



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

STRATEGIC PLAN
FY 2004–2008

TO
CONGRESS

BACKGROUND AND SUMMARY OF STRATEGIC PLAN

The U.S. Chemical Safety and Hazard Investigation Board (CSB) is an independent Federal agency with the mission of investigating major chemical releases and issuing safety recommendations.

CSB is a scientific investigatory agency; it is not an enforcement or regulatory organization. CSB makes recommendations to private industry; to trade and professional associations; and to local, state, and Federal agencies, such as the U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) at the U.S. Department of Labor. EPA and OSHA regulate the chemical industry and other industries that use chemicals.

CSB stakeholders include chemical companies; labor unions; trade and professional associations; insurance companies; environmental groups; and local, state, and Federal agencies. Our shared interest is preventing chemical accidents and making the country a safer place to live.

The CSB mission is clear—to promote the prevention of chemical incidents. In our first Strategic Plan (for FY2001–2005), we set a goal of initiating five investigations each year. In 2002, we completed four investigation reports and one case study.

Over the past year, we increased the number of investigators on staff. With additional experienced staff, we have set a goal of producing 12 safety products each year. In addition to investigation reports, these products include case studies, hazard studies, and safety bulletins.

We cannot measure our success just by the number of reports we issue. Success is also contingent on the wide dissemination and implementation of safety recommendations from those investigations. We will continue to ensure that our recommendations reach the appropriate audience and are acted upon.

To accomplish our mission, CSB must maintain a highly motivated, productive staff that is experienced, trained, and enthusiastic about our goals.

Over the next 5 years, we will continue to work diligently to reduce risks to workers, the public, and the environment.



Goal 1

The first mission goal focuses on the principal role of CSB—investigating major chemical incidents and producing timely, high quality investigation reports, recommendations, and other technical products.

Beginning in 2004, CSB expects to complete 12 investigations and other safety products each year. Effective coordination and partnering with industry, union, and local, state, and Federal entities are critical to meeting this goal.

Investigation reports contain well-reasoned and precisely targeted recommendations to prevent chemical incidents, protect workers, and ensure public safety. The primary metrics for this goal are the number of products generated each year and their technical quality, based on the reviews of our constituents.

Goal 2

The second mission goal focuses on the wide implementation of safety recommendations. By 2008, CSB expects to achieve acceptance of 80 percent of its recommendations. In addition, CSB will strategically disseminate its work products and recommendations to targeted audiences by developing more effective relationships with stakeholder groups and representatives. The acceptance rate of safety recommendations and customer surveys will be used to measure our success.

Goal 3

The third mission goal focuses on maintaining a high performing work force through comprehensive training programs, teambuilding, and individual skills development for all employees; reviewing and updating administrative and personnel policies; and developing and implementing a safety and health plan.

CSB is confident that it can accomplish its FY 2008 goal of a well-managed work force. Our employees are highly motivated and dedicated to the CSB mission. The agency is committed to continual improvement in the management of human resources.

Carolyn W. Merritt
Chairman



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I. INTRODUCTION

Elements of Strategic Plan

The CSB Strategic Plan contains the following elements, in addition to this introduction and a statement on our legislative mandate:

- Overview with mission and vision statements
- Discussion of goals
- Factors that may adversely affect achievement of goals
- Relationships with other agencies
- Program evaluation
- Consultation

As specified in Section 306 of the Government Performance and Results Act, each long-term goal has up to a 5-year timeframe for completion, as well as a quantitative target for cumulative accomplishment by the final year. The progress toward achievement of long-term goals is tracked through annual performance goals for year one (FY 2004) through year five (FY 2008). These 1-year targets are published in the applicable Annual Performance Plans. Each year, progress toward the goals is reported to Congress and the public through the CSB Annual Performance Report.

How CSB Uses the Strategic Plan

CSB uses the Strategic Plan as a guide in setting priorities, allocating resources, and making decisions. The plan sets the long-term direction and foundation from which day-to-day decisions are made. It provides the long-range targets and outcomes for annual performance plans.



