

Roger Boisjoly and the Challenger Space Shuttle

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In the fall of 2000, I had a series of conversations with Roger Boisjoly one of the Morton-Thiokol engineers who worked on the Challenger Space Shuttle which exploded on January 28, 1986, shortly after launch, killing all seven crew members. This is his story:

Tuesday 11:40am EST, Jan 28, 1986 - Roger Boisjoly was walking past the door to the viewing room when Bob Ebeling, another engineer in the Solid Rocket Motor group, popped out to ask if he was coming in to watch the launch. It was common for the engineers to gather to see the lift-off, because their employer, Morton Thiokol, supplied NASA with the booster rockets for the Space Shuttle. But Roger had a sick feeling about this one. He told Bob he didn't want to see the launch, but Bob kept prodding, and they went in together. Roger remembers:

“The room was filled so I seated myself on the floor close to the screen and leaned against Bob’s legs, as he was seated in a chair. The boosters ignited and as the vehicle cleared the support tower, I whispered to Bob, “We just dodged a bullet.” The reason I made this statement was that the propellant experts had told us that the boosters would explode at ignition if we developed a leak in the case. At approximately T+60 seconds, Bob leaned over and whispered to me that he had just completed a prayer of thanks to the Lord for a successful launch. Just 13 seconds later we both saw the horror of destruction as the vehicle exploded. We all sat in stunned silence for a short time; then I left the room and went directly to my office where I remained in shock for the remainder of the day. Two of my seal task team colleagues inquired about my condition at my office, but I was unable to speak to them... “

The previous day, with the help of his seal task team colleagues, Roger had successfully convinced Morton-Thiokol management to call NASA and recommend a “no-launch.” The shuttle had never launched in temperatures as low as were predicted for the next morning (29 degrees Fahrenheit), and they were terrified that the rocket booster O-ring would fail. The lowest measured O-ring temperature at any previous launch had been 53 degrees, and that had been in January of the previous year. The post-launch photographs from that January flight showed that the O-rings had sealed so poorly, due to their inflexibility from the cold, that it was a miracle the booster rocket hadn't exploded then.

When NASA was finally called, late the night before the launch, Morton-Thiokol engineers and managers presented a unanimous recommendation that the launch be post-poned. Joe Kilminster, one of the Morton-Thiokol VPs present said, “Based on this presentation by our engineers here at Morton-Thiokol, I can't recommend a launch.” The presentation had been unambiguous and the recommendation clear and strong. Roger silently breathed a sigh of relief. They had done it. The shuttle was not going to fly in those dangerously cold conditions.

But then, George B. Hardy, NASA's Deputy Director of Science and Engineering at Marshall Space Flight Center, exclaimed that he was “appalled” at a no-launch recommendation. Still, he said he would not overrule Morton-Thiokol if they recommended not launching in the morning. Larry Mulloy, NASA's Solid Rocket Booster Manager at Kennedy Space Center, after stating that he thought the data presented by Morton Thiokol was inconclusive, said, “My God, Thiokol, when do you want me to launch, next April?”

After hearing NASA's reaction, Morton-Thiokol's Kilminster asked for a five minute off-line caucus and pressed the mute button on the speaker phone. For the next thirty minutes, although Roger and another engineer argued forcefully against a launch, it was clear that the four senior executives, all VPs, were not listening. After the senior Morton-Thiokol VP, Jerry Mason, said to the VP of Engineering, “Take off your engineering hat and put on your management hat,” the four VPs took a vote among themselves. At 11pm, Kilminster picked the phone up to tell NASA that Morton-Thiokol now recommended proceeding with the launch.

The next morning, at 11:40am, when the O-ring failed, two billion dollars of hardware exploded, resulting in the death of all seven crew members, including the school teacher, Christa McAuliffe, whose entire sixth-grade class was watching.

A Presidential Commission was formed to look into the Challenger incident. A month later, in a closed session, Roger and two of his colleagues testified to what they knew about the events leading up to the disaster. It came out that it was well-known within Morton-Thiokol and even within parts of NASA that there were problems with the O-ring long before the Challenger launch. Roger revealed to the Commission several memos and reports, including one he had written to his management six months before the incident, indicating that not fixing the O-ring problem could result “in a catastrophe of the highest order – loss of human life.”

As a result of this testimony, which so alarmed the Commission that they immediately made it public, Roger became a public figure and was labeled within his own company and the industry as a whistle-blower. His career at Morton-Thiokol was effectively over. He was moved to a position of less authority and became so marginalized that being at work was, in his words, “painful beyond belief”. Even his neighbors wouldn’t talk to him – the same people that had elected him mayor of Willard, Utah a few years before. While he was testifying in Washington, there was an attempted break-in at his house. He and his family so feared for their lives that they purchased a .38 revolver for protection.

Beginning in July, 1986 he took several months of sick leave, and after being diagnosed as having Post-Traumatic Stress Disorder, Morton-Thiokol terminated him in January, 1987. Although he was given two years of disability compensation, it was at a partial salary and Morton-Thiokol refused to even pay for his medical insurance.

Things were very difficult. He was unable to find another job in the aerospace industry. At one point he tried the insurance business, even selling three policies as part of the training process. There were times during the first two years after the disaster that he was so overwhelmed with anger about what had happened that he could hardly function. When someone referred to the “Challenger accident”, he would often say:

“You will never hear me refer to this as an accident. It could have been prevented.”

Almost exactly a year after the explosion, Roger was asked to speak to students and faculty at MIT about his experiences. He was accustomed to giving technical presentations, but the idea of speaking so personally to over 100 MIT faculty and students was frightening, and he almost declined the invitation. But after talking it over with his wife Roberta, he decided that it was too important for him not to speak. Many of these students would graduate to be practicing engineers and hearing his story might help them understand the profound responsibilities they would undertake.

At MIT, his heart pounded so hard that he was surprised the words even made it beyond his throat and he had to stop several times to wipe tears from his eyes. Although they spontaneously extended his time from one hour to two, he didn’t really know how his words had been received.

While he remains adamant that the disaster was preventable, he draws the line when someone suggests that the managers at Morton-Thiokol or NASA were evil or corrupt. Whenever he hears anyone suggest that the disaster was caused by morally bankrupt people, he’ll invariably say:

“Don’t you ever think of those people that way. They were ordinary, intelligent people, like you and me, but caught up in a system, hypnotized by short-term rather than long-term thinking. They did not purposely send seven people to their deaths.”

In 1988, the American Association for the Advancement of Science awarded Roger the Prize for Scientific Freedom and Responsibility for his honesty, integrity, and courage in the events surrounding the Challenger incident. In the years since his first talk at MIT, Roger has been invited to speak about his experiences to over 400 university and engineering organizations all over the country and world. He also applied his wisdom and technical experience in the legal arena as a forensics engineer until 1996, when he decided to focus all of his professional energies on bringing his message to the public. He died in January of 2012 at age 73.