STATEMENT OF

CAPTAIN JOHN PRATER

PRESIDENT

AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

BEFORE THE

SUBCOMMITTEE ON AVIATION

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

UNITED STATES HOUSE OF REPRESENTATIVES

WASHINGTON, DC
February 24, 2009

US Airways Flight 1549 Accident

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Good afternoon, Mr. Chairman and members of the Subcommittee. I am Captain John Prater, President of the Air Line Pilots Association, International (ALPA). ALPA represents more than 52,250 pilots who fly for 35 passenger and all-cargo airlines in the United States and Canada.

We had every expectation of testifying before you today solely to laud the captain and crew of US Airways flight 1549 and discuss ways in which we can help prevent the need for future such heroics. Most regrettably, we must also include in our remarks our most heartfelt and sincere sympathies and condolences to the families and friends of all 49 passengers and crew lost last week aboard Continental Connection (Colgan Airways) Flight 3407 and one individual who perished in his home outside of Buffalo, NY. The aviation industry has had a long run of very safe operations – with no airline fatalities in calendar years 2007 or 2008 – but this accident serves as a reminder that we can never afford to divert our attention or take safety for granted. Safety of flight has been and always will be ALPA's goal, but it is not one that can ever be fully realized.

Ironically, the pilots of Colgan Airways, whose members flew the ill-fated Flight 3407 as a Continental Airlines code-share operation, very recently joined ALPA. It has been our privilege and duty to assist our newest pilot group by providing accident investigation experts, financial resources, critical incident support, and help in many other ways since last Thursday night when their plane went down. We could certainly wish that this pilot group did not need these services, but we are most pleased that ALPA has been able to provide them with over 30 ALPA pilots from other airlines and staff experts to assist them in their hour of need.

The facts surrounding Flight 3407 are still being developed and the accident is currently under investigation by the NTSB, so it would be wholly inappropriate to speculate on what may have gone wrong. We do note, however, possible similarities with previous accidents. Recent media reports and a review of NTSB reports bring to mind events such as the crash of a Jetstream 4101 in Columbus, Ohio in January 1994, an ATR 72 which crashed in Roselawn, Indiana in 1994, an Embraer 120 which crashed in Monroe,

Michigan in 1997, a Canadair CRJ which crashed at Jefferson City, Missouri in 2004, and others which may ultimately be shown to have common factors. We applaud and support the NTSB's ongoing investigation into the accident in Buffalo, and stand ready to assist in identifying and, more importantly, work with Congress, FAA, the NTSB and industry in correcting deficiencies to further improve the safety and reliability of airline operations.

I am not certain that I or anyone else can say anything to applaud or honor Capt. Chesley "Sully" Sullenberger III, First Officer Jeffrey Skiles, and flight attendants Sheila Dail, Doreen Welsh, and Donna Dent, that has not already been said. I must also recognize the fact that there were two off-duty pilots from different airlines in the cabin who immediately became first responders and assisted the working crew to evacuate and care for the passengers. This crew is, for very good reason, the most famous airline crew today, and they have been rightfully feted from coast to coast at events ranging from the Super Bowl to the Presidential Inauguration. The perspective that I <u>can</u> provide that most others cannot, however, is that the flight crews' peers – airline pilots the world over – recognize the special talent and skills that they brought to bear on the afternoon of January 15th. The crew had mere seconds to make an operational decision that would forever impact their lives and the lives of all other passengers and crew – whether for good or bad – and they made the fateful and correct decision with a cool and calm that even Hollywood would be hard pressed to imitate.

Capt. Sullenberger's professional life has been focused on improving aviation safety. For him, flying is not just a job that he goes to several days a week; his mission for many years has been to enhance aviation safety for all and his time and energies outside of the cockpit have been used to do that very thing. Please pardon our lack of humility, but we could not be any prouder that for more than 20 years, Sully worked to advance safety for his ALPA local pilot council and master executive council knowing that by sharing his knowledge and experience all passengers and pilots would gain.