II. LEGISLATIVE MANDATE

The U.S. Chemical Safety and Hazard Investigation Board (CSB) was created under the Clean Air Act Amendments of 1990. This legislation created an independent safety board to investigate chemical accidents that cause or threaten death, serious injury, or substantial property damage; and to recommend measures to prevent the risk of catastrophic events. The record before Congress in 1989 demonstrated that, though accident prevention had great promise, *“no agency of the United States Government was actively engaged in efforts to prevent chemical accidents . . . ”* [Senate Report No. 101-228 (1989); p. 143].

Although Congress determined that 14 agencies were engaged in accident prevention-related activities, it found that there was a need to *“improve the effectiveness of accident prevention programs and reduce the burden of duplicative requirements on regulated entities.”* (Senate Report, 1989) The chemical industry agreed with this finding in hearings before Congress. The industry voiced its support *“for a coordinated Federal approach to accident prevention and suggested that an agency like the Board might most effectively carry out that responsibility.”* (Senate Report, 1989)

Recognizing the need for a new and focused Federal strategy, Congress modeled CSB after the highly respected National Transportation Safety Board (NTSB). As defined by Congress, the CSB mission is to enhance the safety of workers and the public by uncovering the underlying causes of accidental chemical releases at fixed facilities and motivating remedial action by both the private and public sectors. CSB accomplishes its mission by:

- Conducting investigations and reporting on findings regarding the causes of chemical incidents.
- Conducting special studies, such as hazard investigations.
- Developing, communicating, and advocating recommended actions based on investigative findings.

CSB has a separate and distinct mission and authorities as compared to regulatory agencies such as EPA and OSHA, which conduct inspections after chemical accidents to determine compliance with specific regulations. The focus of these inspections is generally on rules violations.

CSB conducts investigations to determine the root and contributing causes of chemical incidents, regardless of existing regulations, and makes recommendations that may be widely applicable throughout the chemical industry. Recommendations are intended not only to correct facility-specific operational failures, but also to help owners, managers, regulators, and workers prevent and mitigate the potential for chemical incidents.

CSB has Memoranda of Understanding (MOUs) with EPA, OSHA, NTSB, the Agency for Toxic Substances and Disease Registry (ATSDR), and the Bureau of Alcohol, Tobacco, and Firearms (ATF) to enhance collaboration on investigations.



III. OVERVIEW OF PLAN

CSB Mission Statement

CSB investigates chemical accidents and hazards, recommending actions to protect workers, the public, and the environment. Our independent, scientific investigations bolster efforts by government, industry, labor, and communities to prevent chemical accidents.

CSB Vision Statement

CSB reports and recommendations are widely used to safeguard workplaces, communities, and the environment. Businesses that use chemicals operate more safely with accurate information on the causes of past accidents.

Implementing the Mission

By 2008, CSB will meet the goals of:

Producing timely, high-quality investigation reports, recommendations, and other technical products.

Achieving wide implementation of CSB recommendations and related accident prevention measures.

Maintaining a high performance work organization to ensure effective mission accomplishment.



Goal 1

Produce timely, high-quality investigation reports, recommendations, and other technical products.

Key Results

- Twelve safety products (investigation reports, case studies, hazard studies, safety bulletins) completed each year.

Key Strategies (Resources, Skills, and Technology Needed)

- Periodically review criteria for selecting incidents for investigation.
- Continually improve the productivity of the investigative process.
- Maintain and enhance the training program for investigative staff.
- Incorporate new components into investigative analysis (e.g., human factors).
- Coordinate with industry; labor; and local, state, and Federal entities to improve the efficiency and effectiveness of investigations.
- Conduct local community meetings for incidents that have offsite impact to hear community concerns.

Metrics

- Number of safety products completed each year.
- Customer surveys of the usefulness and quality of CSB products.



Goal 2

Achieve wide implementation of CSB recommendations and related accident prevention measures.

Key Results

- Acceptance rate of 80 percent for CSB recommendations.
- Strategic dissemination of CSB reports, recommendations, case studies, and safety bulletins to targeted audiences.

Key Strategies (Resources, Skills, and Technology Needed)

- Develop effective relationships with stakeholders to implement incident investigation recommendations.
- Develop and implement a plan for each CSB investigation to ensure acceptance and strategic dissemination of recommendations.
- Present CSB recommendations and related accident prevention measures at major chemical safety forums.
- Sponsor and organize conferences or symposia based on CSB investigations and studies.
- Publish papers and articles that promote the recommendations of CSB investigations.

