

**Testimony of Carolyn W. Merritt  
Chairman and Chief Executive Officer  
U.S. Chemical Safety Board  
Before the U.S. House of Representatives  
Committee on Education and Labor  
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Mr. Chairman and Members of the Committee: thank you for convening this important hearing on the tragic explosion at BP Texas City in 2005. I am Carolyn Merritt, Chairman of the U.S. Chemical Safety Board, an independent, non-regulatory federal agency patterned on the National Transportation Safety Board. We investigate the root causes of chemical accidents and develop new safety recommendations based on our findings.

On Tuesday, we completed our investigation of the BP Texas City accident and issued a number of new national safety recommendations. To conduct this investigation, we interviewed 370 witnesses, reviewed more than 30,000 documents, and did extensive equipment testing and computer modeling. BP cooperated with the investigation, furnished documents and interviews on a voluntary basis, and committed to widespread safety improvements and investments following the accident.

Mr. Chairman, two years ago tomorrow, the BP Texas City Refinery, the third largest in the United States, was the site of the worst workplace accident in this country since 1990. Fifteen people died, including James and Linda Rowe, whose courageous daughter is sitting here this morning at the witness table. One hundred and eighty others were hurt, many with severe and disabling injuries.

The explosion occurred during unit startup, one of the most hazardous periods in a refinery. A distillation tower was overfilled with liquid, flooding an antiquated blowdown drum and stack that vented directly to the atmosphere. Flammable liquid – nearly the equivalent of a full tanker truck of gasoline – erupted onto the plant grounds, vaporized, and exploded.

In our final report, we concluded that organizational and safety deficiencies at all levels of the BP Corporation caused this terrible accident. We found widespread safety culture deficiencies both at the Texas City Refinery and at higher levels of BP.

Over many years, a combination of corporate cost-cutting, production pressures, and a failure to invest had eroded process safety at this refinery. Between 2002 and March 2005, an ominous series of internal reports, surveys, and safety audits warned BP managers and executives about the deteriorating conditions in Texas City. However, their response was simply too little, too late. Some additional investments were made, but they did not address the core process safety and maintenance problems at the refinery. And further budget cuts were enacted, even as late as early 2005.

Budget considerations forced reductions in training, personnel, and the maintenance and modernization of critical equipment. These reductions had adverse effects on safety and set the stage for the March 2005 disaster.

Our investigation also revealed a variety of technical factors that were among the causes of the accident. Specifically, we examined the unsafe placement of trailers in the refinery, and the absence of a modern flare system for controlling flammable releases.

All the deaths and many injuries occurred in or near trailers that were as close as 121 feet from the unsafe blowdown drum. The investigation revealed that trailers are more vulnerable than predicted by available industry guidance. People inside trailers were injured as far as 479 feet away from the blowdown drum, and trailers nearly 1000 feet away sustained damage. A human being is more likely to be injured or killed inside a trailer – which can shatter during an explosion – than if he is standing in the open air. For that reason, occupied trailers have no place near hazardous process areas of refineries and chemical plants.

In October 2005, we issued an urgent safety recommendation to the American Petroleum Institute, whose president is here today, to develop new safety guidance preventing trailers from being placed in harm's way in oil and chemical plants. Trailers are portable by definition and can easily be moved to safer locations.

We also issued recommendations in October 2006 to both API and OSHA aimed at eliminating unsafe blowdown drums from U.S. refineries and chemical plants in favor of safer alternatives, such as flare systems. A flare system could have prevented or greatly minimized the effects of the accident in Texas City.

We urge API and OSHA to move quickly and aggressively on these issues and to take steps that will improve process safety in concrete and measurable ways.

In addition, our investigation found that errors and procedural deviations occurred during the startup on March 23. We performed a human factors analysis to understand the causes for these mistakes and deviations. That analysis showed that unit operators in Texas City were likely fatigued, having worked at least 29 straight days of 12-hour shifts.

Fatigue prevention regulations have been developed for aviation and other transportation sectors, but there are no fatigue prevention guidelines that are widely used and accepted in the oil and chemical sector. Our report recommends that API and the United Steelworkers work together to develop such consensus guidelines.

We also found shortcomings with control panel design, staffing, supervision, training, and communication. Surprisingly, we found that abnormal startups were common in this particular unit, with 18 out of 19 exhibiting abnormal levels and pressures. BP did not investigate these previous near-misses and did not install modern instrumentation on the distillation tower. Furthermore, much of the instrumentation that was present was not working due to flaws in preventative maintenance.