<u>The Next Generation of Airline Pilots</u>

The passengers and other crewmembers aboard Flight 1549 were most fortunate to have as their captain a man who has devoted himself to a lifetime of learning and experience in aviation and aviation safety. Capt. Sullenberger is not only a safety expert who teaches others, he is also a glider pilot and a former fighter pilot. His ability to "dead stick" his aircraft into the Hudson River, and his excellent performance under pressure, serve as testimonies to the experience that he has accumulated over many years and many thousands of flying hours in different kinds of airplanes.

Perhaps more than any other event in many years, the world was reminded last month of the value of having dedicated, highly trained and experienced aviators on the flight decks of our airliners. Although sophisticated technologies contribute to the safety of the aviation domain every day, they can never replace the value of human judgment and action when an emergency arises. It is not hard to imagine what the outcome would have been had this aircraft been flown remotely by a pilot on the ground – think Unmanned

Aerial Systems – who was unable to see and assess all available options and act accordingly.

What troubles us is that the piloting profession has eroded to the point where legitimate questions can be raised about whether the industry is capable of hiring and retaining the next Capt. Sullenberger. The profession has historically attracted the best and brightest aviators through a combination of wages, health and retirement benefits, work schedules and other compensation. Those days are, for now, on life support as airline bankruptcies, terminated pensions and extreme pressures to lower pilot wages have all but destroyed our cherished profession for current pilots and have plainly sent the signal to other qualified aviators to look elsewhere for the means to provide for their families. Capt. Sullenberger and his pilot colleagues at many airlines across the country have lost all or part of their retirement benefits, their other benefits and wages have been slashed, and they are flying longer schedules than ever before.

What the traveling public must understand is that cheap airfares come with a hidden "fee," and that fee is the damage that has been done to the ability of the airlines to offer an attractive career to the next generation of pilots, and its resultant safety implications. Many airline pilots today would not recommend that their children follow in their footsteps because of the poor working conditions already mentioned and the instability of the industry. It should be clear to even the most casual observer after seeing the outcome of Flight 1549, that airline safety depends on many variables, but the most important of all is to have highly qualified, trained and experienced pilots in the front seats.

I testified before this subcommittee in June 2007 on several issues including pilot training and new hire qualifications and would offer that statement again for your consideration. Because the airline industry is now contracting, the debate over new hire qualifications has subsided somewhat, but it will resume once the economy improves.

Mitigating the Risk of Bird and Wildlife Strikes

I would like to now discuss some of the serious issues that Flight 1549 raised and inform you of the airline pilot's perspective on them. Again, I would emphasize that these are issues brought to mind by our review of publicly available data from an ongoing NTSB investigation.

Aircraft Certification

The accident of Flight 1549 has been attributed thus far to a dual-engine failure which resulted when the aircraft struck a flock of geese while climbing through New York City airspace. The resulting collision with the birds reportedly caused a reduction and/or loss of power in both engines.

The potential for bird strikes is a well-known risk that is far from new; the Wright brothers recorded the first bird strike in 1905. The first bird strike-related fatality occurred in 1912 when aviation pioneer Cal Rodgers collided with a gull which became

jammed in his aircraft's controls and caused it to crash. Striking large birds at high speeds may result in catastrophic damage to an engine or an airframe. It is something that every pilot is aware of, concerned about, and generally powerless to avoid. Instead, we focus on reducing the probability of a strike and the severity of the consequences when a strike occurs. Airframe and engine manufacturers have made great strides in designing aircraft structures – including windshields and engines – that are able to withstand the enormous impact forces that result from encounters with most birds and remain capable of continued safe flight and landing.

Aircraft in scheduled airline service have multiple engines as a safety feature to provide a redundant power plant in the event that one engine fails completely. Engine bird-ingestion standards do not necessarily require that a modern jet engine be able to suffer a bird strike and continue to run with no performance degradation. Rather, the engine must be capable of safely shutting down and not failing so catastrophically that it causes damage to the surrounding parts of the airplane or cabin. Pilots are trained accordingly – to be able to shut down a damaged engine and continue to a safe landing. The rationale for this rule is that an event in which all engines on the aircraft are damaged to the point of producing no useable thrust is considered to be so rare that the design of the airplane and engines does not have to prevent it. Therefore, the need to understand the bird population in terms of size and numbers of different species is critical in ensuring that aircraft, windscreen and engine designs account for those events that are increasingly more probable.

