

US Airways Flight 1549: Forced Landing on Hudson River

PURPOSE

This case study is intended to provide a useful tool for the U. S. Nuclear Regulatory Commission (NRC) staff as it interacts with their stakeholders. It will also enable the regulated community to identify with, and learn from the findings made by the National Transportation Safety Board (NTSB) regarding the forced landing on the Hudson River by US Airways Flight 1549. The positive safety culture traits that contributed to the successful outcome of this event parallel those traits the NRC has incorporated into its Safety Culture Policy Statement.

WHAT HAPPENED?

On January 15, 2009, at approximately 3:27 p.m., US Airways Flight 1549 departed LaGuardia Airport heading to Charlotte Douglas International Airport. Less than 2 minutes after takeoff, the captain told the control tower there was an emergency. There were bird strikes in both engines. With both engines dead and unable to complete the engine dual failure checklist, the captain started the auxiliary power unit and took control of the aircraft. Initially, he informed the control tower of his intent to return to LaGuardia; however, he quickly realized that he was unable to return to the runway and informed the controller that he had no other alternative but to land on the Hudson River. He announced on the public address system, "This is your captain, brace for impact." The plane started quickly losing altitude and the captain glided the aircraft, tail first, into the Hudson River. Although the airplane was substantially damaged, all 155 passengers and crew members evacuated safely.



Evidence of Strong Safety Culture Traits	Evidence of Positive Safety Culture Traits
<p>Leadership Safety Values and Actions in which leaders demonstrate a commitment to safety in their decisions and behaviors.</p>	<p>Even after the successful landing on the Hudson River, the captain's commitment to the safety of others was evident. Before leaving the cabin, he walked up and down the aisle twice to make sure everyone was out. Once he was out of the cabin, he instructed the rescue boats to take care of the people on the wings first because those in the rafts were already safe. His commitment to the safety of others before thinking of himself is a reflection of his strong leadership skills.</p>
<p>Problem Identification and Resolution in which issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.</p>	<p>Both pilots identified issues potentially impacting the safety of the passengers and crew. They fully evaluated and quickly addressed the corrective measures needed. Each pilot adhered to his role and responsibilities while the captain planned the landing – wings exactly level, nose slightly up, survivable descent rate; touch down just above minimum flying speed but not below it. All of these things needed to happen simultaneously.</p>
<p>Personal Accountability in which all individuals take personal responsibility for safety.</p>	<p>From the captain to the co-pilot, flight attendants, passengers and emergency responders, everyone's contribution was critical to the success of the emergency landing and rescue. Everyone was accountable for their actions which played a significant role in maintaining safety for the passengers and crew.</p>
<p>Work Processes in which the process of planning and controlling work activities is implemented so that safety is maintained.</p>	<p>Having just recently completed training, the first officer recognized the warning signs of the abnormal event. He, therefore, located the quick reference handbook and followed its processes, which gave him greater control of the situation to maintain safety for all passengers.</p>

Evidence of Strong Safety Culture Traits	Evidence of Positive Safety Culture Traits
<p>Continuous Learning/Training in which opportunities to learn about ways to ensure safety are sought out and implemented.</p>	<p>In order to ensure safety, US Airways Crew Resource Management (CRM) and Threat Error Management (TEM) training was integrated into all aspects of the US Airways mandatory training plan. The captain stated that the training gave them the skills and tools needed to build a team quickly, open lines of communication, share common goals and work together</p>
<p>Environment for Raising Concerns in which a safety conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment or discrimination.</p>	<p>An important component in the CRM training program includes techniques that teach everyone how to clearly express concerns and problems, after which everyone commits to a solution. Research has shown that subordinates hesitate to correct their supervisors out of a traditional, but sometimes dangerous, respect for authority. The CRM training encourages everyone to raise safety concerns without fear of retaliation.</p>
<p>Effective Safety Communication in which communications maintain a focus on safety.</p>	<p>The National Transportation Safety Board (NTSB) report states that the cockpit voice recorder data indicated that the communication between the captain and first officer were excellent. In addition, the flight crew made only pertinent callouts to the air traffic controller in order to manage the workload and focus on safety.</p>
<p>Respectful Work Environment in which trust and respect permeate the organization.</p>	<p>The National Transportation Safety Board (NTSB) concluded that the professionalism of the entire flight crew and their excellent CRM training during the accident sequence contributed to their ability to maintain control of the airplane, configure it to the extent possible under the circumstances and fly an approach that increased the survivability of the impact.</p>
<p>Questioning Attitude In which individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.</p>	<p>In the CRM training, everyone learns to articulate a discrepancy between what is happening and what should be happening. After the bird strike, the captain quickly realized there was an emergency and took control of the aircraft. Although the Air Traffic Controllers were clearing the way for Flight 1549 to land at LaGuardia Airport, the captain analyzed the existing conditions, questioned the guidance to land at LaGuardia and instead made the decision to land on the Hudson, which was the safer option.</p>

WHAT CAN WE LEARN FROM THIS ACCIDENT?

“The lessons that can be taken from the remarkable story of Flight 1549 are many, and from a corporate management standpoint, a question to be asked might be, “If my company, my management team, my employees were put into a situation that difficult, can we respond?”

—Crisis Management Best Practices:

“Miracle on the Hudson” by Jay Silverberg,

<http://xenophonstrategies.com/blog/posts/crisis-management-best-practices-miracle-hudson>.

The story of US Airways flight 1549 contains the same threads of leadership, training, planning and preparation required for any corporation to be sufficiently able to respond when a crisis strikes. This incident reinforces the importance of promoting a positive safety culture by demonstrating how the strong safety culture traits aided the crew in protecting the safety of the passengers.

Sources of Information:

Accident Report:

NTSB Number AAR-10/03

NTIS Number PB2010-910403

Crew Management Processes Revitalize Patient Care, Health and Medicine, Originating Technology/NASA Contribution, http://www.sti.nasa.gov/tto/Spinoff2009/hm_6.html

Leadership Crucible | Kevin & Jackie Freiberg,

<http://www.freibergs.com/resources/articles/leadership/the-leadership-crucible/>

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