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AVIATION SAFETY: FAA'S ROLE IN THE OVERSIGHT OF COMMERCIAL AIR CARRIERS

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

JUNE 10, 2009

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ONE HUNDRED ELEVENTH CONGRESS

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AVIATION SAFETY: FAA'S ROLE IN THE OVERSIGHT OF COMMERCIAL AIR CARRIERS

WEDNESDAY, JUNE 10, 2009

U.S. SENATE,
SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND SECURITY,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:33 p.m. in room SR–253, Russell Senate Office Building, Hon. Byron L. Dorgan, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. BYRON L. DORGAN, U.S. SENATOR FROM NORTH DAKOTA

Senator DORGAN. We'll call the hearing to order.

Good afternoon to everyone. I want to thank all of you for joining us here today to talk about a very important subject, the subject of aviation safety.

This is the Subcommittee of the U.S. Senate Commerce Committee. It's the first of two hearings that we will hold, one today and one next week, to discuss aviation safety, with particular focus on the safety of regional airlines. During this hearing we will receive testimony from the Federal Aviation Administration, National Transportation Safety Board, the Department of Transportation Inspector General, and an independent safety expert from the Flight Safety Foundation. Mr. O'Brien, who I have just mentioned, is not yet here; he's stuck in some traffic, but he will be with us momentarily. At our next hearing, on June 17, we will hear from other witnesses, including some of the airlines and some pilots.

Let me begin the subject of safety by saying, in this country I think we have a remarkably safe system of air travel. The safety record is extraordinary. And it's not my intention here to alarm anyone about considering taking a flight on a regional carrier, or any airline, for that matter, but I do think we have a responsibility to examine airline crashes, when they occur, and to ensure that we do all we can to prevent future accidents.

We've all heard the story of the tragic crash, in February of this year, of Continental connection Flight 3407 from Buffalo, New York—or, rather, in Buffalo, New York. This flight was operated by Colgan Air. The plane was a Bombardier Dash 8 operated by a captain and a co-pilot, both of whom had commuted fairly long distances to get to work and were found to have had little rest before the flight. The co-pilot revealed her inexperience in flying in icy conditions, in the transcript of the voice recording that I have read

and I'm sure my colleagues have, as well. The captain had previously failed a number of flight tests.

We'll hear from the NTSB, which has been investigating, but it sounds like the captain just made the wrong decision at the wrong time, flying in very, very difficult icing conditions.

I worry, when I have looked at this and read the transcript of the cockpit recording and all of the other issues, that there are issues here of fatigue, training, commuting, and perhaps salaries, that could have played a role. I'm concerned about the airlines and the FAA's ability to prevent inexperienced pilots from flying planes they might be less familiar with than they should be, or in icy weather, for example, when they are less experienced in icing conditions, and you would expect them to be.

We are supposed to have one level of safety for both regional and major carriers. And I want to hear from our new administrator, FAA Administrator Babbitt, whether he thinks that is actually the case and whether the FAA has kept up with the changes in the industry and is able to ensure one level of safety. Does the standard exist of one level? And is that standard enforced to one level?

I sent a letter to the Department of Transportation Inspector General to ask that they review the FAA's role in the development and certification of training programs that airlines require for pilots, the extent to which the FAA can verify that pilots are receiving appropriate training, and the ability of the FAA to verify the qualifications of pilots to operate specific aircraft. And I'm pleased that the Inspector General is here with us today.

I've also sent a letter to the GAO to ask that they study the safety practice in place to prevent and deal with icing conditions.

Let me say that the NTSB, in my judgment, appears to be doing a very thorough job, which is not a surprise to me, in trying to gain an understanding of this crash. We need to fully understand it and find out what changes, if any, are necessary to be made to ensure it doesn't happen again.

So, as I said, this will be the first of two such hearings, and our witnesses today will be Randy Babbitt, Administrator of the FAA; Mark Rosenker, the Acting Chairman of the NTSB; Calvin Scovel, Inspector General at the Department of Transportation; and John O'Brien, who will be with us shortly, a Member of the Board of the Flight Safety Foundation.

I indicated that I am going to call on the Ranking Member of this Subcommittee for an opening statement, and then the Chairman and Ranking Member of the full Committee, and then call on the witnesses, and then have 7-minute rounds for questions.

Senator DeMint?

STATEMENT OF HON. JIM DEMINT, U.S. SENATOR FROM SOUTH CAROLINA

Senator DEMINT. Thank you, Mr. Chairman. And I particularly want to thank you for diligence and your sense of urgency in having these hearings and trying to get answers to American people and all passengers.

I appreciate the witnesses being here today. I'm not going to give a full opening statement, because I want to get to you, but just the possible weaknesses, on the carrier side, are obviously important.

