standard that would be imposed by investigators for approval is vague and provides little notice of what constitutes compliance. For example, the anticipated application of the As Low As Reasonably Practical ("ALARP") standard by regulators is extremely unclear – how will inspectors evaluate whether a facility has satisfied the “reasonably practical” standard? Will different offices of the regulatory agency (such as Cal-OSHA under the proposed recommendations) have differing positions on what is required to be in compliance with these inherently subjective factors? Would the State of California or OSHA be willing to define the criteria for what is reasonably practical, and publish this for use among all the facilities to ensure that consistent criteria are applied? How would an inspector be able to ascertain ALARP standards without a roadmap for tracing the unit’s assessment process for each element under question? An employer, and not a regulator, is in the best position to know what is reasonably practical within the framework of its own risk evaluation process, experience, incident history, engineering assessment, and other self-analytical tools.

Along the same lines, the CSB does not explain what standard a regulator must follow before an employer’s safety case is “accepted.” Unless quantified and/or delineated criteria are published, the regime will be ineffective and provide little notice as to what is actually required of employers. There will be a strong risk that disparate, incongruous “acceptable” solutions will exist, depending on the individual inspectors involved, simply because there are no set standards. In short, the safety case framework purports to be a prescriptive regime that requires employers to meet a minimum benchmark of acceptability, yet the CSB Report fails to set forth any clear benchmarks or articulate how such benchmarks would actually be developed and ultimately communicated to stakeholders.

This uncertainty created by the CSB proposal raises legal issues as well. A regulation is “unconstitutionally vague under the due process clause of the Fifth or Fourteenth Amendments if it ‘forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application.’” *Ga. Pac. Corp. v.*
Occupational Safety & Health Review Comm’n, 25 F.3d 999, 1005 (11th Cir. 1994) (citation omitted) (finding the phrase “obstructs forward view” to be insufficiently defined, and therefore unconstitutionally vague); see also Diamond Roofing Co. v. Occupational Safety & Health Review Comm’n, 528 F.2d 645, 649 (5th Cir. 1976) (“[A]n occupational safety and health standard must give an employer fair warning of the conduct it prohibits or requires.”). ACC believes that the elements of the safety case regime that an employer is required to follow before the safety case is “accepted” by the regulator (to allow the employer to use or operate its facility) are unacceptably subjective and unclear. The essence of the CSB proposal for safety case is succinctly stated on page 37 of the Report: “the onus is on the duty holder [i.e., employer] to prove to the regulator that the company’s processes, methodologies used to assess risks, and reasoning for choosing one control over another have substantially reduced risks to as low as reasonably practicable (ALARP), or equivalent.” See CSB Report at 37 (emphasis added). In practical reality, employers would simply not have notice as to what is required of them. Employers – including ACC members – would be subject to oversight by a regulator (no matter how well trained) with less of an understanding of its particular site on the wide range of complex issues at stake in the development of the appropriate process safety.

ACC submits that it is impractical for the CSB to expect California (or any other regulatory agency, federal or state) to be in a position to issue sufficient guidance to enable stakeholders to understand what would be expected of them for compliance purposes under this regime. Rather, ACC believes that if such a proposal were enacted, the result would be confusion, inconsistent application, and delays for stakeholders before taking necessary steps forward in process safety (as any decision such as the follow-up to a process hazard analysis (“PHA”) or a Management of Change would be subject to review by the regulator under this system). Ultimately, any discretion present in the current performance system under PSM would be eliminated, along with the flexibility normally envisioned with performance-oriented regulatory systems.

C. Employers – Not Regulators – Are In A Better Position To Implement Many Of The Elements Of These Recommendations

The CSB justifies its recommendations for the safety case regulatory framework based on an assumption that the current PSM framework is “reactive” and “activity based,” and that the PSM has become static and does not address the development of new technology, new safety approaches, and “advancing best practices.” See CSB Report at 9. The CSB contends that the current system is so focused on specific tasks and activities that it does not drive the achievement of continuous risk reduction. See id. Thus, the CSB advances the argument (relying on an unsupported third party report) that the PSM system is a “minimum cost” and “compliance based approach,” in which employers purportedly take the approach that if it is not a “regulatory requirement,” then they will not actually comply. See id. at 30. The CSB also raises the concern that the PSM regulatory framework does not direct employers to develop a holistic safety management system approach to process operations. See id. at 29-32.

In the alternative, the CSB outlines what it describes as the “key features” of an “effective major accident prevention” approach such as the safety case regime: (1) duty holder safety responsibility, including a written case for safety; (2) continuous Risk Reduction to ALARP; (3) adaptability and continuous improvement; (4) active workforce participation;
(5) Process Safety Indicators that drive performance; (6) regulatory assessment, verification and intervention; and (7) an independent, competent, well-funded regulator. See CSB Report at 36.

ACC strongly disagrees with these purported observations and conclusions. The chemical industry, without the direction of regulators, continues to challenge its understanding of process safety through the ongoing development of hazard identification and analysis tools. For example, the industry has gone beyond the requirements of PHA through enhanced self-analytical processes with layer of protection analyses (“LOPAs”), fault tree and event tree analyses, as well as full-blown quantitative risk analyses.

Since promulgation of the PHA and PSM, the chemical industry continues to strive for improvement. For example, ACC and its members already have taken the lead in developing a new paradigm of process safety that not only complements the current regulatory structures (PSM and RMP), but goes beyond the current regulatory requirements to require the broad framework of a safety management system. This system results in a culture of continuous improvement, all without the intervention of a regulator and under the discretion of the employer who has better understanding of the specific workplace conditions. ACC requires each member to achieve certain goals in the Responsible Care® Management System and the RC14001® Technical Specifications, including the following: (1) to make continual progress toward the aim of no accidents, injuries, or harm to human health or the environment; (2) to design and operate facilities in a safe, secure, and environmentally sound manner; (3) to install a culture throughout all levels of member organizations to continually identify, reduce, and manage process safety risks; (4) to support research on the health, safety, and environmental effects of member products and processes; and (5) to communicate product, service, and process risks to our stakeholders. Conformance to these goals and practices is confirmed through third party audits conducted on ACC members.

