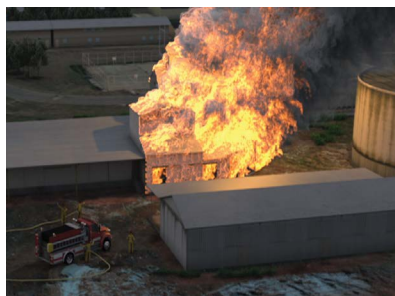




U.S. Chemical Safety and Hazard Investigation Board



CHEMICAL SAFETY BOARD: Driving Chemical Safety Change





VISION:

A nation safe from chemical disasters.

MISSION:

Drive chemical safety change through independent investigations to protect people and the environment.



IN THE CSB'S 19-YEAR HISTORY, the agency has employed to over **130** chemical incidents and issued more than **800** recommendations that have led to numerous safety improvements across a wide variety of industries. The following examples have resulted in safety change to protect people and the environment.

Improving Workplace Safety for Combustible Dust Hazards

As a result of several CSB investigations and a Combustible Dust Study, the Occupational Safety and Health Administration (OSHA) identified at-risk manufacturing industries and implemented a national Special Emphasis Program (SEP) on combustible dust hazards in general industry. The SEP included an outreach program focused on information from their Safety and Health Information Bulletin, *Combustible Dust in Industry: Preventing and Mitigating the Effects of Fires and Explosions*. [Combustible Dust Hazard Investigation](#)

Improved Training for First Responders

Following the investigation of the explosion of fertilizer grade ammonium nitrate (FGAN) that killed fifteen and injured 260, the CSB recommended that the Federal Emergency Management Agency (FEMA) create a training program on the hazards of FGAN. FEMA awarded two grants of \$1 million each to the Georgia Tech Research Institute and the International Association of Fire Fighters to develop and deliver HAZMAT training, focusing on FGAN hazards. Based on similar recommendations, Texas A&M Engineering Extension Services and the Mary Kay O'Connor Process Safety Center developed comprehensive industrial emergency training programs for first responders. [West Fertilizer Explosion](#)

New Fire Code Protection for the Storage and Use of Hazardous Materials

In response to the CSB's investigation into the fire and explosion that injured 36 people, including members of the public and six fire fighters, the City of New York revised its Fire Prevention Code. This achieved a more comprehensive control over the storage and use of

hazardous materials based on the International Code Council's (ICC) International Fire Code and the National Fire Protection Association's (NFPA) Fire Protection Code. [Kaltech Industries Waste Mixing Explosion](#)

Safer Methods for Cleaning Piping

The ICC revised the International Fire Code and International Fuel Gas Code to prohibit the use of flammable gases to conduct 'gas blows' to clean piping. This change was recommended following the completion of CSB's investigation of an explosion at a natural gas facility that killed six workers. [Kleen Energy Natural Gas Explosion](#)

The CSB's investigation into the major natural gas explosion and subsequent release of ammonia that killed two, critically burned four, and injured 71 resulted in incorporating the revised gas purging provisions of the National Fuel Gas Code into the International Fuel Gas Code. Simultaneously, NFPA enacted changes to the National Fuel Gas Code to require facilities to purge fuel gases directly outdoors, away from personnel and ignition sources. [Con Agra Natural Gas Explosion](#)

Corporate Safety Oversight at U.S. Refineries

In the aftermath of the 2005 explosion that killed fifteen workers and injured 180 others, the CSB issued an urgent recommendation to BP to form an independent review panel led by Secretary James A. Baker III to conduct a thorough review of the company's corporate safety culture, safety management systems, and corporate safety oversight at its U.S. refineries. The lessons learned from this report have been shared with refineries across the country to apply in their own facilities to prevent future accidents. [BP Texas City Explosion](#)

The U.S. Chemical Safety Board (CSB) is an independent, non-regulatory federal agency that investigates the root causes of major chemical incidents. Our mission is to drive chemical safety change through independent investigations to protect people and the environment. The agency was created under the Clean Air Act Amendments of 1990.

The CSB is led by a five-member board appointed by the President and confirmed by the U.S. Senate to serve five-year terms.

The CSB is a scientific agency that operates independently from regulatory bodies such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA). The CSB does not issue fines or citations, affix blame or apportion responsibility for accidents. The CSB does not have regulatory responsibility. Rather, it issues safety recommendations. The Board employs a staff of approximately 40 people, of whom about half are professional chemical incident investigators. Our investigators have a wide variety of backgrounds including chemical and mechanical engineering, chemistry, law, and human factors safety. Each year, the CSB selects several major chemical accidents in the U.S. and conducts thorough root-cause investigations.

