

U.S. Chemical Safety Board Media Availability
T2 Laboratories Inc.
January 3, 2008
Statement by CSB Investigator-in-Charge Robert Hall

Good afternoon. I am Robert Hall, Investigator-in-Charge for this U.S. Chemical Safety Board (CSB) investigation. The CSB is an independent federal agency that investigates major chemical accidents at industrial sites.

We are currently conducting an investigation to determine causes of the fatal chemical explosion that occurred on December 19th at T2 Laboratories Inc. here in Jacksonville. The Board does not issue fines or citations but does produce investigative reports and recommendations that are widely used to prevent future accidents.

The team of CSB investigators from Washington, DC, worked here through the holiday week and remains in Jacksonville interviewing survivors and surveying damage.

T2 is a small company with about a dozen employees and the single production site in Jacksonville. The explosion at T2 occurred at about 1:30 p.m. on December 19th and killed four workers.

One worker remains in the hospital, and a number of other people were injured both on and off site. The blast at T2 was among the most powerful ever examined by the Chemical Safety Board. In addition to the tragic loss of life among T2 workers, injuries off-site requiring medical attention occurred as far as away as 750 feet from the reactor site.

The explosion occurred during the production of a gasoline additive called methylcyclopentadienyl manganese tricarbonyl. This additive was first developed in the 1950s and is widely used to boost the octane rating of gasoline. The company began producing the chemical for commercial sale a few years ago, using a batch reactor.

There are several steps in the process. The first step involved heating and reacting organic materials with metallic sodium. It was during this step the reactor ruptured. Prior to the rupture eyewitnesses reported hearing loud hissing seeing vapor venting, which indicates the development of excess temperature and pressure inside the reactor.

Following the rupture of the reactor its flammable contents mixed with air and ignited releasing large amounts of thermal energy as seen on the US Coast Guard infrared video released last week.

The reactor was designed for high pressure and had steel walls 3 inches thick. Under normal temperatures and conditions, it would require a pressure of several thousand pounds per square inch to rupture this reactor.

We recovered large portions of the vessel's top head – weighing hundreds of pounds - approximately one quarter-mile away. This gives an idea of the tremendous power of the explosion.

We refer to this type of accident involving an uncontrolled chemical reaction as a “reactive chemical accident.” The CSB conducted a major study of reactive hazards in 2002 and made a number of safety recommendations. The study identified 167 serious reactive chemical accidents in the U.S. over a 20 year period. Most recently, the CSB investigated a uncontrolled reaction and explosion at the Synthron chemical plant in Morganton, North Carolina, in 2006. We issued a report and safety video on that accident last July.

The CSB team plans to conduct reactive chemistry testing using T2's recipe to better understand exactly what went wrong inside the reactor on December 19th. The laboratory testing will measure the amount of heat and pressure generated should the reaction run out of control, or run away.

We plan to do a comprehensive examination of T2's safety practices. CSB investigations also look at regulations, codes, and industry standards to determine whether they can be improved to help prevent similar accidents in the future.

At this time, the accident site remains hazardous for investigators to enter. There were a number of hazardous chemicals stored at the site. We are working with the other parties to plan a safe entry for investigators.

The CSB continues to survey the businesses on Faye and Blasius Roads documenting blast damage, identifying injuries, and collecting security camera videos.

The CSB and others involved in the investigation continue to find debris from the explosion as far as one mile from the explosion site. This debris is being collected and cataloged for future analysis.

We observed building blast damage at 1000 feet from the reactor site. We have brought in a blast modeling team that is measuring the exact nature and extent of the blast damage. That team looks at deflection of metal beams, shattering of windows, and cracking of walls and structures to develop a better understanding of the nature of the explosion. We also anticipate doing a metallurgical examination of the reactor fragments to better understand exactly what happened during the final few minutes before the explosion.

T2 company personnel have been cooperating with the investigation, and there is an outstanding working relationship among the various agencies here, including the U.S. Occupational Safety and Health Administration, the Jacksonville Fire and Rescue Department, and the Jacksonville Sheriff's Office.

Due to the magnitude of this accident, we expect a lengthy field investigation and the team will remain in Jacksonville for at least the next several weeks. The entire investigative process, including the various laboratory and forensic tests and the drafting of the report, often takes many months. As the investigation unfolds and we learn new facts, we will seek to keep the public and the industry informed through briefings like the one today.

Thank you for coming here this afternoon – I'll be happy to answer your questions.