Specifically, each ACC member must commit to implementing and adhering to the following process safety management practices:

(1) Leadership and Culture – Senior management and leadership are committed to establishing and communicating process safety as a core value and enforcing high standards of performance at all levels within the organization. Company leadership also promotes and develops a process safety culture within the organization, encouraging openness to raise concerns and identify opportunities for improvement.

(2) Accountability – Process safety roles and responsibilities across the organization are clearly defined and include an expectation to identify, and authority to respond to, process safety concerns. Senior leaders are held accountable for process safety performance, while employees understand the importance of process safety as it applies to their jobs and are responsible for following and contributing to the work processes to achieve improvement in company process safety performance.

(3) Knowledge, expertise and training – Process safety competency requirements are established and executed for management, engineering, and operational
personnel, as well as contractors and third-party service providers, commensurate with the activities performed.

(4) Understanding and prioritization of process safety risks – Member companies identify and understand the hazards and risks of their processes and implement systems for documenting and accessing comprehensive and current information on process-related hazards and risks to enable informed decision-making.

(5) Comprehensive process safety management system – Member companies design systems to manage and mitigate identified risks with adequate safeguards. Management of process safety considers: passive controls; engineering controls; operational controls; inherently safer approaches; inspection, maintenance, and mechanical integrity programs; management of change procedures; and scenario planning.

(6) Information sharing – Member companies establish processes fostering two-way flow of information between management, employees, contractors and other stakeholders to share process safety information, ensuring that experiences from process safety reviews, inspections, audits, and incident and near-miss investigations are shared, as relevant, across the company in a timely manner.

(7) Monitoring and improving performance – Senior management and leadership continually monitor process safety performance through routine evaluation of process safety management systems, independent of regulatory audits, to confirm that the desired results are achieved, using appropriate leading and lagging indicators. Results are reviewed at planned intervals to determine progress against process safety performance expectations and to take action to improve performance when needed.

Under the Responsible Care® program, each ACC member is required to demonstrate compliance with each of these elements. Thus, members not only already implement so-called “key features” identified by the CSB as the justifications for the safety case proposal, but, in fact, go beyond what the CSB suggests in its safety case proposal.

For example, the CSB states that one of the “key strength[s]” of the safety case regime is that it provides the regulator “with the tools to drive continuous improvement” to reduce risks to ALARP, rather than “focusing on compliance with activity-based regulatory requirements.” See CSB Report at 43. Yet, ACC members already implement a wide variety of steps to achieve the goal of continuous improvement and risk reduction to ALARP; those steps include the development and implementation of a comprehensive process safety management system to manage process risks and the development of a safety culture to manage those same risks. ACC members already undergo third-party audits to demonstrate compliance with this program. ACC believes that its members are best situated to take the lead role in developing and overseeing programs suited for their particular facilities, rather than the approach envisioned by the safety case regime where the regulator (without any history or knowledge of a particular facility) must review and oversee the program. Further, ACC does not agree with the CSB regarding the need to completely redesign the approach to process safety where ACC members already have a program in place addressing the “key features” cited by the CSB to justify the safety case regime.
D. The ACC Has Significant Legal Concerns (Including Due Process Concerns) Regarding The Recommendations To Implement New Requirements Without The Need For Rulemaking

ACC is concerned that the safety case regulatory regime opens the door for backdoor rulemaking without the required notice and comment. Specifically, the CSB Report includes the following recommendation: “Ability to adapt and implement safety requirements in response to newly identified hazards, advances in technology, lessons learned from major accidents, and improved safety codes without the need for new rule-making.” See CSB Report at 90 (emphasis added); see also id. at 89 (“The safety case provides the adaptability necessary to keep current with improving standards and advancing technology, without requiring lengthy and often unproductive rulemaking on the part of the regulator.”) (emphasis added)); id. at 48 (“The cumbersome rulemaking process and lack of flexibility that has resulted in stagnant and static OSHA standards can be contrasted with the structure of the safety case regulatory regime, which facilitates adaptability and enables the regulator to improve industry safety performance and practices without requiring a major rule change.”) (emphasis added)).  

The CSB press release issued on December 16, 2013 in connection with the release of the Report provides further clues as to this approach: “Under a safety case system, changing safety standards, new technologies, and findings from accident investigations are required to be incorporated by facilities.” The CSB further states in this press release that one of the justifications for this approach is that it has issued a number of process safety regulations from its investigations, yet “none of these important regulatory recommendations have been implemented.” See CSB Press Release (Dec. 16, 2013). In effect, the CSB approach would grant unprecedented leeway in setting requirements beyond the current legislative checks and balances, and opens the door for short-circuiting the rulemaking process altogether.

This recommended back-door rulemaking is of grave concern to ACC and the general public. ACC members would be faced with the obligation to implement “advances in new technology” without any regulator having to determine through APA rulemaking whether there is significant risk and without having to establish the necessary feasibility requirements. ACC members would then be obligated to follow these new requirements without the opportunity to participate in the APA rulemaking process (and presenting any input and/or practical issues with any such proposal). ACC has the same concerns regarding the obligation to implement

4 The CSB goes on to argue that the safety case “essentially provides the regulator with the tools to recognize more rigorous standards and practices that exist and drive a company to implement those practices to further reduce risks, as well as work with industry to improve existing standards and practices if necessary. It also enables companies to implement new, more efficient or safer technologies that do not necessarily meet strict prescriptive regulation, but that drive risk reduction.” See CSB Report at 48. In addition to the obvious concern of ACC that the CSB’s proposition would end-run the current APA regulatory requirements (creating a number of legal and due process issues discussed throughout this comment), ACC notes that its members already take steps to implement “new,” “more efficient,” and “safer” technologies under the current regulatory regime, without any regulatory requirement to do so. Moreover, as discussed in Section B herein, ACC is greatly concerned regarding the inherent confusion of the safety case regime as to exactly what would be required in terms of such “new,” “more efficient,” and “safer” technologies, and exactly how the benchmark for compliance would be determined and justified.
“improved safety codes” or “changing safety standards” without the regulator establishing the need for such requirements under APA rulemaking.