I agree with everything the Chairman says. But, in interviewing some of the carriers, the one involved with this, there may be things on our side that we can do, such as our privacy regulations that keep carriers from having access to some of the records that we now fault the carrier for not responding to. I'd like to hear more about that from some of you.

But, Mr. Babbitt, as you know—and you met with me and some of the parents who lost loved ones in that crash, is—all they ask of you is that, once this report comes out and it makes recommendations, will we respond or will we make the same mistakes again? And I hope we can talk about that today as—we can talk about—theory is one thing, but these parents are asking us what we're going to do about when we find out what it is we should do?

So, thanks again for being here. I appreciate all three of you.

And I'll yield to the Chairman.

Senator DORGAN. The Ranking Member of the full Committee, Senator Hutchison.

STATEMENT OF HON. KAY BAILEY HUTCHISON, U.S. SENATOR FROM TEXAS

Senator HUTCHISON. Well, thank you, Senator Dorgan and Senator DeMint. Of course, I have been the Chairman of this great Subcommittee, and having been the Vice Chairman of the National Transportation Safety Board, safety is always going to be the highest priority on my agenda. And I will always remain interested. So, get ready, I'm going to be an active member of this Subcommittee.

But, seriously, having had the NTSB experience, we've made some great strides. As you know, we used to have two standards—one for the regionals and one for the mainline air carriers, but, we don't anymore. We're now all together in the FAA Part 121 category. But, the fact is that some of the largest airlines also have more robust safety programs, and they have higher standards than even the minimum in 121.

Mr. Babbitt, I know that is something that you're going to want to look at: do we have the right minimum standard, or should we start stepping it up to be more in line with some of the larger air carriers?

The troubling thing, of course, is that four of the last five accidents that we have had in our country have been regional carriers. And I think pilot issues have been a part of that. So, what I'm going to want to hear, and ask you to particularly look at—in addition to the pilot history, crew rest calculations, cockpit oversight, and training—is the maintenance training. That's probably the key issue in most of these accidents, but I think we do need to look at it, just because we're beginning to see that maybe maintenance training needs to come into the safety factors, as well.

I will support what Senator Dorgan said. We have the safest system in the world, and we have had wonderful FAA and NTSB involvement. Our investigators are the best, and they come up with the causes, and we have learned from those causes, and we have made the adjustments by the FAA through the years.

So, I think that we are a safe aviation country, but we should now be saying, "Let's take another look. Let's see where we need to be more stringent and have more oversight, just to ensure that

we're doing everything possible," because I know there are people in this audience whose lives have been affected by some of these tragic accidents.

So, I really appreciate that you're holding the hearing. I do have a conflicting hearing, so I will not be able to stay, but I will get the testimony, and, when we are into the FAA reauthorization and when we're into the safety standards, I will be very active, and I want to have the input. I will look at everything that you have said, we will work together in what is in all of our interests.

Thank you.

[The prepared statement of Senator Hutchison follows:]

PREPARED STATEMENT OF HON. KAY BAILEY HUTCHISON, U.S. SENATOR FROM TEXAS

Thank you, Senator Dorgan, I appreciate you holding this hearing. Unfortunately, in the wake of the U.S. Airways "Miracle on the Hudson", the recent Air accident and the Colgan flight 3407 accident in Buffalo, it is necessary we again direct our attention to aviation safety.

As I have said in the past, aviation safety, and the public trust that goes along with it, is the bedrock of our national aviation policy and we simply cannot allow for any degradation of service to the flying public.

As we will hear from the FAA, the commercial aviation industry is experiencing the safest period in history. I commend the FAA and the air carriers for an excellent accident safety record, but recent incidents clearly show there is still much room for improvement.

The collaborative safety system between the FAA and the air carriers has been effective; however, it is time for that system to evolve. It is time we effectively tackle some of the most difficult and hard to quantify issues like pilot fatigue and professional responsibility.

The FAA must make a strong and exhaustive assessment and review of the safety foundation it has in place and start making some tough decisions regarding pilot training, disclosure of pilot history to air carriers, crew rest calculations and cockpit oversight.

I believe all of our commercial air carriers, including regional airlines, are safe. However, regional carriers have been involved in five of the last seven accidents since 2001, with four of the five accidents being attributed to pilot error. This is a troubling statistic.

While each accident in the aviation industry always has its own set of contributing factors and circumstances, I believe these recent incidents warrant a review of how pilots are trained, licensed and certified.

Each industry has a natural career progression, and the aviation industry is no different. Pilots have to start somewhere and in many cases in the airline industry they start at regional carriers in order to gain experience.