Metrics

- Acceptance rate of safety recommendations.
- Customer surveys of quality and usefulness of CSB recommendations.



Goal 3

Maintain a high-performance work organization to ensure effective mission accomplishment.

Key Results

- Highly motivated, productive staff at all levels of the agency.
- A model work environment that fosters teamwork and collaboration.
- Agency viewed by staff as a great place to work.
- Retain 90 percent of high-performing employees.
- 100 percent employee participation in baseline survey of employee satisfaction.

Key Strategies (Resources, Skills, and Technology Needed)

- Review and update administrative and personnel policies, as needed, to maximize productivity and employee satisfaction.
- Develop a comprehensive training program, including management training, teambuilding, and individual skills development for all employees.
- Implement safety and health plan.

Metrics

- Staff retention rate.
- Employee satisfaction surveys.



IV. GOAL DISCUSSION

Goal 1

Produce timely, high-quality investigation reports, recommendations, and other technical products.

Discussion

Chemical incidents may cause fatalities and injuries to workers and the public, cause extensive property damage, and harm the environment. Through independent investigations, CSB develops safety recommendations designed to prevent future incidents.

CSB has increased the number of safety products it will produce yearly. These products include investigation reports and hazard studies (which include recommendations), case studies, and safety bulletins. The increased number of investigations into many sectors of the American workplace will allow CSB to have greater impact on the prevention of chemical incidents.

CSB recommendations are the most important tools to effect change. To ensure that our products and recommendations have a timely impact on industrial safety, CSB will increase the efficiency of the investigative process by reducing the time from the occurrence of an incident to the issuance of a report.

CSB investigations continue to highlight the key role human factors play in incident causation. Human factors range from details of the man–machine interface to the influence of organization and staffing. To fully address this issue, CSB will include a human factors component in its investigative analysis.

Most incidents are investigated by other agencies and organizations in addition to CSB. Improving coordination with these groups is important in effectively sharing evidence, recognizing other points of view, and working efficiently with other jurisdictions.

Involving the affected community in the investigation process results in a more comprehensive work product. One way to ensure this involvement is by encouraging the public to present information or raise concerns at public meetings. Such meetings help the public and interested parties understand



the CSB process and work products, and make them aware of potential hazards and preventive measures. Public meetings also assist CSB in understanding what issues are important to the public.

In FY 2003, CSB doubled the size of its investigation staff. Our experience over the last 5 years and the addition of new investigators have highlighted the need for a more focused training program on current and emerging investigative methods and technology.

Baseline Statistics

During its first 4 years of operation (1998-2001), CSB issued one to two investigation reports each year. In FY 2002, CSB issued four investigation reports and a case study. In FY 2003, CSB issued seven investigation reports, one hazard study, and one safety advisory.

Key Results

Assuming level funding, the long-term goals/results relative to this mission goal are:

- Twelve safety products per year from 2004–2008.
- Effective coordination of industry, labor, and local, state, and Federal entities in the conduct of investigations.

A CSB investigation incorporates a causal analysis and targeted recommendations to rectify safety failures. CSB investigations—which are labor- and time-intensive—result in reports that are disseminated to a wide range of stakeholders. The development of safety recommendations demands high levels of analytical and technical research because of the range of affected organizations and economic activities.

Hazard investigations are special studies of causes and methods of preventing or reducing the severity of chemical accidents. Unlike an incident investigation, a hazard investigation typically examines a *series* of related incidents to identify common causes and make recommendations for prevention. In September 2002, the Board completed its first hazard investigation, a landmark 2-year study of the hazards of uncontrolled chemical reactions (i.e., “reactive hazards”). As other safety issues arise in the course of CSB incident investigations, the agency anticipates initiating additional hazard investigations.

Other safety products are occasionally needed to address specific problems or to reach particular audiences. These additional products include:

- Safety bulletins on good-practice information for a specific hazard or operating process.
- Case studies of incidents for which no recommendations are issued.
- Safety alerts or advisories to communicate urgent safety information from ongoing investigations.



Goal 2

Achieve wide implementation of CSB recommendations and related accident prevention measures.

Discussion

The purpose of the CSB investigation of incidents is to prevent future similar events. This mission is accomplished through widespread acceptance of CSB safety recommendations.