The CSB Report suggests that any employer subject to the recommended safety case framework, if implemented, would automatically be required to follow a wide variety of new requirements without the opportunity to participate in any transparent rulemaking process, and without clear direction as to which of the new technology, accident, or safety recommendations would actually have to be implemented by employers. If this regime were implemented without rulemaking, employers would not know who sets deadlines for implementation and compliance. Also unclear is what agency would enforce the regime and evaluate compliance with these recommendations. Furthermore, ACC cannot be required to follow each prescriptive requirement from consensus standards without the opportunity to participate in the rulemaking process. Without proper rulemaking procedures, employers would not know who would decide what consensus standards, if any, would need to be followed, or what recommendations in the CSB Report are mandatory, given the CSB’s lack of enforcement mechanisms.

ACC completely disagrees with the discussion in Appendix B to the CSB Report wherein the CSB contends that the safety case regime would allow changes to process safety requirements without APA notice and comment rulemaking. *See CSB Report at 105-06.* It is one thing for an agency to issue guidance to provide more details on compliance to existing regulatory requirements, and yet another to suggest (as the CSB does in its Report) that completely new substantive requirements, based on new technology, incident investigation reports, and safety codes (such as consensus standards) could be imposed on employers without the opportunity and due process rights to participate in its development. ACC further disagrees with the CSB’s conclusion in Appendix B that the safety case regime (as proposed by the CSB) is somehow consistent with the Regulatory Flexibility Act and its underlying principles. The purpose of the Regulatory Flexibility Act is to ensure adequate opportunity to participate in transparent rulemaking. *See 5 U.S.C. §§ 601 et seq.*

E. **The Basis And Justifications For The Application Of The Safety Case Regulatory Regime Are Not Applicable To ACC Members’ Workplaces**

The incidents listed in the CSB Report as justifications for the imposition of the safety case regime largely involve accidents that are in dispute and/or otherwise inapplicable and insufficient to support the shift to this completely different regulatory approach.

For example, the CSB Report Appendix A lists “Significant Petroleum Refinery Incidents in 2012,” yet ACC remains skeptical that this list appropriately captures so-called significant petroleum refinery incidents. Based on information provided by our members, we understand that several incidents listed are minor or highly disputed. ACC would like more information regarding how the list was compiled and the extent to which it influenced policy and/or supported an argument for a safety case regime. ACC believes that these incidents cannot support the imposition of the burdensome safety case regulatory regime.

Moreover, the CSB Report maintains that “regulatory approaches similar to the safety case regulatory regime, which require risk reduction to ALARP or equivalent, have been implemented in the nuclear sector by the Nuclear Regulatory Commission (NRC) and the
aerospace sector by NASA.” See CSB Report at 11; see also id. at 34-35 (explaining that (1) the NRC has adopted a performance oriented regulation with a license requirement that includes overall goals to reduce risks to as low as reasonably achievable, or ALARA, and (2) NASA utilizes the goal of a safety system that reduces risk to as safe as reasonably practicable, or ASARP). Drawing conclusions for chemical facilities and refineries from NASA and/or the NRC’s experiences with safety case regimes, however, is inappropriate. NASA and the NRC deal with extremely narrow and specific technologies, equipment, and operations, involving high consequence of failure on a scale completely different than that presented by the chemical industry. NASA and NRC’s coverage is in sharp contrast to the broad-base and wide range of facilities of ACC members, with vast differences in size, scope and operation. What might work in a narrowly defined operation such as NASA’s role in space exploration or the NRC’s role in oversight of the nuclear power industry simply would not work in the environment within which ACC members operate.

CONCLUSION

While ACC supports the general goals articulated in the CSB Report, ACC has major concerns with the implementation of a safety case regulatory regime which, as previously noted, would represent a drastic and unnecessary change in policy from the current regulatory framework in place governing process safety. ACC strongly believes that the recommended safety case regime would create significant practical problems as well as legal issues without any corresponding benefit in workplace safety.

Instead, ACC recommends that the CSB present its concerns regarding the current framework in the ongoing RFI issued by OSHA (as triggered by Executive Order No. 13650 “Improving Chemical Facility Safety and Security”) to review the PSM standard. OSHA will have ample opportunity to undertake such a review and analysis of the current PSM framework in this transparent APA rulemaking process before any effort is made to promulgate an entirely new regulatory approach such as the recommended safety case system.

Finally, given our strongly held concerns, ACC believes that before any regulatory agency considers the merits of such a dramatic shift, sufficient objective data would need to be gathered and analyzed before determining what regulatory approach makes sense consistent with such objective data and the demonstrated need for any type of new regulatory regime. ACC hopes that the CSB will proceed deliberately in this regard and continue to allow interested parties the opportunity to comment and work together constructively on this effort consistent with our comments.

Respectfully submitted,

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EXHIBIT 3

MULTI-ASSOCIATION LETTER ON IST
ACC COMMENT ON EXECUTIVE ORDER 13650
January 23, 2014

President of the United States
The White House
1600 Pennsylvania Ave., NW
Washington, D.C. 20500

To the President of the United States and the Interagency Working Group on Improving Chemical Facility Safety and Security:

We appreciate the serious and important task the Interagency Working Group (IWG) has been given in implementing Executive Order (EO) 13650 – Improving Chemical Facility Safety and Security. The safety and security of our facilities, our employees, and our communities is paramount, which is why many of our organizations have actively participated in the listening sessions for the EO and have offered many comments and recommendations.

While it is encouraging to see several options in the IWG’s recent report that could help create a more unified and effective approach to addressing safety, we are concerned that the report’s focus on “safer alternatives” could derail the overall effort.