However, how pilots are selected and trained prior to pursuing this career path should certainly be analyzed given the issues raised from the preliminary findings in the Colgan accident.

Thank you, Senator Dorgan; I look forward to the testimony and to working with you on ways to address these important issues.

Senator DORGAN. Senator Hutchison, thank you very much and thanks for your work on this Subcommittee over the years.

Senator Rockefeller, the Chairman of the full Committee, is not able to be with us.

If the three of you who are here would wish to make a 1-minute opening statement, very briefly, I'd be happy to recognize any of the three of you.

STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM NEW JERSEY

Senator LAUTENBERG. Just very quickly, Mr. Chairman, because I do want to hear, we all want to hear, from the witnesses.

And we're pleased to have the new administrator for the FAA and the IG, people of competence and experience, and that's just what we ought to be doing, is looking at the safety side. People are anxious to go places, they still crowd airplanes, there are still huge delays and so forth, but the overriding concern is safety.

And, Mr. Chairman, I commend you for holding this hearing.

Senator DORGAN. Well, as we recognize the witnesses, let me just make one final point. Most consumers get on an airplane, and all they see in the fuselage is the brand name of that carrier, and they don't know whether it's a commuter or another carrier, a major. They just see the brand name. And the question, I think, for all of us as we begin to hear the witnesses is, should passengers expect that the same competence and the same capability, the same experience, and the same judgment exists in that cockpit, no matter the size of the airplane? Because they don't know whether it's a commuter or a major carrier. Does it exist today? That's what we're asking, because a lot of evidence suggested that, at least in the most recent crash, that was not the case. And so, let me commend the NTSB for the extraordinary work they are doing.

And I'm going to begin with The Honorable Randy Babbitt, Randolph Babbitt, the Administrator of the FAA. I'm very pleased that you've decided to serve your country in this way. And you're new to that job, but I will recognize you.

And I would say, to all four witnesses, your entire statements will be made a part of the permanent record, and we would ask you to summarize.

Mr. Babbitt, you may proceed.

STATEMENT OF HON. RANDOLPH BABBITT, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Mr. BABBITT. Thank you, sir. Chairman Dorgan, Senator DeMint, and Members of the full Committee, thank you for inviting me here today to discuss the FAA's role in the oversight of air carriers.

Let me start by saying that we, at the FAA, mourn the tragic loss of Colgan Air Flight 3407 and as well as the families and crew members aboard the Air France 447. This is an agency that's dedicated to air safety. Any loss is felt keenly by all of us, and our sympathies go out to the families of 3407 and Air France 447.

As you noted, Senator, this is my first appearance at a hearing since I was sworn in as FAA Administrator on June 1, and I want to thank this Committee again for both your support and your confidence in me.

We do have an ambitious agenda, and I think I discussed some of that with you during the confirmation hearing. I intend to work very hard to achieve the safety goals that we've set forth and are the challenge of the FAA.

Since the mid-1990s, there has been a requirement for "one level of safety"—that all regional carriers must operate under the same rules and at the same level of safety as their major-airline counterparts. And I'm proud to say that when I was President of the Air Line Pilots Association, I led ALPA's efforts to work with the FAA to make those changes. And all carriers that operate aircraft today that have ten or more seats are required to meet the exact same

safety standards and are subject to the same level of safety oversight across the board.

When the NTSB conducted its public hearing last month on the Colgan Air crash—and I commend them on that hearing—several issues came to light when they were investigating the Colgan Air crash, issues such as pilot training and qualifications, issues such as flight-crew fatigue and consistency of safety standards and compliance between air transportation operators. And given that the NTSB has not yet concluded this investigation, I can't really speak today to any of their potential findings.

My written testimony will provide details as to the current regulations and requirements with regard to pilot training, pilot records, and flight-time and duty-time limitations.

I can also tell you that, yesterday, Secretary LaHood and I announced that we have ordered FAA inspectors to immediately focus their inspections on training programs to better ensure that all airlines, including regional airlines, are complying with Federal regulations. We're gathering representatives from the major air carriers, their regional partners, aviation industry groups, and labor here in Washington, D.C., next week on the 15th, to participate in a Call to Action to improve airline safety. This review will address those issues: pilot training, cockpit discipline, and other issues associated with flight safety. And while we await the findings of the NTSB investigation of the Colgan Air accident, the Secretary and I believe that there is absolutely no time to lose in acting upon information that we already have gathered.

Our June 15 summit is designed to foster actions and voluntary commitments in four key areas: air carrier management responsibilities for crew education and support; second, professional standards and flight discipline in the cockpit; third would be training standards and performance; and fourth, the mentoring relationships between mainline carriers and their regional partners.

