



MEMORANDUM

Via E-Mail

DATE: September 29, 2003
TO: Firm Clients and Friends
FROM: Bergeson & Campbell, P.C.
RE: Update -- Reactive Chemicals Regulation

The regulation of reactive chemicals has garnered increasing attention since the federal U.S. Chemical Safety and Hazard Investigation Board (CSB), the federal agency responsible for investigating chemical accidents, made recommendations in September 2002 to the U.S. Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA) concerning hazards reactive chemicals pose and the need for additional regulation of reactive chemicals. Those favoring such additional regulation have embraced the report and used it to support their efforts. Those more skeptical as to whether additional regulation can reduce reactive hazards have sought more practical and economical responses to the Report. In the short-run, OSHA is taking additional steps to address reactive hazards through the development of guidance documents related to its Process Safety Management (PSM) standard. As explained more below, while the prospect of regulation is real, the likelihood of EPA and OSHA meeting the stringent cost/benefit requirements for new rulemakings for a rule along the lines the CSB recommended is unlikely, at least in the near future.

Background

Reactive chemicals are chemicals that can become unstable in certain circumstances, such as if they are inappropriately combined or mixed with or stored within incompatible substances or situations (*e.g.*, heat or pressure). Interest in regulating them has been most intense following incidents in which workplace accidents have led to significant damage and/or loss of life.

The Occupational Safety and Health Act and the Clean Air Act Amendments (CAA) provide authorities for OSHA and EPA's accident prevention programs, making the owner or operator of the stationary source, or the employer, who is handling the hazardous chemicals, solely responsible for compliance with safety regulations at the facility. Historically,



Memorandum to Firm Clients and Friends
September 29, 2003
Page 2

EPA and OSHA have collaborated when investigating certain chemical accidents pursuant to the terms of a Memorandum of Understanding. See http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=MOU&p_id=238. CAA Section 112(r)(6) established the independent CSB to investigate and determine the case or causes of chemical accidents and recommend steps to prevent similar incidents. The CSB has replaced the joint EPA/OSHA investigations.

Existing regulation of reactive chemicals is covered by OSHA's PSM standard. The PSM standard, which applies to processes containing more than a threshold quantity of 1 of 137 OSHA-listed chemicals, subjects a facility to significant burden, depending on the type of operation, the actual chemicals on site, and the amount held on an inventory basis. It was adopted to comply with 1990 CAA Amendments requirements, which evolved from chemical facility explosions. The standard requires various safe-management procedures to protect workers against accidental releases of reactive, toxic, flammable, or explosive chemicals that qualify as "highly hazardous." The PSM is a list/threshold quantity-based rule, meaning that if a site has a chemical on the list in the threshold quantity specified, the facility is subject to the PSM. For subject facilities, the PSM requires, among other things, a workplace hazard assessment, written operating procedures, and worker training.

When this standard was first developed in the early 1990s, federal worker safety officials used a pre-existing hazard-ranking system. To choose which reactive chemicals to regulate, OSHA used a system originally developed by the National Fire Protection Association (NFPA). This five-level system classifies chemicals according to each one's "reactive hazard." The five categories of risk range from 0, "normally stable," to 4, "readily capable of detonation, explosive decomposition or explosive reaction at normal temperatures and pressures." The 1990 CAA Amendments specified that the new standard should regulate "highly hazardous" chemicals, and OSHA officials determined that the NFPA Categories 3 and 4 fit this definition.

In the mid-1990s, a petition by labor unions to cover still more reactive chemicals was filed after a series of incidents involving chemicals in the system's lower-risk Categories 1 and 2. OSHA was finding that the highest accident rates were occurring with chemicals in Categories 1 and 2. Similarly, the CSB's investigation of significant harm incidents involving reactive chemicals found that in a majority of the 167 incidents investigated, the chemicals at issue were not in Categories 3 and 4.

Under the Clinton Administration, a proposed rule to address reactive chemicals was drafted. It was not, however, published before President Bush was inaugurated. In 2001, the Bush Administration withdrew plans to regulate reactive chemicals. Though included on the Bush Administration's regulatory agenda in April 2001, it was removed from the regulatory agenda published on December 3, 2001. The December *Federal Register* notice stated that the



Memorandum to Firm Clients and Friends
September 29, 2003
Page 3

reactive chemicals initiative was being dropped because of “resource constraints and other priorities,” noting also that the proposal had been withdrawn from consideration on September 24, 2001.

