

Chemical Safety Board finds broken and cracked valves contributed to fatal blast at U.S. Steel Clairton Coke Works

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Do you work at Clairton Coke Works or another steel mill? Send a report on conditions at the plant by filling out the form below. Submissions will be kept anonymous.

Broken and cracked valves, 70-year-old, antiquated equipment and more dangers were found by the Chemical Safety Board (CSB), which is investigating the deadly explosion at U.S. Steel's Clairton Coke Works on August 11 that killed two steelworkers and injured 10 others.

The investigation update released by the U.S. Chemical Safety and Hazard Investigation Board provided new and important details about the catastrophe, which further prove it could have been prevented had U.S. Steel taken the most elementary steps to upgrade its equipment and protect its workforce.

The CSB is considered by many to be the gold standard in investigating and reporting on accidents and explosions at chemical and refining facilities throughout the country. Its reports and recommendations are used throughout the world. It is also an agency the Trump administration is determined to eliminate.

In one of the *World Socialist Web Site's* initial statements on this tragedy, it was referred to as "social murder," meaning that U.S. Steel prioritized production and corporate profits over the lives of steelworkers.

The United Steelworkers (USW), whose members make up the majority of the 1,300 workers employed at the Clairton Coke Works, shares equal responsibility. As the CBS update shows, the deteriorated condition of the mill has been known to all involved. Rather than fight on behalf of the workers, the USW functions as a second line of management, constantly justifying U.S. Steel's refusal to upgrade the deteriorating mill.

The investigation update was issued just before the government shutdown furloughed all the employees at the agency who were investigating the deadly blast.

Killed in the explosion were two steelworkers, 52-year-old Steven Menefee and 39-year-old Timothy Quinn. Menefee left behind a wife and two children. Quinn left behind three children as well as his mother whom he was caring for. Both had many other family members, co-workers and friends who cared for them.

Of the 10 workers injured, five were hospitalized. The CSB report gives no details on their status and neither U.S. Steel nor the United Steelworkers have issued any updates about their health or prospects for recovery.

The Clairton Coke Works, located about 30 miles south of Pittsburgh along the Monongahela River, is listed as the largest coke works in the country. Coke is made from heating coal to about 2,000 degrees in an oxygen-free environment to burn off impurities from the coal. The coke is then used to power the blast furnaces that produce steel.

The coal is baked in collections of ovens called batteries. Gases given off during the baking process are very valuable and can be used in other

industrial processes. A portion of the coke gases are piped back and used as fuel to heat the ovens.

"Coke oven gas is highly flammable, toxic, colorless, and has a sulfurous odor," the report notes. The gas is primarily made up of hydrogen and methane, from 60 to 90 percent of the gas by weight. Nitrogen and carbon monoxide make up most of the rest with small amounts of other compounds.

It becomes explosive at levels of just 4.4 percent.

The August 11 explosion occurred in the reversing or transfer room located between Battery 13 and 14 where coke gases coming off the ovens are recirculated back into the ovens as fuel.

Investigators are focusing on a gas isolation valve for Battery 13, which is located in the basement between the two batteries. When closed, the valve would cut off gas flow, allowing workers to perform repairs.

The CSB update provides a critical timeline and an initial description of the events leading up to the explosion.

On July 8, a steelworker identified a gas leak from a valve downstream from the gas isolation valve. A temporary patch was placed on the valve to stop the leak.

On July 28, almost three weeks after the first gas leak was discovered, U.S. Steel held a meeting to plan for the replacement of the damaged valve as well as other valves at Battery 13. The work was to be done on August 19.

"On August 11, 2025," the report notes, "the day of the incident, U.S. Steel decided to exercise the Battery 13 gas isolation valve. A U.S. Steel supervisor called an MPW employee and asked MPW to provide a pump to flush the valve seat."

MPW industrial services (MPW) provides industrial cleaning services, including cleaning with pressurized water. It has worked at Clairton Coke Works before.

The report notes that MPW workers were not part of the July 8 planning meeting. But the report does not say if the August 11 exercising and flushing of the valve seat was planned for and discussed at the July 28 meeting.

Exercising a valve is opening and closing it to ensure that it is functioning correctly. Flushing of the valve seat is the cleaning of corrosion and debris which would prevent the valve from closing all the way. On either side of the valve are clean-out ports through which steam can be pumped to try and remove residue that has accumulated, blocking the valve from making a complete seal.

It is not clear from the CSB report when U.S. Steel knew that the gas isolation valve was not functioning properly. Clearly, since a supervisor contacted MPW to be on hand, they already knew that the valve was not correctly working and was not able to stop the flow of coke gas to Battery 13.

A 73-year-old valve

Exercising a valve during production is not a routine procedure. The valve was 73 years old, having been manufactured in 1953. It was made of cast iron, a material that while inexpensive is not suited for this work.

In a CSB report following a massive fire at the Coke works in February 2018, the CSB determined the cause was corrosion to the piping at a different part of the mill, but the CSB warned US Steel of the danger caused by its old piping and the need to upgrade it.