Recommendations are the primary tools used by the Board to encourage the implementation of safety improvements, thus protecting workers, the public, and the environment.

CSB recommendations are issued to chemical firms, equipment suppliers, contractors, insurance companies, local authorities, trade associations, or unions, as well as Federal and state regulatory agencies. EPA and OSHA are required to respond to CSB safety recommendations within 180 days, but other recipients have no such legal obligation.

The CSB independent incident investigation process identifies trends or issues that may otherwise be overlooked. CSB recommendations seek not only to address the issues that caused a specific incident, but also to identify necessary changes in management systems that would prevent similar incidents.

In developing recommendations, CSB researches relevant issues and consults closely with experts on industry best practices, codes, and government regulations. CSB is committed to using the best scientific and technical data available in making recommendations.

Acceptance of recommendations requires effective outreach with CSB stakeholders.

In addition to developing Board recommendations, the CSB recommendations staff works with recipients and other interested parties to help ensure the successful acceptance of recommendations.

Board recommendations are issued and closed only by a vote of the Board.

Our completed incident investigation reports are praised for their scientific rigor, their readability and usability, and the applicability and practicality of their safety recommendations. CSB safety recommendations have been accepted and used by state governors, legislatures, trade associations,



companies, and emergency responders. In many other cases, our reports have spawned educational efforts to enhance safety awareness for specific audiences.

In addition to investigation report findings and recommendations, CSB promotes prevention through outreach activities with its stakeholders and with other partners in chemical safety (e.g., academia, professional societies), the international community, the media, and the general public. Relationship development and two-way communication are crucial to delivering accident prevention information and keeping abreast of technology, safety systems development, and public concerns.

The U.S. Congress is a key constituency for the Board. We will keep our authorization and appropriation committees and other representatives informed about the progress of our work and will respond promptly to any request for information concerning our investigations, recommendations, and operations.

Baseline Statistics

As of July 2003, CSB has issued 168 safety recommendations directed to government agencies, industry, trade associations, labor unions, and other organizations. In virtually all cases, CSB has received good cooperation from recipients. More than 40 recommendations have been successfully closed, and positive actions are underway or planned in the majority of remaining cases.

Key Results

CSB has set the following long-term goals/results relative to this mission goal:

- Acceptance rate of 80 percent for CSB safety recommendations.
- Development of effective relationships with stakeholder groups and representatives to implement incident investigation recommendations.
- Strategic dissemination of CSB investigation reports, safety bulletins, and case studies to targeted audiences.

To achieve these results, CSB staff develop and implement an outreach plan for each CSB investigation. CSB will also continue to build and maintain a wide network of relationships with academic and professional organizations that can work with us to support the implementation of recommendations.

To facilitate these outreach activities, CSB:

- Conducts public meetings to update citizens and interested parties that are affected by chemical incidents.
- Sponsors and organizes conferences, symposia, and roundtables with its stakeholders to discuss common activities and to build coalitions on common concerns.



- Periodically meets with academia, industry, professional and trade associations, unions, and regulatory bodies to discuss ways in which they can promote CSB recommendations.
- Presents CSB recommendations and related accident prevention measures at major chemical safety forums.
- Publishes papers and articles to promote safety recommendations.

Appendix B lists CSB outreach and related activities for FY 2003.

The newly improved CSB website provides timely information on chemical incidents and prevention. It has proven to be an important avenue for reaching a large and diverse public audience. CSB uses its website to distribute its work products and recommendations.



Goal 3

Maintain a high performance work organization to ensure effective mission accomplishment.

Discussion

CSB understands that high performing employees are essential to accomplish its mission. Preventing chemical incidents requires the effective application of human resources to the conduct of quality scientific investigations and to the formulation and promotion of sound safety recommendations.

When CSB began operation in November 1998 as a new Federal agency, it lacked adequate staff and infrastructure. Since that time, however, CSB has devoted considerable resources to hiring exceptional personnel and developing its basic organizational infrastructure. From FY2004–2008, CSB will build on the current foundation to improve the performance, training, productivity, and satisfaction of its workforce.

Key Results

The key outcomes for this goal are to increase the productivity of staff and to continue to develop a work environment that fosters teamwork. In pursuing these objectives, CSB will improve the quality and increase the number of its investigations. At the same time, CSB expects that its employees will view the agency as a great place to work. A key element of this mission goal is to retain a high proportion of staff and attract quality employees when positions become vacant.

