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CSB Cautions on Hazards Associated with Commissioning of Natural Gas Power Plants

by Mark L. Farley

The United States Chemical Safety and Hazard Investigation Board (also known as the Chemical Safety Board or "CSB") today issued a statement regarding its investigation into the catastrophic explosion that occurred at the Kleen Energy Plant in Middletown, Connecticut on February 7, 2010. The explosion resulted in six fatalities, multiple injuries, significant damage to the power plant under construction, as well as off-site damage. In the press release, the CSB observes that the safety issues raised by this accident are not limited to this one incident. Because the U.S. is in the midst of "an ambitious construction effort for new natural gas power plants," the CSB's investigation likely will have a significant impact on the natural gas power industry.

The CSB is an independent federal agency that investigates and reports to the public on the causes of major chemical accidents at industrial sites across the country and issues recommendations to prevent future incidents. It does not have any regulatory or enforcement authority. According to the agency, the accident occurred during a planned work activity to clean debris from natural gas pipes at the plant, which was under construction. Workers used natural gas at a high pressure of approximately 650 pounds per square inch to remove any debris in the new piping. At pre-determined locations, this gas was vented to the atmosphere through open pipe ends which were located less than 20 feet off the ground.

This cleaning practice, which is known within the natural gas power industry as a "gas blow," apparently is common during the commissioning of new or modified gas pipes at facilities. Initial calculations by CSB investigators reveal that approximately 400,000 standard cubic feet of gas were released to the atmosphere near a building at the site in the final 10 minutes before the blast. As noted by the agency, that is enough natural gas to fill the entire volume of a pro-basketball arena with an explosive natural gas-air mixture, from the floor to the ceiling.

According to the CSB, this gas was released into a congested area next to the building. This congested area likely slowed the dispersion of the gas. The gas built up above the lower explosive limit of approximately 4% in air and was ignited by an undetermined ignition source.

A major focus of the CSB investigation is to determine what regulations, codes, and good practices might apply to these gas blows. To this point, the agency has not identified any applicable codes, but the CSB is continuing its research. In the meantime, the CSB **"strongly caution[s] natural gas power plants and other industries against the venting of high-pressure natural gas in or near work sites. This practice, although common, is inherently unsafe."** (Emphasis added.) According to the CSB, it is investigating possible alternatives to this practice, including the use of air, steam, nitrogen, or water or the use of combustion devices to safely destroy the gas. It is likely that the agency ultimately will issue recommendations to use alternative methods.

In connection with its investigation into another accident, the CSB recently recommended changes to the National Fuel Gas Code to prevent explosions involving gas purging. The agency made this recommendation only days before the Kleen Energy explosion. According to CSB, the National Fire Protection Association ("NFPA") panel responsible for the fuel gas code voted to move forward with the CSB's recommendations to make purging practices safer at work sites across America. These provisions will apply at hundreds of thousands of facilities, once fully adopted.

The type of purging described in the fuel gas code is different from the gas blows used in the power industry, and power plants remain exempt from that code. However, gas purging as defined in the code has certain similarities to gas blows, in that gas is applied at one end of a pipe and gas is intentionally vented at the other end to the atmosphere. For this reason, the CSB emphasized that "companies must ensure that flammable gases are not vented into close proximity with ignition sources and workers." In addition, the CSB is encouraging the gas power industry to "closely study the very positive actions recommended by the NFPA and the American Gas Association committees."

Pillsbury's Health and Safety Working Group is tracking this investigation on behalf of its members. The Health and Safety Working Group is designed for in-house attorneys and safety professionals who work on health and safety, process safety, and risk management matters. The Working Group's quarterly meetings are a forum for organizations to stay abreast of safety issues and best practices. Pillsbury attorneys make presentations on emerging issues and discuss how companies may want to address issues of concern. These meetings also enable members to discuss topics of interest and benchmark safety efforts with similarly situated organizations. Pillsbury also tracks important regulatory developments and provides members with regular e-mail updates. This real-time dissemination of information regarding health and safety regulatory and enforcement matters assists members in anticipating emerging issues.

If you have any questions about the content of this client alert, please contact the Pillsbury attorney with whom you regularly work or the author below.

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