We believe opportunities exist to further improve safety and security and will continue to offer our expertise to assist the Working Group, but we strongly oppose any proposal that will create a federal requirement to assess or implement so-called Inherently Safer Technologies (IST).

IST decisions are extremely complex and cannot be and should not be determined by any governmental agency. The potential for creating unintended consequences is high, and the Environmental Protection Agency (EPA) has long held that IST requirements would not produce additional benefits beyond those that already exist in the current Risk Management Plan (RMP) program structure.¹

Inherently safer approaches to manufacturing processes have been and will continue to be considered by facilities as a matter of course, and the facility operators—not the government—are in the best position to understand the full ramifications of implementing IST. No one regulatory program or government agency can properly address the broad range of factors such as risk shifting, technical efficacy, cost, and product quality that a facility must consider and address when choosing appropriate safety and security measures, much less all of the different site-specific scenarios for the approximately 12,000 facilities that could be impacted by an IST requirement under the RMP. In addition, decisions by government officials to require alternatives could impose new risks, such as more hazardous materials in transportation, if facilities must reduce inventories of certain substances.

Operators need to take an all-inclusive approach when looking at the safety profile of a facility, and they must factor in the requirements of the numerous overlapping regulatory programs that help shape this approach. EPA, the Occupational Safety and Health Administration, the U.S. Department of Transportation, the U.S. Department of Homeland Security (DHS), and the Bureau of Alcohol, Tobacco, Firearms and Explosives all have existing regulatory programs that require operators to examine their operations and make them as safe and secure as possible. To attempt to overlay an IST requirement would negatively impact all of these various safety and security programs and create an impossible bureaucratic burden.

The current performance-based regulations in place today and in the marketplace itself already provide strong incentives for companies to consider and adopt “safer alternatives” such as IST. These programs allow facility operators to use all of the risk management tools and options at their disposal, while considering the complexities of their unique operating environment. Adding a new regulatory requirement focused on IST is not only unwarranted but potentially detrimental. At a minimum it would divert scarce federal agency resources away from the primary objective of the EO—namely, to identify and engage “outlier” facilities. At worst, IST would overwhelm federal agencies with thousands of complex evaluations, without requisite staff expertise to properly review the submissions. One EPA official has already said such an approach would be “monumentally difficult” for the Agency to accomplish.²

The IWG can help create a safer and more secure regulatory environment by addressing shortfalls through options that will improve coordination between government agencies and enhance outreach, while recognizing opportunities to better implement existing regulatory programs. Pursuing options related specifically to IST would ultimately jeopardize the success of the EO by both distracting attention from much needed improvements and threatening to create unnecessary and duplicative regulatory requirements that would not contribute to enhancing safety and security.

We remain steadfast in our commitment to safety and helping the IWG pursue opportunities that will improve the effectiveness of current regulatory programs.

Sincerely,

Agricultural Retailers Association
American Chemistry Council
American Forest and Paper Association
American Fuel & Petrochemical Manufacturers
American Petroleum Institute
The Chlorine Institute

The Fertilizer Institute
Institute of Makers of Explosives
International Liquid Terminals Association
National Association of Chemical Distributors
National Association of Manufacturers
Society of Chemical Manufacturers and Affiliates
U.S. Chamber of Commerce

c: The Honorable Eric H. Holder, Jr., Attorney General
   The Honorable Thomas J. Vilsack, Secretary of Agriculture
   The Honorable Thomas E. Perez, Secretary of Labor
   The Honorable Anthony Foxx, Secretary of Transportation
   The Honorable Jeh Johnson, Secretary of Homeland Security
   The Honorable Gina McCarthy, Administrator, Environmental Protection Agency
EXHIBIT 4

CCPS EXECUTIVE DIRECTOR SCOTT BERGER
COMMENTS TO U.S. SENATE ENVIRONMENT
AND PUBLIC WORKS COMMITTEE HEARING
ACC COMMENT ON EXECUTIVE ORDER 13650
Good morning. I am Scott Berger, Executive Director of the Center for Chemical Process Safety (CCPS), a Technological Community of the American Institute of Chemical Engineers (AIChE). CCPS has published over 100 books and other reference documents which guide the implementation of process safety technology and management systems. However, my comments today are specifically directed towards the topic of Inherently Safer Technologies (IST).

By way of background, the topic of Inherently Safer Design (ISD), which we believe is a more technically accurate term, has been discussed in CCPS and AIChE conferences and other forums since the 1970s. CCPS has published two editions of a book dedicated to ISD (1996, 2009) and included ISD in two books on Engineering Design (1993, 2012). In 2010, our unique expertise in ISD led the Department of Homeland Security (DHS) to request CCPS to lead a team of IST/ISD technical experts to formally define IST and ISD. Since the language of the EO refers to IST, we will use this term for consistency.

IST is, and long has been, one important tool in the broader toolbox used by chemical engineers to design safe processes. It is so ingrained in the design process that chemical engineers often do not even realize they are doing it. This was certainly my personal experience. I never heard the term IST (or ISD) before the early 1990s, yet once I heard it, I recognized that I had learned these principles as an undergraduate in the 1970s and had been using them since my first industrial assignments.

The formal definition of IST that CCPS developed for DHS is key to understanding the role it should play in future efforts to improve process safety. A copy of the final DHS report may be found at the CCPS website at [http://www.aiche.org/ccps/publications/books/inherently-safer-chemical-processes-life-cycle-approach-2nd-edition](http://www.aiche.org/ccps/publications/books/inherently-safer-chemical-processes-life-cycle-approach-2nd-edition). I would like to highlight and comment on the key elements of the definition:

- “Inherently Safer Technology (IST), also known as Inherently Safer Design (ISD), permanently eliminates or reduces hazards to avoid or reduce the consequences of incidents.”

  Specifically, IST is one way to mitigate hazards that can cause process safety incidents, i.e. fires, explosions, and toxic releases.