The Colgan Air accident and the loss of Air France 447 remind us that we cannot rest on our laurels of a great safety record and that we must remain alert and vigilant to the challenges in our aviation system. We've got to continue to work to enhance the air safety within this system. This is a business where one mistake is one mistake too many.

Senator Dorgan, Senator DeMint, and the Members of the Committee, this concludes my prepared remarks, and I'd be happy to answer any questions that you have.

Thank you.

[The prepared statement of Mr. Babbitt follows:]

PREPARED STATEMENT OF HON. RANDOLPH BABBITT, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Chairman Dorgan, Senator DeMint, Members of the Subcommittee:

Thank you for inviting me here today to discuss the Federal Aviation Administration's (FAA's) role in the oversight of air carriers. Let me begin by saying that we at the FAA mourn the tragic loss of Colgan Air Flight 3407 deeply. This is an agency dedicated to aviation safety; any loss is felt keenly by us all. Likewise, our sympathies go out to the families and loved ones of the passengers and crew of Air France Flight 447.

The National Transportation Safety Board (NTSB) conducted a public hearing May 12–14, 2009 on the Colgan Air crash. Several issues came to light regarding pilot training and qualifications, flight crew fatigue, and consistency of safety stand-

ards and compliance between air transportation operators. Given that the NTSB has not yet concluded its investigation, I cannot speak today to any of the potential findings. I can, however, outline for you the FAA's oversight responsibility with regard to safety oversight of operators, pilot training and qualifications, and flight and duty times for flight crew, and my focus on aviation safety as my top priority.

One Level of Safety

In the mid-1990s, the FAA revised its regulations on air carrier safety standards to reflect "one level of safety," requiring regional air carriers to operate under the same rules and at the same level of safety as their major airlines counterparts. I am proud to say that while I was President of the Air Line Pilots Association, I led the efforts on working with the FAA to make these changes.

Now, all air carriers that operate aircraft with 10 or more seats are required to meet the same safety standards and are subject to the same level of safety oversight across the board. Specifically, the air carriers are required to comply with the regulations embodied in Part 121 of Title 14, Code of Federal Regulations (Part 121).

FAA safety oversight for these carriers is conducted through the comprehensive Air Transportation Oversight System (ATOS). ATOS has three fundamental elements: design assessment, performance assessment, and risk management.

- Design assessment ensures an air carrier's operating systems meet regulatory and safety standards.
- Performance assessments confirm that an air carrier's operating systems produce intended results, including mitigation or control of hazards and associated risks.
- Risk management process identifies and controls hazards and allocates FAA resources according to risk-based priorities.

Under ATOS, FAA's primary responsibilities are: (1) to verify that an air carrier is capable of operating safely and complies with the regulations and standards prescribed by the Administrator before issuing an air carrier operating certificate and before approving or accepting air carrier safety programs; (2) to re-verify that an air carrier continues to meet regulatory requirements when changes occur by conducting periodic safety reviews; and (3) to continually validate the performance of an air carrier's approved and accepted programs for the purpose of continued operational safety.

Pilot Training and Qualifications

The FAA offers several types of pilot certification. The typical FAA certification progression for an airline pilot is Private Pilot (a license to fly oneself and others, without charge, under Visual Flight Rules), Commercial Pilot (a license needed to fly for compensation or hire as a second in command), and Airline Transport Pilot (a license to fly as a captain for an airline), with an Instrument Rating (a rating that one is proficient at using instrument navigational aids and other avionics) usually added to the Private Pilot certificate. For each level of pilot certification, the individual must demonstrate aeronautical knowledge as well as flight proficiency. Each new level of certification requires the satisfactory completion of the previous rating. In other words, it is not permissible for an individual to receive a Commercial Pilot certificate without first completing the requirements of the Private Pilot Certificate. For airline pilots to be captains of aircraft larger than 12,500 pounds, or any jet aircraft, they must complete specialized training for the specific aircraft and test for a type rating in that aircraft.

The requirements for each of these pilot certifications, including the Instrument Rating, are summarized below:

1. Private Pilot	*(Minimum of 40 hours at certification)*
a. Aeronautical knowledge	Complete a comprehensive ground school and pass a written test composed of at least the following: aircraft systems, weight and balance, aeronautical charts, Federal Aviation Regulations (FARs), airport operations, national air space, emergency procedures, communications, and navigation requirements. The ground school must be conducted by an authorized instructor.