Key Strategies

CSB has already developed most of its basic organizational policies. Their effective implementation is a key means of achieving a high performance workplace. CSB will review and update personnel and administrative policies as needed to maximize productivity and employee satisfaction and to ensure that all policies complement our strategic goals.

CSB will continue to focus its attention on human capital issues, particularly staff training. The new Human Resources Director will manage these efforts.



Training (both formal and on-the-job) is essential to the development of a skilled, proficient staff. CSB will develop a comprehensive technical training program for investigative and safety program staff, in addition to supervisory training on teambuilding and a consensus approach to decision making. All employees will have individual development plans and participate in ongoing teambuilding exercises.



V. KEY FACTORS AFFECTING GOAL ACHIEVEMENT

The following factors may affect achievement of the CSB goals for FY2004–2008:

- Changes in the level of cooperation in ongoing incident investigations, in regulations or policies, in national initiatives, or in the level of interest and involvement of stakeholders.
- Decreases in Congressional support and funding.
- Instabilities in funding or staffing.
- A major catastrophic incident that requires dedicated resources.

VI. RELATIONSHIPS WITH OTHER BUREAUS AND AGENCIES

CSB works closely with EPA, OSHA, and ATF on accident investigations to minimize duplication of activities. As referenced earlier, this is accomplished through sharing of forensic test results, coordinating accident site control, and preserving evidence.

CSB has Memoranda of Understandings (MOUs) with EPA, OSHA, ATF, and NTSB for coordination of investigation activities. CSB also has an MOU with ATSDR for consultation on the human health impacts of chemical exposures.



VII. PROGRAM EVALUATIONS

Evaluations Used to Develop the Strategic Plan

CSB programs and operations have had numerous reviews by external parties, including the General Accounting Office (GAO), the Office of Personnel Management (OPM), and the Office of Inspector General (OIG). The findings and recommendations from these evaluations have been used in developing the strategic plan, as highlighted below:

- *Status of Implementation Effort, GAO/T-RCED-99-167*: This evaluation addressed the CSB budget request for FY 2000 in three areas, one of which was investigations and recommendations.
- *Chemical Safety Board: Improved Policies and Additional Oversight Are Needed, GAO/RCED-00-19*: The report recommended that CSB develop and implement clear policies and procedures in the investigation protocol to further ensure impartiality and thoroughness. In response to this evaluation, CSB developed an investigation protocol in late 1999 and is currently revising this protocol based on additional investigative experience.
- *Review of Human Capital Management, OPM/December 31, 2001*: This review focused on how well the CSB human capital program promoted mission accomplishment. OPM commended CSB for its human capital policy and program development, and recommended actions to improve the overall effectiveness of the program.
- *Issues Regarding Management Accountability, Control, and Direction Have Not Been Resolved, OIG/IC-01-02*: This evaluation addressed the Board members' shared decision-making authority, vacancies in key management positions, and management accountability and integrity. The OIG made 10 recommendations to improve management. CSB implemented all the recommendations within 6 months of receiving the OIG report.
- *Human Capital Management Needs to be More Organized, Strategic, and Accountable, OIG/IC-01-03*: The evaluation of our human resource management program found it to be in compliance with legal requirements. Six recommendations were made to improve efficiency and effectiveness. CSB took immediate action on each recommendation.



Future Evaluations

CSB does not have a formal schedule for future evaluations. However, we will use the following methods in continuing program evaluation:

- **Self-assessment:** CSB will monitor and continuously improve its work processes, functions, and program results through data collection, analysis, and targeted solutions.
- **Assessment by key stakeholders:** Stakeholders will assess the effectiveness of CSB through questionnaires, surveys, and interviews at the completion of key assignments, at public hearings, at public meetings, and in roundtables. Results will identify the strengths and weaknesses of programs and areas for improvement.

CSB welcomes independent assessments of its operations and will continue to cooperate in all aspects of such evaluations. The OIG is currently conducting a comprehensive review of CSB mission effectiveness.

VIII. CONSULTATIONS

CSB devoted significant time and attention during FY 2003 to updating its Strategic Plan and aligning the performance of its staff with the CSB mission. The Board and staff participated in a comprehensive, structured strategic planning process involving retreats, interviews, and all-hands meetings.