ALPA was instrumental in the most recent efforts to improve the standards for engine bird ingestion. That effort was based on a 1976 National Transportation Safety Board (NTSB) Safety Recommendation[1] that called on the FAA to revise the FARs "to increase the maximum number of birds in the various size categories required to be ingested into turbine engines with large inlets.'' FAA agreed that the engine certification regulations should be modified to expand the bird ingestion testing requirements for large, high-bypass ratio engines and began to improve the standards.

While these rulemaking efforts represent progress in engine certification, the data used to develop the current standard is now over 10 years old. During the intervening years, aggressive conservation programs have resulted in greater numbers of larger birds. Continued avian research to determine today's bird strike risk is needed to improve engine certification standards.

[1] ON MARCH 11, 1976, THE NATIONAL TRANSPORTATION SAFETY BOARD COMPLETED ITS PUBLIC HEARING INTO THE OVERSEAS NATIONAL AIRWAYS, INC., ACCIDENT OF NOVEMBER 12, 1975. DURING THAT ACCIDENT, THE CREW OF A MCDONNELL DOUGLAS DC-10-30F REJECTED TAKEOFF FROM JOHN F. KENNEDY INTERNATIONAL AIRPORT AFTER A NUMBER OF LARGE BIRDS WERE INGESTED INTO THE NO. 3 ENGINE. ONE OF THE BASIC ISSUES IN THE ACCIDENT WAS THE CATASTROPHIC DISINTEGRATION OF THE ENGINE. Information obtained from NTSB Safety Recommendation Database

Ditching Considerations

The FAA requirements for designing airline aircraft are stringent, based on many years of manufacturing and operational experience, and are focused on providing the safest possible environment for occupants. Compliance with those standards makes it highly unlikely that serious problems will arise, but even the best-designed, best-operated aircraft cannot be made totally immune from danger. Thus, occupant survival provisions have been developed over the years which deal with everything from the flammability of fabric used for seat covers, to on-board medical care, to the possibility, however remote, of a ditching.

Fortunately, because ditchings are such rare events, there is very little actual operational data we can examine to validate applicable design standards. The performance of the airplane structure during a ditching obviously cannot be tested during manufacturing flight test; it is done almost exclusively by analysis. The aviation community has been afforded an extraordinarily rare opportunity, therefore – the chance to analyze a virtually intact commercial airliner that not only successfully landed on water, but also retained enough structural integrity to give all the occupants time to evacuate safely. We must, therefore, learn everything we can from this event, and the NTSB's investigation will lead the way to that knowledge.

We will not soon forget the dramatic footage of the survivors of Flight 1549 standing on the wings of the aircraft in life jackets and scrambling to reach life rafts. That scene highlighted two valuable safety features of airliners that may bear further investigation. The requirement for life jackets and other water-survival provisions is generally for those flights traveling some distance away from land. Indeed, some aircraft are designated as the "overwater" version of a common type to denote the fact that they are outfitted with those water survival provisions. However, some airlines are removing that equipment from those aircraft that do not fly extended distances from shore. ALPA suggests that it would be prudent for the FAA to revisit that practice and to undertake a detailed risk analysis to consider the possibility of a water landing in bodies of water other than the ocean, such as rivers and lakes.

Additionally, it appears that the emergency exits in the rear of Flight 1549 could not be used because that portion of the aircraft was partially submerged shortly after landing. The escape slides, which are required to be portable in order to be used at other exits, were therefore, unusable. It will be important as the investigation proceeds to determine why the aircraft floated in a tail-down position and what might be done to maximize the possibility that slide-rafts in all areas of the aircraft remain useable after ditching.

The passengers and crew of Flight 1549 were most fortunate in that the aircraft landed very near ferry boats which enabled an almost-immediate rescue from the frigid waters of the Hudson. If the same successful ditching had occurred a few miles away requiring passengers to board rafts and await rescue, it seems doubtful that sufficient raft space would have been available, and thus the outcome would not have been nearly so successful. ALPA urges the FAA, working with the NTSB investigation, to conduct a

thorough analysis of the requirements for, and capabilities of, the various water survival provisions on aircraft used in commercial service.