b. Flight proficiency	Minimum of 40 hours, composed of at least 20 hrs from an approved instructor, 10 hrs of solo, 3 hrs of night time, and 5 solo hrs of cross country. Pass a flight check administrated by the FAA or designated evaluator.
2. Commercial Pilot	*(Minimum of 250 Hours)*
a. Aeronautical knowledge	FARs, accident reporting procedures, aerodynamics, meteorology, weather reports and forecast, safe operations of the aircraft, weight and balance, performance charts, aircraft limitations, aeronautical charts, navigation, aeronautical decisionmaking, aircraft systems, maneuvers procedures and emergency operations, night and high altitude operations, and operations in the national airspace system.
b. Flight proficiency	Minimum of 250 hours to include day, night and flight by reference to aircraft instruments. Pass a flight check administrated by the FAA or designated evaluator.
3. Instrument Rating	
a. Aeronautical knowledge	Must complete ground training on instrument flight conditions and procedures. Pass an aeronautical test composed of the following: FARs, Air Traffic Control (ATC) system, instrument procedures, Instrument Flight Rules (IFR) navigation, instrument approach procedures, use of IFR charts, weather reports and forecasts, recognition of critical weather situations, aeronautical decisionmaking, and crew resource management.
b. Flight proficiency	Minimum of 50 hrs cross country as Pilot in Command (PIC). 40 hours of actual or simulated flight time, 15 hrs with an authorized instrument instructor. Pass a flight check administrated by the FAA or designated evaluator.
4. Airline Transport Pilot	*(Minimum of 1,500 Hours)*
a. Aeronautical knowledge	FARs, meteorology, Knowledge of effects of weather, general weather and Notices to Airmen (NOTAM) use, interpretation of weather charts, maps and forecasts, operations in the national airspace system, wind sheer and micro burst awareness, air navigation, ATC procedures, instrument departure and approach procedures, enroute operations, airport operations, weight and balance, aircraft loading, aerodynamics , aircraft performance, human factors, aeronautical decisionmaking, and Crew Resource Management (CRM). Must pass an FAA test on these subjects.
b. Flight proficiency	1,500 hours total time. 500 hrs cross country, 400 hours night time. Pass a flight check administrated by the FAA or designated evaluator on the maneuvers required by the FAA's Airline Transport Pilots Practical Test Standards.

In addition to these FAA certifications, airline pilots receive initial and additional recurrent training through the air carriers for whom they work. These training programs are evaluated and approved by the FAA. An air carrier training program contains curricula, facilities, instructors, courseware, instructional delivery methods, and testing and checking procedures. These training programs must meet the requirements of Part 121, the regulations for commercial air carriers, to ensure that each crewmember is adequately trained for each aircraft, duty position, and kind of operation in which the person serves. An air carrier or operator's training program is divided into several categories of training that are specific to the operator,

and which may include initial training for new hires, initial training on equipment, transition training, upgrade training, recurrent training, and requalification training.

Training programs are approved by the FAA in two stages: initial training approval and final approval. Initial approval consists of a thorough review by the Principal Operations Inspector (POI) for that carrier of the training program to ensure that all applicable requirements of Part 121 have been met and are covered in the training program. Once initial approval is granted by the POI, the POI will observe several training classes, which include ground training and flight (simulator) training.

The quality of the training is determined by an evaluation of passing scores of the pilots. Direct observation by the POI of testing and checking is an effective method for determining whether learning has occurred. Examining the results of tests, such as oral or written tests or flight checks, provides a quantifiable method for measuring training effectiveness. The POI must examine and determine the causal factors of significant failure trends. The POI periodically monitors the training and evaluates failure rates to determine whether the training program continues to comply with FAA standards, and also evaluates the program.

On January 12, 2009, the FAA issued a Notice of Proposed Rulemaking (NPRM) regarding upgraded training standards for pilots, flight attendants and dispatchers. This proposal is the most comprehensive upgrade to FAA training requirements in 20 years and was drafted working with an Aviation Rulemaking Committee (ARC) that included pilots, flight attendants, airlines, training centers, FAA, and others.

While aviation has incorporated many technologies over the years to prevent accidents by addressing findings from NTSB accident investigations, human factors remain a source of risk. Improving human performance is a central element to improving safety. Thus, the FAA proposal is aimed at using best practices and tools to help pilots, flight attendants, and dispatchers (1) avoid the mistake and (2) respond better if there is a mistake made.

The aviation industry has moved to performance-based training rather than prescriptive training to reflect that the way people learn has changed. New technology, particularly simulators, allows high-fidelity training for events that we never could have trained to in the past using an aircraft, *e.g.,* stall recovery. We now have qualitative measures to measure actual transfer of knowledge. We can determine proficiency based on performance, not just on the number of hours of training. While the major airlines are already doing this type of training, our proposed rule incorporates best practices and tools so that all operators will use the upgraded standards.