In the course of an investigation, the CSB gathers testimony from a broad array of witnesses, such as plant workers, managers, standards developing organizations, emergency responders, and members of the public. Investigators collect, examine, and test chemical samples, equipment, and other physical evidence. Incident sites are carefully studied and documented. In some cases, where there is strong community interest, the CSB conducts a community meeting while the investigation is still ongoing to release and discuss preliminary findings and gather testimony from members of the public, workers, and local officials.

At the end of the investigation, a written report is drafted and presented to the CSB Board members for approval. Board members discuss, review, amend, and ultimately vote on adoption of the report. CSB investigation reports are public documents, and are available online at www.CSB.gov. The reports consider all the factors that lead to major incidents, such as inadequate process design, training, maintenance, or engineering controls as well as gaps in regulations or oversight.

Each full-length report includes specific safety recommendations that are directed to companies, trade organizations, labor groups, or other government agencies. Recommendations are developed based upon the specific root causes that are identified in the report. The purpose of the recommendations is to do everything possible to make sure that similar accidents do not occur in the future.



Once safety recommendations are issued, CSB staff work with recipients to explain and promote the rapid adoption of the recommended actions. Staff members track each recommendation to completion and report their conclusions to the CSB Board members, who must then vote whether to designate the safety recommendation as successfully closed. A real-time status of all safety recommendations is available from www.CSB.gov/recommendations.

The CSB works throughout the country to publicize the root causes of incidents and to drive safety change in the chemical process industries. Board members serve as primary spokespersons for the CSB before the news media, industry leaders, and other government officials and the U.S. Congress. The CSB also develops and distributes additional products such as safety bulletins, safety videos and articles in support of educating the causes of chemical incidents and measures to prevent them.

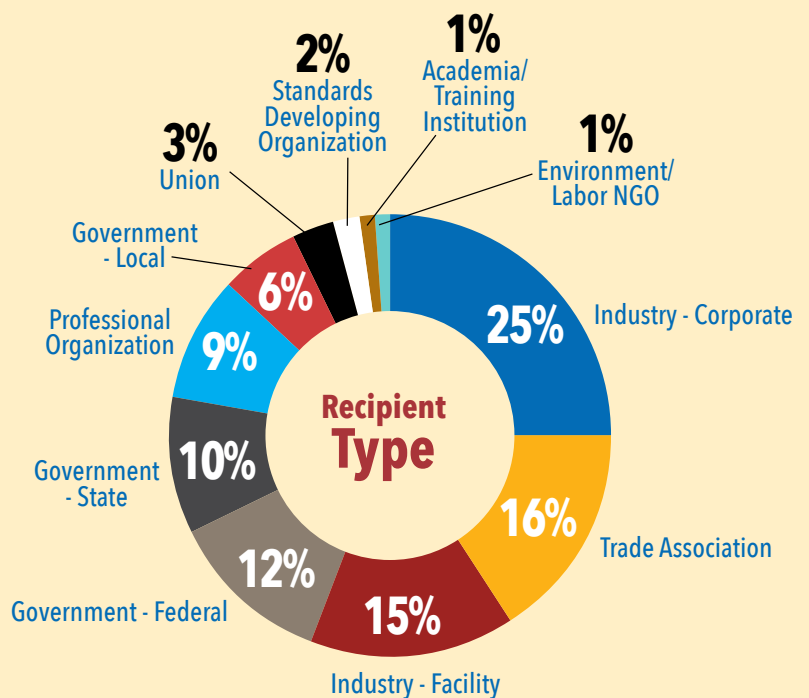
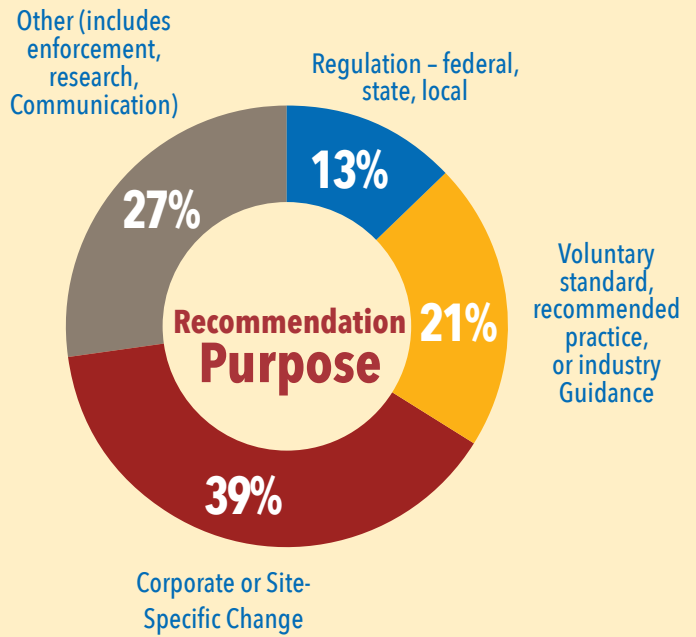
The CSB safety video program is a tool for achieving more widespread awareness of the causes of chemical incidents and the measures that can prevent them. CSB safety videos contain short, computer-animated depictions of events and can be freely viewed or downloaded at www.safetyvideos.gov. Safety videos have been used worldwide to facilitate improvements in training, engineering and process design and help to prevent multiple tragic and costly workplace incidents.