The BP Texas City Refinery is regulated under OSHA's Process Safety Management (PSM) standard, which was issued in 1992 as a result of chemical accident provisions included in the 1990 Clean Air Act Amendments. The PSM standard requires covered facilities to implement 14 specific management elements to prevent catastrophic releases of hazardous substances.

Our investigation found numerous requirements of the standard were not being effectively performed in Texas City – such as incident investigation, preventative maintenance, management of change, and hazard analysis. Required safety studies were overlooked for years. For example, a required relief valve study that, if done, could have helped prevent the accident was 13 years overdue on the day of the explosion.

If the Process Safety Management standard had been thoroughly implemented at the refinery, as required by federal regulations, this accident likely would not have occurred.

BP, industry, and OSHA are now focused on measuring and controlling lost-time injuries, which are a fundamentally backward-looking indicator. Injury rates do not predict the likelihood of a catastrophic process accident at a facility.

I know from personal experience as an industry safety executive in the 1990's that when the PSM regulation was established, it received great attention and investment throughout much of industry. But today, CSB investigations as well as my discussions with industry managers indicate that many companies have reduced their focus on these critical safety requirements. Without strong OSHA enforcement, PSM will devolve into essentially a voluntary program. Almost invariably, when we conduct an investigation of a major chemical catastrophe, we find that both PSM implementation and PSM enforcement were lacking.

Federal regulators did not conduct any comprehensive, planned process safety inspections at the Texas City Refinery. In fact, our investigation found that in the ten years from 1995 to 2005, federal OSHA only conducted nine such inspections anywhere in the country, and none in the refining sector. And the Texas City Refinery was an extremely dangerous workplace by any objective standard. In the 30 years prior to March 23, 2005, twenty-three workers had died there in workplace accidents. Counting the 15 workers who died on March 23 and another one who died there more recently, there have been a total of 39 deaths in that one facility.

OSHA did conduct unplanned inspections of the Texas City Refinery in response to accidents, complaints, or referrals. But these unplanned inspections are typically narrower in scope and shorter than planned inspections. Proposed OSHA fines during the twenty years preceding the March 2005 disaster – a period when ten fatalities occurred at the refinery – totaled \$270,255; net fines collected after negotiations totaled \$77,860. Following the March 2005 explosion, OSHA issued the largest penalty in its history to BP, over \$21 million for more than 300 egregious and willful violations.

Our report concluded OSHA has focused its inspections for a number of years on facilities that have injury rates. While OSHA is to be commended for trying to reduce these

rates, the Chemical Safety Board believes that OSHA should also pay increased attention to preventing less frequent, but catastrophic, process safety incidents such as the one at Texas City.

When the PSM standard was created, OSHA had envisioned a highly technical, complex, and lengthy inspection process for regulated facilities, called a Program Quality Verification or PQV inspection. The inspections would take weeks or months at each facility and would be conducted by a select, well-trained, and experienced team. Indeed, thoroughly inspecting a 1,200-acre chemical complex with 30 major process units – like the Texas City Refinery – is no small undertaking and requires at least that level of effort.

On Tuesday, our report called on OSHA to identify those facilities at the greatest risk of a catastrophic accident and then to conduct comprehensive inspections of those facilities. We also recommended that OSHA hire or develop new, specialized inspectors and expand the PSM training curriculum at its National Training Institute.

Mr. Chairman, our vision is eminently achievable, particularly if OSHA receives appropriate support, resources, and encouragement from Congress. Other safety authorities have managed to do what we are proposing. For example, the U.K. Health and Safety Executive, which oversees a much smaller oil and chemical industry than exists in the U.S., has 105 inspectors for high-hazard facilities; each covered facility in the U.K. is thoroughly inspected every five years.

In your own district of Contra Costa, Mr. Chairman, the county has its own industrial safety ordinance and inspects each covered oil and chemical facility every three years. A county staff of five engineers performs an average of 16 inspections each year. So this one county, which is particularly enlightened, seems to be outpacing the rest of the nation.

Mr. Chairman, rules already on the books would likely have prevented the tragedy in Texas City. But if a company is not following those rules, year-in and year-out, it is the ultimate responsibility of the federal government to enforce good safety practices before more lives are lost.

Congress showed tremendous vision in 1990 when it reauthorized the Clean Air Act and made major accident prevention one of its cornerstones. However, I am concerned that since 1990, there has not been sufficient attention and investment in these programs to fully realize that vision. The tragedy in Texas City should cause us all to reflect and to resolve to do better in the future.

Thank you, Mr. Chairman, for the opportunity to testify this morning and thank you also for your longstanding support of our agency and its mission.