One of the pilot training issues that has arisen in the wake of the Colgan Air investigation is that of failed check rides and whether air carriers are informed of a pilot-applicant's failures. A check ride is a practical examination given by an FAA check airman or airline employer that checks or tests the proficiency of the pilot to perform certain skills. Under the Pilot Records Improvement Act of 1996 (PRIA), air carriers must obtain the last 5 years' performance and disciplinary records for a prospective pilot from their previous employer. These records would include information regarding initial and recurrent training, qualifications, proficiency, or professional competence including comments and evaluations made by a check airman.

PRIA also requires carriers to obtain records for a pilot from the FAA. FAA records regarding pilot certification are protected by the Privacy Act of 1974. However, PRIA requires carriers to obtain a limited waiver from prospective pilots allowing for the release of information concerning their current airman certificate and associated type ratings and limitations, current airman medical certificates, including any limitations, and summaries of closed FAA legal enforcement actions resulting in a finding by the Administrator of a violation that was not subsequently overturned. Although PRIA does not require carriers to obtain a release from prospective pilots for the entirety of the pilot's airman certification file, including Notices of Disapproval for flight checks for certificates and ratings, FAA guidance suggests to potential employers that they may find this additional information helpful in evaluating the pilot. In order to obtain this additional information, a carrier must obtain a Privacy Act waiver from the pilot-applicant.

Pilot Fatigue

Another one of the concerns that has come out of the NTSB's investigation is the issue of pilot fatigue and what factors may contribute to pilot fatigue. This is an area of particular interest to me. The FAA regulates flight and duty limitations for all Part 121 pilots conducting domestic operations. The "crew rest" elements of the regulation are designed to mitigate chronic and acute fatigue, primarily through

limitations on flight hours and defined hours of rest relative to flight hours. For example, the regulation outlines:

- No more than 30 flight hours in any 7 consecutive days.
- At least 24 hours of consecutive rest during any 7 consecutive days.
- Varying rest requirements relative to hours flown in any 24 hour period.

The rule also defines rest period activities and prohibitions, and provides provisions for circumstances under which flight time limitations can be exceeded, such as in adverse weather operations. As of late 2000, an FAA legal interpretation clarified that under these rules a pilot crew member, flying under domestic flight rules, must "look back" 24 hours and find 8 hours of uninterrupted rest before beginning any flight segment.

Pilots also have a regulatory responsibility to not fly when they are not fit, including being fatigued. Thus, while the carrier schedules and manages pilots within these limitations and requirements, the pilot has the responsibility to rest during the periods provided by the regulations. The FAA has long held that it is the responsibility of both the operator and the flight crewmember to prevent fatigue, not only by following the regulations, but also by acting intelligently and conscientiously while serving the traveling public. This means taking into consideration weather conditions, air traffic, health of each flight crewmember, or any other circumstances (personal problems, etc.) that might affect the flight crewmember's alertness or judgment on a particular flight.

The FAA has initiated a number of fatigue mitigation efforts in recent years:

- The FAA took steps in 2006 to address fatigue mitigations for Ultra-Long Range flights (more than 16 hours of flight time) and associated extended duty times.
- The FAA held the 2008 Aviation Fatigue Management Symposium to provide the industry the latest information on fatigue science, mitigation, and management. (Symposium proceedings are available on *www.faa.gov*.)
- The FAA is in the process of writing an Advisory Circular regarding fatigue that incorporates information from the Symposium.

However, because piloting is a highly mobile profession, one of the persistent challenges is that pilots are often domiciled in places that are hundred of miles from the airlines' bases of operations, *e.g.,* the pilot lives in Los Angeles but is based out of the airline employer's Atlanta operations. This means that the pilot's "commute" is a 5-hour plane ride. Though the commuting pilot is riding in the jump seat or in a passenger seat, she is not technically considered to be on duty during that time. Whether this has an impact on pilot fatigue is something that the FAA continues to monitor and examine to determine whether it is an appropriate area for regulation.

As the NTSB moves forward on its investigation and presents its findings, the FAA continues to examine the facts that are coming to light. We continue our vigilance in assessing the safety of our system and taking the appropriate steps to improve that. While we are in an extremely safe period in aviation history, the Colgan Air accident and the loss of Air France 447 remind us that we cannot rest on our laurels, that we must remain alert and aware of the challenges in our aviation system, and that we must continue to work to enhance the safety of the system. This is a business where one mistake is one too many.

Chairman Dorgan, Senator DeMint, Members of the Subcommittee, this concludes my prepared remarks. Thank you again for inviting me here today to discuss the FAA's role in the oversight of air carriers. I would be happy to answer any questions that you might have.

Senator DORGAN. Administrator Babbitt, thank you very much for being with us.

Next, we will hear from The Honorable Calvin Scovel, who's the Inspector General of the Department of Transportation.