- “IST is a philosophy applied to the design and operation life cycle, including manufacture, transport, storage, use, and disposal.”

  IST is not a specific technology or group of technologies that can be substituted. Each case is unique, and adopting the IST philosophy typically leads to different results from case to case.

- “There is no clear boundary between IST and other strategies.”
As we can readily see from the NJ TCPA program, IST can go well beyond the simple replacement of one substance with a safer one or one reaction with another. Elements of IST can be applied at the process control level, the procedural level, and even the emergency response level. The bottom line is that IST is an integral part of developing a safe design and not separate from the desired goal of safe design.

• “ISTs are relative: A technology can only be described as inherently safer when compared to a different technology, including a description of the hazard or set of hazards being considered, their location, and the potentially affected population.”

One technology may be inherently safer than another with respect to some hazards but inherently less safe with respect to others. Also, even if the technology is safer, it may not be safe enough to meet society’s expectations.

• “Because an option may be inherently safer with regard to some hazards and inherently less safe with regard to others, we must make decisions about the optimum strategy for managing risks from all hazards.”

The choice of technology is rarely cut and dry. It depends on the relative importance of the range of hazards, where in the lifecycle different hazards occur, and the potential for shifting risk from one potentially affected population to another. Technical and economic feasibility also play a significant role.

Based on this definition of IST, it is clear that several existing regulatory provisions already address IST:

• 29CFR§1910.119 (a): The setting of thresholds for coverage under this regulation is an incentive to reduce hazardous inventory, a key principle of IST
• 29CFR§1910.119 (e): The activity of process hazard analysis prompts the broad-based hazard analysis team to determine safeguards and process modifications, including IST, to address the hazards identified, implement them, and review the analysis every 5 years
• 29CFR§1910.119 (m): When incidents occur, the company must identify the causes and implement safeguards and process modifications, including IST, to address eliminate these causes
• 40CFR§68.10: The setting of thresholds for coverage under this regulation is an incentive to reduce hazardous materials inventory, a key principle of IST
• 40CFR§68.12 and related: The performance of worst case analysis drives engineers to seek IST alternatives to reduce potential consequences
• 40CFR§68.50 and related: The activity of process hazard analysis prompts the broad-based hazard analysis team to determine safeguards and process modifications, including IST, to address the hazards identified, implement them, and review the analysis every 5 years
• 40CFR§68.60 and related: When incidents occur, the company must identify the causes and implement safeguards and process modifications, including IST, to address these causes
• 40CFR§68.155: Every 5 years, the facility is required to submit plans to improve safety

Considering that the application of inherently safer design methodology is so tightly integrated into the overall work of process development, any regulatory action related to IST which goes beyond these existing provisions would likely require that regulatory authorities conduct a detailed expert review of the complete set of design documents, essentially validating the design decisions made. Without significantly greater regulatory resources, such a detailed review is clearly impractical.
As I hope I’ve made clear, AIChE and CCPS support the use of IST as part of the overall engineering process. We strongly support increasing the education of chemical engineers and other scientists and engineers involved in process design and technology selection in the philosophy and art of IST.

To this end, AIChE was pleased to receive a recommendation from the US Chemical Safety and Hazard Investigation Board asking us to work to modify the undergraduate chemical engineering curriculum to improve the knowledge of process safety among BS graduates. In 2012, the CSB voted to declare this recommendation “closed, exceeding recommended action.”

AIChE and CCPS are also pleased to support the continuing process safety education of experienced chemical engineers through a variety of courses, including one on IST.
EXHIBIT 5

CCPS EXECUTIVE DIRECTOR SCOTT BERGER
COMMENTS TO THE EPA LISTENING SESSION
ACC COMMENT ON EXECUTIVE ORDER 13650
Good afternoon. I am Scott Berger, Executive Director of the Center for Chemical Process Safety (CCPS), a Technological Community of the American Institute of Chemical Engineers (AIChE). My comments today are specifically directed towards the topic of Inherently Safer Technologies (IST) which was solicited in the Request for Information.

By way of background, the topic of Inherently Safer Design (ISD), which we believe is a more technically accurate term, has been discussed in CCPS and AIChE conferences and other forums since the 1970’s. CCPS has published two editions of a book dedicated to ISD (1996, 2009) and included ISD in two books on Engineering Design (1993, 2012). In 2010, our unique expertise in ISD led the Department of Homeland Security (DHS) to request CCPS to lead a team of IST/ISD technical experts to formally define IST and ISD. Since the language of the EO refers to IST, we will use this term for consistency.

IST is, and long has been, one important tool in the broader toolbox used by chemical engineers to design safe processes. It is so ingrained in the design process that chemical engineers often do not even realize they are doing it. This was certainly my personal experience. I never heard the term IST (or ISD) before the early 1990’s, yet once I heard it, I recognized that I had learned these principles as an undergraduate in the 1970’s and had been using them since my first industrial assignments.

The formal definition of IST that CCPS developed for DHS is key to understanding the role it should play in future efforts to improve process safety. A copy of the final DHS report is attached for reference. I would like to highlight and comment on the key elements of the definition:

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  Specifically, IST is one way to mitigate hazards that can cause process safety incidents, i.e. fires, explosions, and toxic releases.

- “IST is a philosophy applied to the design and operation life cycle, including manufacture, transport, storage, use, and disposal.”

  IST is not a specific technology or group of technologies that can be substituted. Each case is unique, and adopting the IST philosophy typically leads to different results from case to case.

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  As we can readily see from the NJ TCPA program, IST can go well beyond the simple replacement of one substance with a safer one or one reaction with another. Elements of IST
can be applied at the process control level, the procedural level, and even the emergency response level. The bottom line is that IST is an integral part of developing a safe design and not separate from the desired goal of safe design

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Considering that the application of inherently safer design methodology is so tightly integrated into the overall work of process development, any regulatory action related to IST which goes beyond these existing provisions would likely require that regulatory authorities conduct a detailed expert review of the complete set of design documents, essentially validating the design decisions made. Without significantly greater regulatory resources, such a detailed review is clearly impractical.
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To this end, AIChE was pleased to receive a recommendation from the US Chemical Safety and Hazard Investigation Board asking us to work to modify the undergraduate chemical engineering curriculum to improve the knowledge of process safety among BS graduates. In 2012, the CSB voted to declare this recommendation “closed, exceeding recommended action.”