Nonetheless, on September 17, 2002, the CSB released a major report identifying 92 reactive incidents since the PSM was promulgated in 1992 and recommended that OSHA improve the standard. The report called reactive chemical incidents a “significant chemical safety problem,” and said the incidents have the potential for occurring at a wide range of worksites and “can severely affect workers and the public, as well as cause major economic losses and environmental damage.” Based on a review of limited data available, the CSB identified 167 reactive incidents between 1980 and 2001, resulting in 108 fatalities.

The CSB recommended to OSHA and EPA that reactive chemicals be regulated. It suggested that this be done within the OSHA PSM and EPA Risk Management Plan (RMP) standards. Among its recommendations, the report offered the following:

- Amend the PSM standard, 29 C.F.R. Section 1910.119, “to achieve more comprehensive control of reactive hazards that could have catastrophic consequences.”
- Revise the Accidental Release Prevention Requirements of EPA’s RMP, 40 C.F.R. Part 68, “to explicitly cover catastrophic reactive hazards that have the potential to seriously impact the public.”
- Call on the American Institute of Chemical Engineers’ Center for Chemical Process Safety (CCPS) to “publish comprehensive guidelines on model reactive hazardous management systems.”

Based on the first recommendation listed above, OSHA, EPA, and the CSB are considering plans to address reactive chemicals through the existing OSHA PSM standard and EPA’s RMP. The latter is a program also deriving from the 1990 CAA Amendments to serve as a threshold-quantity based rule. In general, however, the threshold quantities in the RMP rule are larger than they are within the PSM regulation. The second recommendation listed above is being addressed through EPA’s July 31, 2003, proposed rule that would revise the RMP reporting of the five-year accident history to allow the owner or operator to indicate whether the accident involved an uncontrolled or runaway reaction. The proposed collection of this information would be useful for measuring whether accidents involved simple releases or were the result of a process upset. The third recommendation listed above is discussed below in discussing the first recommendation.



Memorandum to Firm Clients and Friends
September 29, 2003
Page 4

Petition for Enhanced PSM

In addition to the CSB report, federal government attention to the matter of reactive chemicals was sharpened by a June 9, 2003, petition by a number of unions, including the AFL-CIO and the Building and Construction Trades Department of the AFL-CIO, the Paper, Allied-Industrial, Chemical & Energy Workers International Union (PACE), and the Union of Needletrades, Industrial and Textile Employees (UNITE). The petition asked OSHA to reopen the PSM regulation to amend it to strengthen its regulation of reactive chemicals and how they should be stored and handled to prevent explosions, fires, and toxic releases in communities. The petition seeks to “broaden the definition of what is considered a reactive chemical,” among other things.

The unions’ petition asks OSHA to amend the PSM by:

- Requiring employers to use recognized and generally accepted good engineering practices for all covered chemical processes;
- Broadening the definition of what is considered a reactive chemical;
- Expanding the required process safety information provided to employees;
- Amending the process hazard analysis to include a qualitative risk assessment and an evaluation of reactivity hazards;
- Broadening the application of the standard to apply to contractors involved in process operations;
- Amending the management of change provisions to include changes in personnel and deviation from established procedure; and
- Removing the exemption from PSM coverage of atmospheric storage tanks.

Reactivity Management Roundtable

On June 10, 2003, the Reactivity Management Roundtable, comprised of CSB, OSHA, and EPA representatives, met to discuss regulation of reactive chemicals. EPA and OSHA agreed to the roundtable meeting after missing the 120-day deadline to respond to the CSB recommendations, many of them requests for greater information collection and



Memorandum to Firm Clients and Friends
September 29, 2003
Page 5

dissemination. The focus of the meeting's participants and attendees (the large turnout surprised some), which included the public and representatives of academia, was the CSB's controversial recommendation that EPA and OSHA amend their existing regulations to control reactive chemical hazards.

At the meeting, representatives of industry, labor, and academia made presentations on reactive chemicals and there followed debate regarding the need for regulation. The discussion brought forth the idea to assess the catastrophic potential of certain categories of chemicals and mixtures rather than listing more of them and their associated procedures. Even so, participants questioned whether smaller businesses would be able to manage even what would amount to a lesser version of the PSM. The meeting, attended by approximately 100 people, ended with statements that continued dialogue would be necessary, especially to work through potential conflict as the three agencies involved became tangled in administrative procedures.