Pilot Training on Wildlife Avoidance

It is astonishing, but true, that bird and other wildlife strikes annually cause in excess of $1.2 billion damage to civilian aircraft around the world. In the United States alone, the FAA estimates some $600 million annually in damage and associated costs due to bird and wildlife strikes. Although bird strikes that result in commercial aviation fatalities are rare, this risk has brought down several aircraft and has seriously damaged many more. In 1995, a four-engined Air Force AWACS airplane crashed on takeoff from Anchorage, Alaska due to bird strikes and killed all 24 airmen onboard. In 2006, an airline B-767 on takeoff at Rome, Italy nearly lost all engine power due to bird ingestion but was able to land safely; the flight crew's flying skills were recognized as they became recipients of ALPA's Superior Airmanship Award.

Most reported bird strikes to civil aircraft in the U.S. occur in the airport environment at low altitudes: [2]

- 92% of all strikes occur below 3,000' AGL
- 42% of reported strikes to civil aircraft in the U.S. occur on the ground during takeoff or landing
- 73% of strikes occur at less than 500 feet above ground level (AGL).
- 2,014 strikes occurred above 5,000 feet AGL between 1990 and 2007.
- The U.S. record height for a civil aircraft strike is 32,500 feet.

These statistics inform us that even the very best airport wildlife hazard management plan is incapable of protecting aircraft once it leaves an airport's environs. In the case of Flight 1549, the collision with the birds occurred 2 to 3 miles from the airport.

Both the probability and severity of bird strikes is increased for transport aircraft compared to smaller, slower aircraft due to a number of factors:[3]

- Operating speeds are higher, reducing the time available to observe wildlife activity and increasing potential impact force and damage should a bird strike occur.
- The aircraft are larger and less maneuverable, making evasive action difficult.
- Large aircraft provide a greater opportunity for multiple bird strikes while flying through a flock of birds. Cockpit location can restrict visibility which limits the ability to see birds and mammals.
- The extreme workload during critical flight phases means the flight crew has limited time in which to observe wildlife activity.

[2] Source: *Wildlife Strikes to Civil Aircraft in the United States, 1990-2007* (Federal Aviation Administration and Department of Agriculture, June 2008)

[3] Source: *Sharing the Skies - An Aviation Industry Guide to the Management of Wildlife Hazards* (Transport Canada, 2nd edition, March 2004).

- Use of alternate runways to avoid bird concentrations at busy airports can lead to significant delays. Commercial aircraft operating from busy airports are subject to tight schedule constraints; arrival and departure flexibility is limited when attempting to avoid wildlife activity.
- In the takeoff phase, commercial aircraft are frequently governed by published departure procedures and noise and traffic-management requirements which limit the ability to adopt alternate flight paths to avoid areas of bird activity.
- In the approach and landing phase, constraints are similar to those for takeoff and climb. Flight profiles are governed by published approach procedures. At large airports, sequencing high volumes of traffic further restricts flight path flexibility.

If birds are known to be in the vicinity of an airport, pilots can take precautionary actions, particularly prior to takeoff, but once airborne, knowing the hazard exists does not guarantee it is possible to maneuver to avoid it. Birds can be very difficult to see and their movements are unpredictable. Some courses of action available to pilots include:

- delaying takeoff or landing until the birds or animals are safely dispersed or known to no longer represent a threat,
- notifying ATC so other pilots can be alerted to the hazard, and
- reducing air speed in areas with high wildlife activity to minimize damage in the event of a collision.

While the airport operator is responsible for taking action to reduce the potential for bird and wildlife strikes on its facilities, the pilot in command is ultimately responsible for taking every reasonable precaution to operate safely. Some airlines provide a checklist that covers what to do following a bird strike but ALPA is unaware of any airline that provides wildlife avoidance training. Accordingly, we would suggest that wildlife avoidance techniques and guidance, such as that included in the Aeronautical Information Manual (AIM), be provided in airline flight operations manuals, training materials, and other company guidance for flight crew.