Mr. Scovel, you may proceed.

STATEMENT OF HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Mr. SCOVEL. Chairman Dorgan, Ranking Member DeMint, Members of the Subcommittee, we appreciate the opportunity to testify today regarding the FAA's role in the oversight of air carriers.

Safety is a responsibility shared among FAA, aircraft manufacturers, airlines, and airports. Together, all four form a series of overlapping controls to keep the system safe. The past several years have been one of the safest periods in history for the aviation industry; however, the tragic accident in February of Colgan Flight 3407 underscores the need for constant vigilance over aviation safety on the part of all stakeholders.

Last month, NTSB held a preliminary hearing into the cause of the Colgan accident in which some evidence suggested that pilot training and fatigue may have contributed to the crash. As a result, Mr. Chairman, you, along with Committee Chairman Rockefeller, Committee Ranking Member Hutchison, and Ranking Subcommittee Member DeMint requested that our office begin an extensive investigation into some of the issues that were brought to light during the NTSB hearing. We have already begun work on this review.

Today, I will first address two major weaknesses related to FAA's oversight of the aviation industry and then move on to operational differences between mainline and regional carriers.

First, this Subcommittee's hearing in April 2008 highlighted weaknesses in FAA's risk-based oversight system, known as ATOS, and air-carrier compliance with safety directives. While our work identified safety lapses in Southwest Airline's compliance, many stakeholders were concerned that they could be symptomatic of much deeper problems with FAA's air-carrier oversight on a systemwide level.

For example, in 2002 we reported that FAA needed to develop national oversight processes to ensure that ATOS is effectively and consistently implemented. In 2005, we found that inspectors did not complete 26 percent of planned ATOS inspections.

Last year, we reported that weaknesses in FAA's implementation of ATOS allowed compliance issues in Southwest's maintenance program to go undetected for several years. Further, our ongoing work has determined that lapses in oversight inspections were not limited to Southwest. FAA oversight offices for seven other major air carriers also missed ATOS inspections. Some had been allowed to lapse well beyond the 5-year inspection cycle.

Additionally, FAA's national oversight of other facets of the aviation industry, such as repair stations, has struggled to keep pace with the dynamic changes occurring in the industry. These facilities are rapidly becoming air carriers' primary source for aircraft maintenance. We have found that FAA relies heavily on air carriers to provide oversight of those repair stations; however that oversight has not always been effective.

We reported that air carriers did not identify all deficiencies at repair stations and did not adequately follow up on deficiencies identified to ensure problems were corrected. This is an area of particular concern for regional carriers, who rely heavily on repair stations. According to data provided to the Department, regionals are sending as much as half their maintenance to repair stations. The NTSB's investigation into the crash of another regional carrier, Air Midwest Flight 5481 in January 2003, identified serious lapses in the carrier's oversight of outsourced maintenance.

Last month's NTSB hearing brought to light the need to closely examine the regulations governing pilot training and rest requirements and the requisite oversight to ensure compliance. These issues are particularly critical at regional carriers. In the last six fatal accidents involving regional air carriers, the NTSB cited pilot performance as a potential contributory in four of those accidents.

Moving to our second concern, related to operational differences between mainline and regional air carriers. It is critical that there be one level of safety for all carriers. Regional flights represent one-half of the total scheduled flights across the country, and regional airlines provide the only scheduled airline service to over 400 American communities.

In response to your new request, our preliminary audit work has identified differences in regional and mainline carriers' operations and potential differences in pilot training programs and level of flight experience. We are also looking into FAA's role in determining whether air carriers at both mainline and regional air carriers have developed programs to ensure pilots are adequately trained and have sufficient experience to perform their responsibilities.

Mr. Chairman, I would like to reiterate that we will continue to do our part in advancing the Department's goal of one level of safety. While all stakeholders are committed to getting it right, our work has identified a number of significant vulnerabilities that must be addressed. This will require actions in areas FAA has already targeted for improvement, as well as other areas where FAA will need to revisit differences in standards and regulations and rethink its approach to safety oversight.

That concludes my statement, Mr. Chairman. I'd be happy to answer any questions you or other Members of the Committee may have.

[The prepared statement of Mr. Scovel follows:]

PREPARED STATEMENT OF HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Chairman Dorgan, Ranking Member DeMint, and Members of the Subcommittee:

We appreciate the opportunity to testify today regarding the Federal Aviation Administration's (FAA) role in the oversight of air carriers. Ensuring that airlines safely meet the demand for air travel is of paramount importance to the flying public and the national economy; this remains one of the top priorities for the Department of Transportation.