Despite disagreements over the CSB's regulatory recommendations, general consensus appeared to be within reach regarding a handful of points. First, reactive chemical incidents are a national problem that needs to be addressed. Second, better data collection measures are necessary to understand more fully causes of incidents and near misses, as well as ways to prevent them. Third, any regulatory framework must do more than simply list chemicals subject to regulation, but instead implement some type of performance-based regulatory mechanism.

The meeting also provided an opportunity for the unveiling of the CCPS's efforts to satisfy the recommendation of the CSB that it publish comprehensive guidelines on model reactive hazardous management systems. It completed a short book entitled *Essential Practices for Managing Chemical Reactivity Hazards*. Through 12 questions, the 200-page book can serve as a screening tool to help smaller plants and companies identify whether they have a potential reactive chemical hazard. OSHA, EPA, and two trade associations, the American Chemistry Council (ACC) and the Synthetic Organic Chemical Manufacturers Association (SOCMA), have since reached an agreement with CCPS to make the book available to the public free of charge. The book will be available on the OSHA website within the next several weeks, and is currently available at <http://www.aiche.org/publications>.

In general, stakeholders appear pleased with the CCPS offering. At the same time, some believe it could provide the framework for a rulemaking, while others believe it will delay or supplant needed regulation. The concern for the latter group is that government officials with assistance from industry representatives will request that implementation of the book as a tool be allowed to work before efforts at regulation are attempted. Some believe that reactive



Memorandum to Firm Clients and Friends
September 29, 2003
Page 6

chemicals pose significant challenges to a rulemaking. This is so, in part, because it would be difficult to determine what are and are not reactive chemicals. Another problem is that adding chemicals to the PSM or the RMP lists may not adequately address the problems reactive chemicals pose. There are as many as 500,000 sites that could be subject to regulation, ranging from chemical manufacturing facilities to bakeries and small operations. The number of compounds that potentially could cause problems is enormous. Regulation of all substances can be too burdensome, and regulation of too few can lead to safety concerns. Furthermore, OSHA's PSM already requires facilities to follow "recognized and generally accepted good engineering practices." At bottom is whether a rare incident involving seemingly safe chemicals can be prevented simply by expanding the PSM. These concerns suggest that a practical approach must be embraced as a framework for any such regulation. As a result, in the short run at least, the most likely outcome of the June roundtable meeting is simply a follow-up Reactivity Management Roundtable meeting in October 2003.

Other stakeholders are not finding the possibility of more regulation out of the question. For example, in September 2003, the American Society of Safety Engineers (ASSE) sent a letter to OSHA, EPA, and CSB encouraging development of a new, separate regulation that would address processes and not simply chemicals. In general, ASSE has apparently been pushing for stricter regulation of reactive chemicals in the workplace, however, it believes regulations separate from the PSM and RMP schemes would be more protective. According to ASSE, forcing reactive chemicals to fit within the existing PSM or RMP schemes could result in some chemicals slipping through the cracks and compromising the regulatory viability of two successful programs it deems successful.

OSHA's Response

In addition to planning to participate in the October Reactivity Management Roundtable, OSHA is taking steps to address issues related to reactivity, and perhaps in a fashion that will preclude another layer of regulation or extensions of the existing PSM. First, OSHA is developing a guidance document on reactivities, which will complement the CCPS book. OSHA is working to have this guidance document available on its website by Spring 2004. The focus of the guidance document will be single non-complex processes. The guidance is expected to be helpful to operations with such processes, smaller operations, and employers involved in storage, re-packaging, blending, and reformulating. The guidance is expected to emphasize the importance of screening for reactive hazards.

OSHA is also working on additional guidance on hazard communication, including Materials Safety Data Sheets (MSDS). The focus here is on improving MSDS accuracy. Further, OSHA expects to revise its compliance directive for the PSM standard to



Memorandum to Firm Clients and Friends
September 29, 2003
Page 7

provide clarification where necessary with, for example, the difference between storage tanks and process tanks, and the process safety information and process hazard analysis elements of the PSM. This effort is expected to be completed in 2004.