AIChE and CCPS are also pleased to support the continuing process safety education of experienced chemical engineers through a variety of courses, including one on IST.
EXHIBIT 6 – ATTACHMENT 1

ACC I ST MATERIALS
ACC COMMENT ON EXECUTIVE ORDER 13650
Attachment 1: Factors that Affect IST Decision Making & Examples of Limitations of Mandating Inherently Safer Approaches

A. Factors that Affect IST Decision Making

1. Initial design vs. retrofitting. Implementing IST will often require other operational or design changes. For example, to maintain operational productivity and reliability when utilizing the “Minimization/Intensification” IST approach often requires a technology change such as advanced automation and controls, shifting a batch process to continuous process, or other technologies. Implementing “Substitution” or “Moderation/Attenuation” often requires entirely different processes or equipment. The most effective time to influence the inherent safety of a chemical process is during the initial design, not after the facility is built and in operation. In the case of material substitution, for example, the design of the process equipment is often closely tied to the properties of the substance chosen. Retrofitting into an existing process may not work for this reason, just as a car will not run properly if kerosene is substituted for gasoline.

2. Regulatory obstacles. In some cases, laws or rules do not permit the use of inherently safer methods. An example is the Federal mandate to phase out chlorofluorocarbons (CFCs) as refrigerants. See example in section B below.

3. Risk/risk tradeoffs. Inherent safety is not always as simple or obvious as it might sound. As the CFC example suggests, many inherently safer approaches involve trading one risk (stratospheric ozone destruction) against the potential of another (fire hazards to employees and others). See example in section B below.

Industry has long championed the use of IST. Furthermore, industry considers IST along with all other alternatives for reducing potential security vulnerabilities. However, in some cases, what is inherently safer from one perspective may actually be more dangerous from another. In public debate, advocates of inherent safety frequently speak of reducing onsite inventories, or reducing or eliminating storage, of hazardous materials. Any shift in the way one stores hazardous materials has the potential, however, to create different, potentially greater risks elsewhere.

Say, for example, that a regulatory agency determined that facilities should not store more than one week’s requirements for a substance in inventory onsite. At the outset, this could just result in the same inventories being carried at the supplier’s facility, rather than the user’s, or at some less-secure intermediate storage facility. In any event, lower inventories on site typically mean more frequent deliveries of smaller quantities of material. Thus, for example, a process that receives barge containers approximately once per month, may have to shift to rail cars or trucks.

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1 See Bollinger at 56.
Similarly, a process that currently receives railcars might instead have to receive one-ton cylinders, delivered by trucks. Statistically, transportation incidents are lowest for water, intermediate for rail, and highest for truck; thus, a mandate to reduce inventories may require using modes of transportation with a higher frequency of accidents.

Also, changing from barges to rail cars, or from rail cars to trucks, would require the facility to connect and disconnect shipping containers far more frequently, increasing the potential of operator exposure.\(^2\)

The challenge, in any case, is to adopt the concept of total risk, where one seeks to minimize risks overall from transportation, storage and use. A focus on inventories examines the risk of storage only, neglecting the risks involved in transportation and use. When the offsetting of risks are different – e.g., ozone protection vs. exposure risks – they are even more difficult to balance. In many cases, there is simply no single right answer.

1. **Balancing known risks against unknown future risks.** Oftentimes, the new risks of an inherently safer approach are not initially evident. *Consider the examples in Section B below.*

2. **Inherently safer does not translate to safe.** As counterintuitive as it may sound, an inherently safer approach is not necessarily safer than a less inherently safe approach. *See example in Section B below.* This example highlights several issues. First, a less inherently safe system can attain a high degree of safety if sufficient resources and effort are devoted to that task. Second, an inherently safer system can still be unsafe if sufficient resources and effort are not devoted to it, as may happen if people become complacent.

3. **Inherent safety does not come off-the-shelf.** Most processes that use hazardous materials do so because we simply have not yet discovered the next generation of chemistry to make the relevant product cost-effective using safer approaches. This is because the feature of the material that makes it essential in the marketplace also makes it hazardous (e.g., chlorine). Chemistry businesses are continually looking for methods to make products that provide the benefits people want and need using processes that are inherently safer; however, this is a product-by-product, plant-by-plant undertaking.

\(^2\)Two final comments on the subject of inventory reduction: First, much of the productivity growth in the United States recently has been attributable to inventory reduction. Inventory ties up money, requires capital, etc., which businesses don't want. The notion that inventories can easily be reduced significantly across the board more than they have been would seem to be slightly unrealistic. Second, inventories may be required to meet short-term or seasonal needs, in cases where the product cannot be produced as fast as it is needed (e.g., ammonia used for fertilizer in the spring). For many producers and consumers, it becomes increasingly challenging to match sales and production levels as inventory levels are reduced.
4. **Inherent safety does not lend itself to government mandates.** The foregoing features of inherently safer approaches explain why placing the decision of technology selection into the hands of a regulator is a flawed idea. Example after example demonstrates that even the most well intended government requirements can have serious adverse effects, as illustrated in the examples that follow in section B.

**B. Examples of IST Approaches with Adverse Consequences**

*Inherent Trade-Offs*

Suppose under mandatory IST, a facility is ordered to reduce the volume of chemicals it stores on site, or replace a particular chemical with a less hazardous alternative. Has safety been enhanced? Because of the inherent trade-offs, the answer is, “it depends.”