The oil and gas industry has replaced its cast iron equipment with stainless steel and other corrosion-resistant metals made for this purpose. Cast iron especially should not be used when confronted with wide swings in temperature and exposure to corrosive materials. Both conditions exist in the valves directing hot coke gas.

Even under ideal conditions, the rated life of cast iron valves is typically 20 years, not the 73 years of those in use at Clairton Coke Works.

Anyone who has ever added coolant to their car's radiator would know that the engine has to be cold. This is because of the danger of coolant boiling when hitting the hot engine block, creating back pressure and a geyser of steam and hot water. Furthermore, putting cold water in contact with a hot engine block can cause it to warp or crack.

This is apparently what happened.

At about 10:30 a.m., the U.S. Steel supervisor, two other U.S. Steel workers and three employees from MPW began setting up their equipment.

"A U.S. Steel supervisor, one of the three U.S. Steel employees working on the valve, instructed MPW to begin pumping water into the valve body through one of the cleanout ports," the report states.

The report raises questions as to why water instead of steam was used when attempting to clean out the valve.

Almost immediately after the process, workers' carbon monoxide alarms went off.

The report continues: "Data recovered from the workers' carbon monoxide monitors and the four-gas monitor indicate that the monitors alarmed around this time. One of the MPW workers told the CSB that they observed water leaking from the valve's bonnet flange. Additionally, the workers heard a 'pop' sound, and one U.S. Steel employee said they smelled gas."

The US Steel supervisor ordered the evacuation of the area and a radio alert was sent to other employees working on batteries 13 and 14 to evacuate.

At 10:47 a.m., less than a minute after the radio call to evacuate, the explosion occurred.

There were a total of 22 people working in the area at the time. The report locates four workers at the top of the batteries when the explosion occurred. It is not clear where each of those injured were located.

Timothy Quinn's body was found right after the explosion, but Steven Menefee's body was not found until 7:30 p.m. Another worker who survived but was severely injured was not found until 2:30 p.m. The U.S. Steel supervisor on site was also severely injured.

A photograph of the battery 13 gas isolation valve shows that it is cracked completely through.

Photos show four other valves cracked, although CSB investigators noted that they had yet to determine if the damage happened from the explosion or had existed prior to it.

The CSB is planning to continue its investigation to determine the cause and source of the gas release and the source of ignition. They want to

conduct a metallurgical analysis of the cast iron coke oven gas valves, examine U.S. Steel's use of cast iron in piping and review US Steel's policies, procedures and safety management systems.

However, the CSB is currently closed as part of the government shutdown. A call and email for further information were returned with auto-replies.

Even if the CSB does reopen, it will only be for a few days as the Trump administration has eliminated all funding for the CSB in the 2026 budget which officially starts on November 1. At the time it was announced that their funding would be cut, CSB officials said they have about \$800,000 in reserve to complete their open investigations. It is not clear if that included the Clairton investigation.

The elimination of the Chemical Safety Board has long been a demand of the oil, gas and petrochemical industry, which wants to see cuts to safety standards and regulations that interfere with their profits. Calling for a system that "minimizes interference with the operation of the free market and free enterprise," the Trump administration is installing corporate executives to oversee the Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA) and further reducing safety inspections.

The CSB is entirely an investigative body, which can make recommendations but has no authority to impose fines or to enforce changes.

The USW bureaucracy

The CSB's findings are a damning indictment of the United Steelworkers bureaucracy, which immediately ran to the corporation's defense after the fatal explosion. On August 22, Richard Tikey, the vice president of USW Local 1557, denied that the explosion had been caused by antiquated equipment and rejected his own members' statements that U.S. Steel had been warned about gas leaks at least a month before the fatal blast.

According to an August 25 report by CBS Pittsburgh affiliate KDKA News, "Tikey said there was a leak in the area of the explosion, but that it was corrected with a patch and did not lead to the explosion, to his understanding. He added that U.S. Steel had monitors to watch for any leaks," the local news station reported. "The valve itself was last replaced in 2015, Tikey said. He does not believe the explosion was due to old equipment."

Instead, the USW official blamed contractors for the fatal explosion in an effort to protect the company and the USW bureaucracy's own role in colluding with management's savage cost-cutting that undermines workplace safety.

The United Steelworkers has not called for a shutdown of the batteries involved, or for halting operations pending an overhaul or safety audit. In fact, workers were told to work 12-hour days for 6 days a week "if they wanted to save Clairton."

Following the release of the CSB report all USW District 10 Director Bernie Hall could say was, "We appreciate the Board's attention to the incident and that we will continue to work with investigators as they finish their report," according to the *Allegheny Front*.

For decades, the USW bureaucracy has functioned as a second layer of management, overseeing the destruction of tens of thousands of jobs, forcing through contracts with massive concessions and working to suppress workers' struggles even as the company piles up one safety violation after another.

The lives lost and the families shattered must not be swept under the rug through toothless investigations and token fines! To uncover the truth and

hold those responsible to account, workers must take the initiative themselves.

An independent rank-and-file investigation into the Clairton disaster, led by steelworkers and supported by workers throughout the region, is necessary. Only such a workers inquiry can expose the full extent of management's negligence and the complicity of the union apparatus and lay the basis for a genuine fight for safe workplaces and the protection of workers' lives.

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