As part of ALPA's safety effort, I am very pleased to announce today that we have a new publication on the topic of wildlife avoidance techniques for pilots. It makes a number of recommendations which are germane to airlines, airport authorities and flight crews. The document, entitled "Wildlife Hazard Mitigation Strategies for Pilots" is available on our website at www.alpa.org.

Warnings to Flight Crews about Birds and Wildlife

FAA began conducting research on the use of radar for bird avoidance in 2000. The goal is to determine if low-cost radars can reliably detect birds at airports, or within 3-5 miles of an airport, and develop an airport bird strike advisory system. The information might be transmitted directly to the cockpit to help pilots avoid large flocks of birds, and/or be provided to the airport operations center.

The FAA, in conjunction with the University of Illinois, is currently evaluating the use of radar for such purposes at several airports around the country including Seattle-Tacoma International and it is planned for several more, including Chicago O'Hare, Dallas-Fort Worth, and John F. Kennedy International airports. We encourage the use of this technology to help increase pilot awareness of in-flight bird hazards. That will represent a significant improvement over the warnings issued to pilots today, which are generally limited to a blanket statement that bird activity is present in the area.

Training on Aircraft Ditching and Evacuation

Pilot and flight attendant training for ditching and subsequent evacuations is required by Federal Aviation Regulations (FAR's). FAR Part 121 requires that airlines demonstrate the effectiveness of their evacuation training and dictates an extensive list of training tasks. The FAA-required list of trained tasks includes:

- Donning, use, and inflation of individual flotation means, if applicable;
- Cockpit preparation and procedures;
- Crew coordination;
- Passenger briefing and cabin preparation;
- Donning and inflation of life preservers;
- Use of life lines; and
- Boarding of passengers and crew into raft or a slide/raft pack.

We believe that the FAA and industry should, based on the final outcome of the investigation into this accident, examine whether these provisions are adequate or whether they should be strengthened.

FAA does not require the use of an actual airplane to train for ditching and evacuation. Generally, cabin and exit mock-up training devices are acceptable if they meet certain criteria. A company that does not conduct extended over-water operations (i.e., more than 50 nautical miles from the nearest shoreline; unless waivered for a greater distance) is not required to conduct training in the use of life rafts.

A Notice of Proposed Rule-Making (NPRM) was published in the Federal Register January 12, 2009 covering pilot, flight attendant and dispatcher training and qualification. This NPRM proposes changes to the frequency of recurrent emergency training. It proposes that pilots receive training on emergencies every 36 months instead of every 24 months, and that flight attendants receive training every 12 months instead of every 24 months. These proposed FAR changes are probably appropriate due to the fact that the items trained are more likely to be used by flight attendants than pilots and it allows more time for pilot training to cover other situations that they are more likely to encounter.

ALPA strongly encourages harmonization between pilots and flight attendants during emergency procedures training. In fact, some airlines actually conduct portions of emergency training in combined classes with both pilots and flight attendants in attendance, which we fully endorse.

Water landings are not practiced in the simulator as part of pilot training. Aircraft certification does not require water landings and manufacturers do not actually land real airplanes on the water to validate their ditching design considerations, nor should they be required to do so. Since flight simulators use “real world” data from flight tests, there is insufficient data to enter into a simulator to make it replicate a water landing. Therefore, aircraft manufacturers only provide general guidance on ditching procedures which is published in flight manuals. Aircraft ditching and evacuation training is typically done as part of ground school and some airlines also cover aircraft ditching preparation in initial aircraft training.

With virtually an unlimited number of circumstances that might lead a crew to ditch an aircraft, it would be of little use to require pilots to carry out detailed ditching exercises more frequently than is required by existing regulations. Statistics show that ditching an aircraft, US Airways Flight 1549 notwithstanding, is an extremely rare event.

Training for Abnormal and Emergency Situations

ALPA believes that emergency procedures training required by the FAR’s and provided by the airlines – which includes ditching – is generally proportional to the risk and does a good job of preparing crewmembers for these events.