- Is it “safer” to reduce the volume stored if this requires more frequent shipments through the community around the plant?
- Is it “safer” to substitute a new chemical if its use requires higher pressures or temperatures and increases the danger of an explosion?
- Who will make these judgments? Politicians? Federal policymakers? Local officials? Plant Experts?

*Examples of IST Strategies*

1. **Substitution**

- While Twitchell splitting would be a substitute for the dangers regarding the high pressure splitting (no use of high pressure steam and no high temperatures), it has many disadvantages, such as the necessity to use sulfuric acid, low energy efficiency, and very low product quality.

- An example carried out at one ACC company was replacement of a common chlorsulfonic-acid sulfonation process by a continuous SO₃-sulfonation process. This eliminated chlorsulfonic acid, (which can be problematic, creating HCl gas upon contact with water, for example). The new process (burn sulfur to SO₂ in a converter to make SO₃ out of the SO₂ then react SO₃ with the fatty alcohols [mostly] in a column, and neutralize the product) is relatively capital intensive, but efficient. It has the additional advantage that no chloro-compounds are present in the final product. While, this new process is inherently safer, it had adverse economic ramifications. There were many layoffs and the closure of a plant in the US, because the new process required fewer personnel (due to concentration on fewer, larger plants). The company also decided to later shift production off-shore to avoid high costs of more conversions (as well as pollution control).
• In 2004, when Washington, D.C. switched to chlorination in lieu of chlorine, the new process caused lead in older pipes to leach into water. This resulted in a public health crisis, and required the replacement of pipes throughout the city as well as enhanced testing. DC’s process still requires chlorine to “purge” the water lines each year so that they provide clean, safe water for its residents.

• ReVAP technology is used for reduction of risk in hydrofluoric acid alkylation processes at refineries. The technology is hailed as an IST for the reduction of HF acid volatility, but it comes with significant tradeoffs. It costs a significant amount of money and includes major modification and new equipment to be installed. By its design intent, any leaks from the process will now be a liquid that makes it easy to collect and treat, but it can also result in increased operator exposure to leaks. The additional chemical added to the process also has a negative impact of potentially increased corrosion rates due to the possible increased moisture content in the acid. When HF acid mixes with water at certain concentrations, it becomes corrosive. Some believe the ultimate alternative to HF acid alkylation is sulfuric acid alkylation, but there is a clear risk tradeoff. Sulfuric acid is more corrosive and results in higher incidents of operator exposure than in HF plants. Moreover, there is an increased need for disposal of spent sulfuric acid and more shipments of virgin acid, increasing the amount of deliveries per day which raises the potential for transportation incidents as well as worker health and safety exposure incidents.

2. Minimization

• Application of minimization as an IST strategy can oftentimes lead to risk-shifting. For example, minimizing the inventory of a hazardous chemical (such as chlorine) by switching from one ton to 160 pound cylinders means that more connections/disconnections are required for a given production rate. Thus, the lower inventory may mean a shorter plume should the entire quantity of the cylinder be accidentally released, but the smaller cylinders put the operator at risk 12 times more often because of the increased likelihood of exposure when hooking and unhooking a cylinder. Additionally, use of smaller containers (or smaller volumes of any chemical) necessitate more frequent transportation and delivery, which also increases the likelihood of an incident, as well as increasing transportation costs and the opportunity for theft and diversion. Which is the inherently safer option? It could be either one, depending upon perspective and other considerations (e.g., location of the operation relative to a sensitive population).

• Risk shifting can occur in the conversion of one large process to several small processes. This conversion requires capital investment, reduces yields (as a rule of thumb, smaller processes have lower yields) and therefore may increase the amount of waste/hazardous waste produced. For example, one company considered the suggestion made by local
authorities to reduce the storage of hazardous products on site by transporting them ‘just in time’ by truck from storage in trailers (because the regulations that apply for tanks do not apply for trailers). The company had to decide if it preferred storage of hazardous products on site with minimized transportation, or minimized storage on site with maximized transportation. Neither option is without inherent risks to site employees and the surrounding communities.

- While sodium hypochlorite is less hazardous than elemental chlorine, it poses a safety risk for accidental chemical mixing, which can result in the release of elemental chlorine. In addition, sodium hypochlorite requires the shipment and handling of 7-10 times more product by volume than elemental chlorine, impacting worker safety, transportation risks, and environmental considerations in the local community. Each facility – working with its local communities and other stakeholders – needs to determine which measures will most effectively and efficiently address safety and security while continuing to provide safe drinking water. Decisions depend on local circumstances and should continue to be made at the local level.

3. Other

- **Regulatory Obstacles**

  While the CFC phase-out was broadly supported, some of the replacement substances that are available are actually more hazardous (i.e., have higher toxicity or flammability) than CFCs. This is inherently less safe for people working in the vicinity.

  **Risk Trade Offs**

  Is it inherently safer to use a solvent that is highly flammable or one that is a possible carcinogen? In another example, a 1990 Federal Clean Air Act requirement for oxygenates in fuels solved helped mitigate one pollution challenge even as it created others because the tradeoffs weren’t adequately considered in advance.

- **Balancing Known Risks Against Future Risks**

  Polychlorinated biphenyls (PCBs) originally were championed as an inherently safer means of insulating electrical equipment. PCBs gained widespread use because of their remarkable insulating capacity and their flame-retardant nature, reducing the risk of fires in such places as office buildings, hospitals, factories, and schools. The benefits were well recognized throughout society, but unfortunately, in the late 1960s, PCBs were detected in the environment. Public opinion shifted dramatically and by 1977, all sales of PCBs were discontinued because of environmental persistence and concerns about potential toxicity.
- Underground storage tanks (USTs) became the universal mode of storing flammable materials in high-traffic areas because they were regarded as an inherently safer means of storage. Decades passed before people realized the extent to which USTs could cause groundwater contamination.

- Airbags in cars have proven to be lifesavers and of great benefit to society, yet it took many years to recognize that the one-size-fits-all approach to air bags could also have deadly effects. While extremely beneficial to adults when used in conjunction with seatbelts, airbag proved deadly to small children and changes had to be adopted to mitigate these risks.