For more information, visit our website, www.CSB.gov, or contact the public affairs office at public@csb.gov.

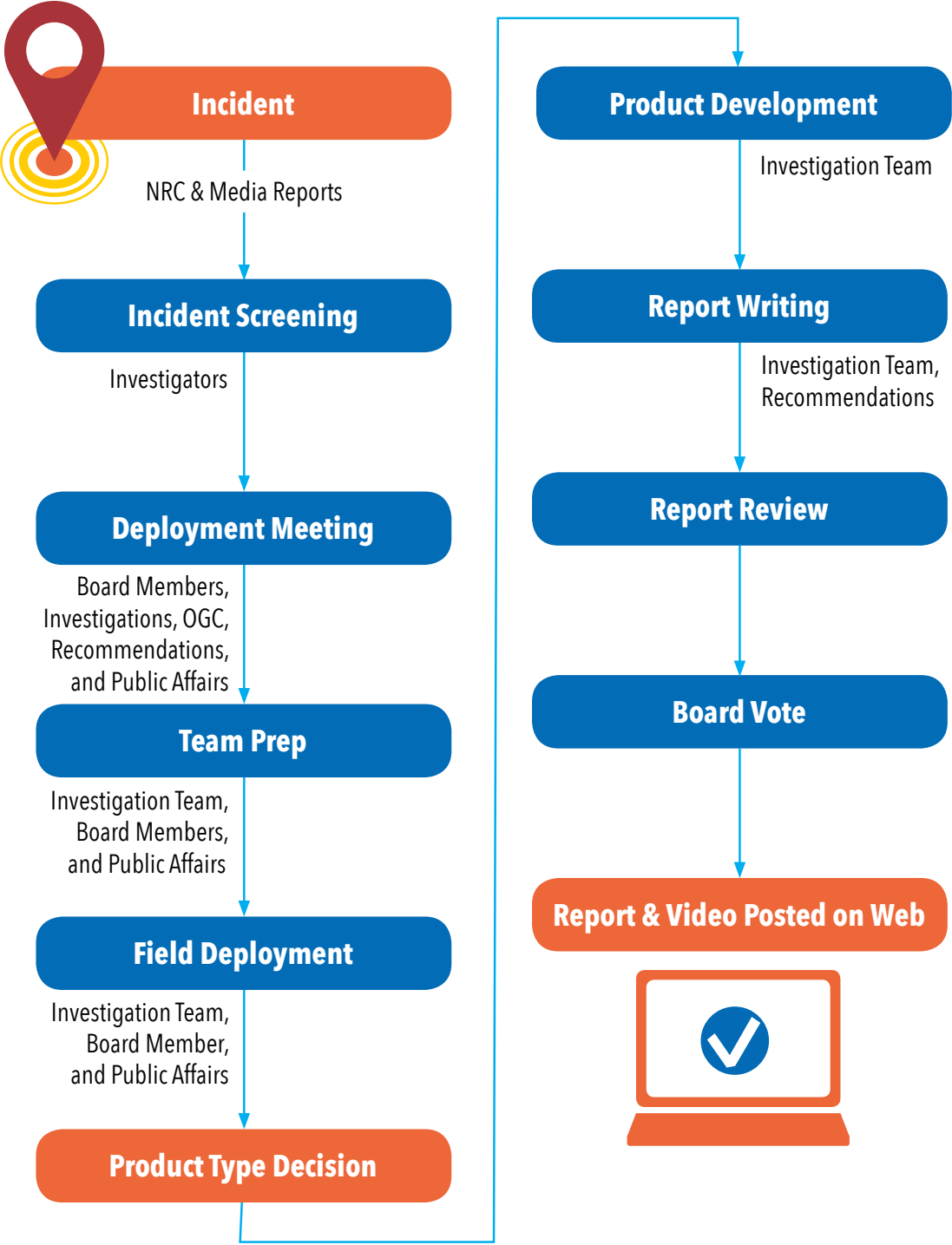
SAFETY RECOMMENDATIONS

Over **800** recommendations issued

The CSB issues safety recommendations to prevent the recurrence or reduce the likelihood or consequences of similar incidents. Recommendations are issued to a variety of parties, including government entities, safety organizations, trade unions, trade associations, corporations, emergency response organizations, educational institutions, and public interest groups.



SIMPLIFIED DEPLOYMENT & PRODUCT DEVELOPMENT PROCESS





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



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