Finally, OSHA also has been developing an alliance with groups and organizations involved with and otherwise in the chemical industry, including EPA, SOCMA, and ACC, and has been looking to expand the alliance to include, for example, the National Association of Chemical Distributors. The alliance is open to other groups as well. The goal of the alliance would be to further educate employers and employees on the best practices in handling reactive chemicals.

Where any of these approaches fail, OSHA expects to rely on the general duty clause to address reactive hazards not covered by the PSM standards.

State Efforts: New Jersey Addresses Reactive Chemicals

While federal efforts on reactive chemicals may be slow to develop, if at all, action at the state level is not similarly constrained. The New Jersey Department of Environmental Protection (DEP) has taken the lead in the regulation of reactive chemicals, being the first state to address reactive hazards. On August 5, 2003, New Jersey expanded the Toxic Catastrophe Prevention Act (TCPA) program to include the regulation of reactive chemicals. The TCPA is based on both the OSHA PSM and the EPA RMP programs (New Jersey enforces the EPA RMP program for the federal government).

The New Jersey DEP formally added reactive chemicals to the list of extraordinarily hazardous substances that trigger the risk management planning requirements of TCPA. New prevention measures were added for 30 reactive hazardous substances and 43 chemical groups, depending upon a company's volume and use of the chemicals. Under New Jersey's program, companies handling reactive chemicals must prepare accidental release prevention plans and examine safer, state-of-the-art technologies. The state-of-the-art standard, reinstated after being dropped in 1998, and which mandates that all facilities regulated under the program evaluate every five years state-of-the-art technologies to reduce the risk of an accident and implement this technology if cost effective, also applies for new processes when a company expands or changes operations.

Currently, 103 companies are covered by the TCPA program and must implement risk management programs. These companies represent industries such as water treatment plants, chemical manufacturers, food manufacturers and processors, pharmaceutical companies, refineries, and warehouses. The State estimates that approximately 40 additional companies will



Memorandum to Firm Clients and Friends
September 29, 2003
Page 8

become subject to the TCPA rules as a result of the new requirements because they use certain reactive chemicals. Twenty-two companies currently regulated under TCPA are expected to have to comply with additional regulatory requirements for using the substances.

Though only covering activities within New Jersey, by integrating a reactive chemicals section within the existing regulation as opposed to establishing a separate regulation, New Jersey has set an example for respective EPA and OSHA programs, as well as other states. Under the revised New Jersey program, additional reactive chemicals are regulated in the following ways:

1. A new list termed "Reactive Hazard Substance Mixtures Functional Groups" consists of 43 functional chemical groups such as "metal acetylides" and "nitroso compounds."
2. The threshold limit for any substances that would be covered by the list is calculated using the caloric range of "heat of reaction (exothermic)" compared against an associated threshold quantity (in pounds).
3. Any reactive hazard substance above the threshold limit triggers a "reactive hazard substance (RHS) hazard assessment."

Significantly, the CSB endorsed this program change by New Jersey, with Charles Jeffress, chief operating officer of the CSB stating: "The Chemical Safety Board is very pleased by this step forward to protect residents and workers from chemical accidents."

Conclusion

While the prospect of regulation is real, the likelihood of EPA and OSHA meeting the stringent cost/benefit requirements for new rulemakings for a rule along the lines the CSB recommended is unlikely, at least in the near future. OSHA has indicated that in the absence of any near-term action on the shelved reactive chemicals proposal, it will address the issue in a number of ways. One is preparation, with EPA, of a new guidance document for employers. Another will be coordination with the CSB. The Board's final report on problems related to reactive chemicals is expected to include recommendations later this year. A third way is through enforcement. OSHA expects to rely on the general duty clause to address reactive hazards not covered by the PSM standards. To the extent EPA might source any rulemaking, EPA has indicated that if it were to take regulatory action, it probably would be modeled on RMP, which takes a performance-based approach and would permit industry to incorporate existing programs. All regulators are mindful that if a practical, effective, and realistic



Memorandum to Firm Clients and Friends
September 29, 2003
Page 9

regulation is developed, one along the lines of a performance-based regulation, it will not replace the uncertainties of human behavior, which is unpredictable in circumstances that can arise in the management and use of reactive chemicals. Employers are urged by the government regularly to ensure that employees are properly trained and educated on the use and management of reactive chemicals, and that employees are responsible by following procedures and keeping safety a foremost factor in their activities.

* * * * *

We hope this information is helpful. As always, please call or e-mail if you have any questions.