  - **Inherent Safety Does Not Translate to Safe**

- Most experts would agree that automobiles are inherently safer than airplanes – they travel on the ground, move at 1/10 the speed, operate where the ambient temperature and pressure are conducive to life, carry only a few people and less fuel, and in most cases of system failure, can be stopped safely. And yet statistics demonstrate that air travel is clearly safer than automobile travel.
EXHIBIT 6 – ATTACHMENT 2

ACC IST MATERIALS
ACC COMMENT ON EXECUTIVE ORDER 13650
Attachment 2. Example of IST scenario involving proprietary information.

This example illustrates issues that may arise as a result of focusing on facility risk versus total risk, i.e., the overall risk from manufacturing, transporting, storing, and using chemicals. In some cases it is not the best approach to focus solely on the risk at a facility as the determining factor in an IST review.

In this example, Company B initiates an IST review of their site operation and makes recommendations regarding the best strategy for reducing site risk in order to comply with an internal company request. Although in this case the mandate is internal and the recommendation was not ultimately implemented, the analysis and potential result is similar to what could occur if IST is federally mandated.

The Players:

Company A – A multinational chemical company with greater than 5000 employees and many manufacturing sites, one of which is located in a sparsely populated area of a southwestern state. Company A is certified under the Responsible Care® Management System.

Company B – A multinational petrochemical company with greater than 10,000 employees and many manufacturing sites. Company B also has a facility in a sparsely populated area located less than 50 miles from Company A’s facility. A small town (<15,000 population) is located near this facility. Company B practices Responsible Care® and is actively pursuing certification to the Responsible Care® Management System.

Company C – A small single-owner chemical processing firm consisting of approximately 30 employees located at a facility on the outskirts of a very large Midwestern city.

The Scenario:

Company A produces a Poison Inhalation Hazard (PIH) chemical at its facility and ships the material by truck approximately 50 miles to Company B. Company B stores the PIH in a specially designed 10,000 gallon tank prior to use. Shipments are regulated such that larger inventories of the PIH are not required to maintain production of Company B’s ultimate end product. Company B’s production process is a multi-stage process. The PIH material is consumed in the first step of the process to produce a relatively non-hazardous intermediate. Company B has no other significant usage of highly hazardous toxic materials on-site. Company B has a mature Process Safety Management program in place at the facility to manage the PIH.

Company B conducts a high level risk assessment at their facility that recommends performing an inherently safer technology review for evaluating options for reducing on-site PIH storage.

Results of Company B’s IST Review:
Company B approached the problem by researching each of the design methods listed below that could potentially be applied to the process. Each method was assessed for technical, operational, and financial feasibility.

Minimization/Intensification – Storage of the PIH had previously been optimized based on Just-In-Time supply principles by Company B to limit the quantity stored on-site. Shipments are limited to truck quantities and the maximum on-site storage is limited to 10,000 gallons. There is no in-process storage as the PIH is consumed in the first step of the process. Reduction of on-site storage could potentially lead to unplanned shutdowns due to loss of raw material, which would create production and safety problems for the facility. The possibility of producing the PIH on-site was also investigated, but the scale of equipment needed to produce the PIH would have increased on-site storage. The IST review determined that there was no technically feasible option for further reducing the on-site storage of the PIH material.

Substitution – Several options for replacing the PIH with a less hazardous material were investigated. However, all of these options required processing a liquid or solid material. After careful research and laboratory analysis, it was determined that existing process equipment could not handle liquids or solids. In addition, none of the options investigated could meet the cost and quality requirements necessary to sustain the business.

Moderation/Attenuation – The reaction involving the PIH is run at low temperature and pressure. There is no room for moderation of these process conditions.

Simplification – Simplification of the process was investigated and found to be feasible in the form of eliminating the first step of the multi-stage process in favor of purchasing the intermediate directly. From a cost perspective, this option required additional storage for the intermediate material and a slight increase in the cost to acquire the intermediate. However, this was not considered financially infeasible. The IST review team recommended the simplification option as the best alternative to reduce risk at the facility.

Total Impact

The simplification recommendation required Company B to review options to obtain the intermediate material rather than manufacture the intermediate from the PIH and other raw materials. Unfortunately, the intermediate material is a proprietary substance and not available on the open market for purchase. Therefore, Company B explored the option of contracting with a separate company to toll the intermediate using Company B’s proprietary process to convert the PIH into the intermediate. Company C was chosen as the best option for tolling the intermediate based on availability of equipment, location, cost, and other factors.

This option requires shipment of the PIH for several hundred miles to Company C’s facility. Due to logistical considerations, Company C must receive the PIH material in railcar quantities (approximately 4 times the capacity of trucks) and stage multiple railcars for each production
run. The railcars must pass near several heavily populated areas en route to Company C’s site, which is also in a heavily populated area. Company C does not have storage facilities and instead feeds the reactor straight from the railcars during the production run. Company C has not been previously subject to PSM or RMP requirements. The site has an employee with safety and environmental responsibility, but this individual also has responsibility as the process engineer and operations manager. Other technical resources are limited.

In terms of facility risk, this option satisfies the goal of significantly reducing (or eliminating) the risk posed by the PIH material at Company B’s site. Since potential IST legislation and resulting rules would likely apply at the facility level, this should be a satisfactory response for Company B. However, the resulting situation may significantly increase the risk to people by forcing larger PIH package size quantities in transport, shipments over significantly greater distances, and storage and processing of a PIH in a more heavily populated area by a company that may not have sufficient expertise and programs in place to effectively manage the hazards. The total risk for the resulting situation would increase significantly from the initial scenario.

IST rules may also apply to Company C. However, since Company C is not the owner of the proprietary process it is not in a position to modify the process. Forcing IST implementation on Company C would put Company C out of business.

Fortunately in the case listed here IST consideration was an exercise to determine whether better options were available than the original scenario, rather than a mandatory implementation of IST.