Furthermore, CSB conducted extensive outreach activities with key stakeholders to solicit input and feedback from professionals working in the fields most affected by CSB activities. Outreach and coordination included:

- Presentations by Board members at scientific, industry trade association, and labor union meetings.
- Periodic public meetings with the entire range of stakeholders.
- Discussions with key Congressional staff.
- A strategic planning stakeholder roundtable.
- A live web cast featuring e-mailed questions from around the country.



APPENDICES



**APPENDIX A:
BUDGET ALLOCATIONS BY STRATEGIC GOALS,
FY 2003**

CATEGORY	GOAL 1	GOAL 2	GOAL 3	TOTAL
Personnel Compensation & Benefits	2,277,000	1,120,000	1,920,000	5,317,000
Travel/People	191,000	62,000	29,000	282,000
Rent/Communication/Utilities	286,000	231,000	231,000	748,000
Printing/Reproduction	34,000	3,000	6,000	43,000
Other Services (Contracts)	764,000	169,000	293,000	1,226,000
Supplies and Materials	74,000	40,000	24,000	138,000
Equipment	18,000	14,000	22,000	54,000
TOTAL	3,644,000	1,639,000	2,525,000	7,808,000



APPENDIX B: STAKEHOLDER OUTREACH ACTIVITIES IN FY 2003

Consultations

CSB Data Roundtable on the reporting of accidental chemical process releases in the chemical industry was attended by industry, labor unions, trade associations, Federal agencies, professional associations, academia, and environmental groups, Washington, DC, November 14, 2002.

CSB Stakeholder Roundtable on FY 2004–2008 Strategic Plan was attended by industry, labor unions, trade associations, Federal agencies with cross-cutting functions, the Office of Management and Budget (OMB), professional associations, academia, and environmental groups, Washington, DC, May 15, 2003.

Chemical Safety Board, Environmental Protection Agency, and Occupational Safety and Health Administration Reactives Roundtable on regulatory alternatives for controlling reactive hazards was attended by stakeholders from industry, labor, academia, government, and other organizations to discuss how EPA and OSHA might expand their regulatory coverage of reactive hazards, as recommended by CSB, Washington, DC, June 10, 2003.

CSB Strategic Plan Electronic Webcast on FY 2004–2008 Strategic Plan to obtain input on CSB goals and strategies for the upcoming five years, Washington, DC, May 28, 2003.

Presentations

American Petroleum Institute: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Dallas, Texas, September 19, 2002.

Synthetic Organic Chemicals Manufacturers Association: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Arlington, Virginia, October 2, 2002.

Louisiana Chemical Association: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Mobile, Alabama, October 10, 2002.

Center for Chemical Process Safety: The U.S. Chemical Safety and Hazard Investigation Board, October, 8, 2002.

Center for Chemical Process Safety: The U.S. Chemical Safety Board's Reactive Hazard Investigation, October 11, 2002.

American Petroleum Institute: Investigation Outlook Through 2001, New Orleans, Louisiana, November 14, 2002.



American Petroleum Institute: Motiva Investigation, New Orleans, Louisiana, November 14, 2002.

New Jersey Chemical Industry Council: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Cranbury, New Jersey, November 21, 2002.

Center for Chemical Process Safety: Improving Coverage of Reactive Hazards Under the OSHA Process Safety Management Standard Investigation, Orlando, Florida, January 15, 2003.

California United Program Agency Conference: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Anaheim, California, February 4, 2003.

Southern California Local Emergency Planning Committees: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Anaheim, California, February 5, 2003.

Contra Costa County CAER Safety Summit: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Martinez, California, February 6, 2003.

Center for Chemical Process Safety: Improving Coverage of Reactive Hazards Under the OSHA Process Safety Management Standard Investigation, Washington, DC, February 12, 2003.

ORC: Improving Coverage of Reactive Hazards Under the OSHA Process Safety Management Standard Investigation, Washington, DC, February 15, 2003.

WPI, MIT, Tellus: The U.S. Chemical Safety Board's Reactive Hazard Investigation, February 23–25, 2003.

Dupont Wilmington: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Wilmington, Delaware, February 28, 2003.