However, there is always room for improvement; airlines should make additional efforts to train to proficiency, which means that the student is instilled with more than just the ability to effectively follow standard operating procedures (SOPs) and checklists. It requires training that teaches the rationale behind the SOPs, why the checklist tasks are in a particular sequence, the risks in not following them correctly, and so forth. This provides a level of understanding that helps pilots make good decisions when time does not allow reference to checklists, or when confronting a situation not covered by a checklist.

It is impossible to predict how a bird(s) striking an aircraft will affect any given flight. Therefore, training must be more general to address the potential loss of an engine(s) regardless of the cause.

While it is important for pilots to be trained thoroughly in the use of the aircraft’s automation, the US Airways Flight 1549 accident highlights how airline flight training programs for pilots must continue to place a high priority on the ability to "hand-fly" the aircraft. Hand flying proficiency ensures that pilots will be able to handle the aircraft manually when necessary.

It has become more and more difficult for airlines to cover all the flying skills necessary during recurrent training. This training must be accomplished in just four hours, an amount that has not changed in 40 years, despite the fact that the number of subjects – which range from new types of approaches, emergencies, and abnormal operations plus “hot button” issues – covered in new and recurrent training has greatly increased in that

time. Frankly, the time allotted for pilots' recurrent training has been reduced in the ever-pressing economic environment to save money, even while the aircraft and operating world has become increasingly complex and challenging.

The training NPRM mentioned previously proposes to increase recurrent training periods to 8 hours in length. Despite the increased time between training events proposed for captains, this change will provide more actual training if it is adopted as written and should provide greater ability to evaluate automation and basic flying skills, and emergency and abnormal procedures.

Airport Wildlife Management

While birds and wildlife will always be a hazard to aviation, it is possible for airplanes to co-exist with a manageable degree of risk. Airport operators play a critical role in mitigating the threat posed by wildlife hazards because airfields are often positioned near areas that attract birds, such as water/marshlands or landfills.

Several years ago, a DeHavilland Dash-8 aircraft was on approach for a night landing on a lakeside runway in Canada when its lights illuminated a flock of Canada geese resting on the runway threshold. The crew had received no prior warning of their presence. Startled by the landing lights, the birds took flight and were struck by the aircraft causing severe damage to both propellers and the shut-down of one engine. If a go-around had been attempted, it would almost certainly have resulted in a hull loss, significant injury or death. Fortunately, the aircraft landed safely, with no loss of life.

This event illustrates the value of a properly administered airport Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near an airport. If one had been in place in this instance, it may well have prevented this potentially catastrophic incident. Regular surveillance of runways and airfields, particularly at night or in low visibility conditions, can alert airport authorities and air traffic controllers to the presence of wildlife, precipitating timely follow-up action to clear the hazard and alert flight crewmembers with specific information regarding the hazard.

Numerous means are available to airport operators keep birds and wildlife away from aircraft which include:

- Lasers
- On-airport startling devices
- Relocation of wetlands and other attractants
- Use of natural predators (e.g. falcons)

Other technologies such as millimeter band radar or infra-red cameras can be employed to identify an unwanted presence of birds and wildlife on the airfield. Both are undergoing trials at North American airports and show great promise. The experiments are intended to assist the FAA in developing standards for technologies intended to spot and track birds moving in the vicinity of an airport. Once a warning is received, the

airport must act to remove or reduce the hazard and should, if appropriate, notify flight crews so that they may endeavor to avoid it.

Because we will not eliminate the hazard of bird and wildlife strikes, we must continue to reduce the risk it presents by identifying effective mitigation methods. ALPA recommends that the government and industry continue to work together and give greater emphasis to such areas as:

- Improved wildlife management and control techniques
- Reporting/statistics in relation to safety management systems
- Training in airport wildlife management
- Aircraft engines/components performance and standards as related to wildlife hazards
- Policies/standards for airports and aircraft operators related to wildlife hazards
- Land use and environmental issues impacting airports
- Remote sensing/modeling to detect and predict bird numbers and movements

Thank you again for the opportunity to testify today. I would be pleased to address any questions that you may have.

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