Wisconsin Association of Hazardous Material Responders: Emergency Response, March 1, 2003.

Wharton School, University of Pennsylvania: Accident Epidemiology, March 4, 2003.

Ohio Chemical Technology Council: A Candid Assessment of Chemical Industry Safety, Columbus, Ohio, March 4, 2003.

Mary Kay O'Connor Process Safety Center: The U.S. Chemical Safety Board's Reactive Hazard Investigation, College Station, Texas, March 6–7, 2003.

Chevron Philips: The U.S. Chemical Safety Board's Reactive Hazard Investigation, St. James, Louisiana, March 17, 2003.

New Jersey TCPA: The U.S. Chemical Safety Board's Reactive Hazard Investigation, March 17, 2003.

Louisiana Department of Environmental Quality: The U.S. Chemical Safety Board's Reactive Hazard Investigation, Lafayette, Louisiana, March 18, 2003.

Bureau of Alcohol, Tobacco, and Firearms: The U.S. Chemical Safety and Hazard Investigation Board, Washington, DC, March 26, 2003.



American Institute of Chemical Engineers Loss Prevention Symposium: Reactives Hazard Investigation, New Orleans, Louisiana, April 1, 2003.

American Institute of Chemical Engineers Loss Prevention Symposium: Concept Sciences Investigation, New Orleans, Louisiana, April 2, 2003.

American Petroleum Institute: The U.S. Chemical Safety and Hazard Investigation Board, Washington, DC, April 2, 2003.

American Institute of Chemical Engineers Loss Prevention Symposium: BP Amoco Investigation, New Orleans, Louisiana, April 3, 2003.

Process Safety Management Forum: The U.S. Chemical Safety Board's Reactive Hazard Investigation, April 10, 2003.

American Institute of Chemical Engineers: Improving Coverage of Reactive Hazards Under the OSHA Process Safety Management Standard Investigation, New Orleans, Louisiana, April 2, 2003.

American Society for Testing and Materials: Improving Coverage of Reactive Hazards Under the OSHA Process Safety Management Standard Investigation, Kansas City, Missouri, April 9, 2003.

Georgia Process Safety Group: Reactives Hazard Investigation, Brunswick, Georgia, April 14, 2003.

Synthetic Organic Chemical Manufacturers Association: The U.S. Chemical Safety and Hazard Investigation Board, April 14, 2003.

National Petrochemical Refiners Association: Refinery Issues, April 24, 2003.

Society for Chemical Hazard Communication: The U.S. Safety Board's Reactive Hazard Investigation and Recommendations, Ft. Lauderdale, Florida, April 29, 2003.

Maryland Chemistry and Industrial Technology Alliance: The U.S. Chemical Safety Board's Activities and the Reactive Hazard Investigation, Baltimore, Maryland, April 30, 2003.

University of Maryland School of Nursing: Fires, Explosions, and Toxic Incidents: The Role of the U.S. Chemical Safety Board and Its Impact on Public Health, Baltimore, Maryland, May 5, 2003.

National Institute for Storage Tank Management: Motiva Investigation, Orlando, Florida, May 8, 2003.

Southern California CAER Committee: The U.S. Chemical Safety Board's Activities and Community Emergency Notification, Carson, California, May 14, 2003.

Duke Energy Company: The U.S. Chemical Safety Board's Activities, Washington, DC, May 14, 2003.

American Industrial Hygiene Conference and Exposition: The U.S. Chemical Safety Board's Reactive Hazard Investigation and Recommendations, Dallas, Texas, May 15, 2003.



Southern California Society for Risk Analysis: DPC Investigation and Overview of CSB Investigations, Los Angeles, California, May 16, 2003.

Georgia-Pacific PACE Council: Reactives, Georgia-Pacific Investigation, and NASH Study, May 23, 2003.

Texas Chemical Council: Presentation and Discussion on Reactive Chemicals, Galveston, Texas, June 2, 2003.

Texas Chemical Council: The U.S. Chemical Safety and Hazard Investigation Board, Galveston, Texas, June 4, 2003.

Region IV VPPA Health & Safety Conference: The U.S. Chemical Safety and Hazard Investigation Board's Reactive Hazard Investigation and Recommendations, Myrtle Beach, South Carolina, June 17, 2003.



U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD



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