Safety is a shared responsibility among FAA, aircraft manufacturers, airlines, and airports. Together, all four form a series of overlapping controls to keep the system safe. The past several years have been one of the safest periods in history for the aviation industry. This is largely due to the dedicated efforts of the professionals within FAA and throughout the industry as well as significant advances in aviation technology.

In January, we witnessed a dramatic example of aviation safety at its best when U.S. Airways flight 1549 made an emergency landing in the Hudson River, and, miraculously, all 155 passengers and crew survived due to the skillful efforts of the pilot and crew. However, the tragic accident in February of Colgan flight 3407, which resulted in 50 fatalities, underscores the need for constant vigilance over aviation safety on the part of all stakeholders.

Last month, the National Transportation Safety Board (NTSB) held a preliminary hearing into the cause of that accident, in which some evidence suggested that pilot training and fatigue may have contributed to the crash. The NTSB has identified these issues as areas of concern for all air carriers; however, they are particularly

critical at regional carriers. The last six fatal Part 121[1] accidents involved regional air carriers, and the NTSB has cited pilot performance as a potential contributory factor in four of those accidents.

As a result of that hearing, Mr. Chairman, you, along with Committee Chairman Rockefeller, Committee Ranking Member Hutchison, and Ranking Subcommittee Member DeMint, requested that our office begin a review to include FAA's standards for certification of commercial pilot training programs and licensing, FAA's oversight of those programs, and the Agency's ability to verify that pilots have the appropriate qualifications and training to operate specific aircraft. You also requested that we review FAA regulations and airline policies regarding crew rest requirements, including the role of pilots' domicile and duty locations, and FAA's and air carriers' (both mainline and regional) oversight and enforcement of those regulations and policies. We are in the preliminary stages of this extensive review, and, as part of the discussion today, we would like to address how we intend to proceed with that audit.

A key focus of this review, Mr. Chairman, is that FAA maintains it has one level of safety for all types of air carrier operations. Yet, we have overseen the application of that standard for years and have concerns. In short, our past work has disclosed serious lapses in FAA's safety oversight and inconsistencies in how its rules and regulations are enforced. Today, I would like to cover three areas: (1) vulnerabilities in FAA's oversight of safety, (2) differences between mainline and regional air carrier operations, and (3) our plan to address the Committee's and Subcommittee's new request for additional safety work.

Vulnerabilities in FAA's Oversight of Safety

While FAA has made progress toward improving aspects of its safety oversight, such as clarifying guidance to inspectors who monitor air carriers and repair stations, we continue to find weaknesses. For example, a year has passed since we last testified before this Subcommittee regarding FAA's oversight of the aviation industry.[2] That hearing highlighted weaknesses in FAA's national program for risk-based oversight, known as the Air Transportation Oversight System (ATOS), and in airline compliance with safety directives. While the safety lapses discussed at the hearing indicated problems with one airline's compliance, many stakeholders were concerned that they could be symptomatic of much deeper problems with FAA's air carrier oversight on a systemwide level. Since then, our work has focused on determining whether the kind of problems we reported on last year are unique to one air carrier and one FAA oversight office. We have determined the problems were not limited to that office and carrier, and we continue to believe the key to addressing this problem is better national FAA oversight.

In preparation for this hearing, we have identified serious vulnerabilities in five critical FAA programs for oversight of the aviation industry: risk-based inspections, repair stations, aging aircraft, disclosures of safety violations made through the Aviation Safety Action Program (ASAP), and whistleblower complaints.

Vulnerabilities in FAA's National Program for Risk-Based Oversight—The Air Transportation Oversight System

More than 10 years ago, FAA initiated ATOS, its risk-based oversight approach to air carrier oversight. ATOS was designed to permit FAA to focus inspections on areas of highest risk and maximize the use of inspection resources. We have always supported the concept of ATOS as FAA would never have enough inspectors to continuously monitor all aspects of a constantly changing aviation industry. However, since 2002, we have reported that FAA needs to develop national oversight processes to ensure the program is effectively and consistently implemented. In 2005, we found that inspectors did not complete 26 percent of planned ATOS inspections—half of these were in identified risk areas,[3] such as maintenance personnel qualifications.

Last year, we reported that weaknesses in FAA's implementation of ATOS allowed airworthiness directive (AD) compliance issues in Southwest Airlines' (SWA)

[1] 14 CFR 121 Operating Requirements: Domestic, Flag, and Supplemental Operations. This FAA regulation governs commercial air carriers, including regional air carriers, with primarily scheduled flights.

[2] OIG Testimony Number CC–2008–067, "Key Safety Challenges Facing the FAA," April 10, 2008. OIG reports and testimonies are available on our website: *www.oig.dot.gov*.

[3] OIG Report Number AV–2005–062, "FAA Safety Oversight of an Air Carrier Industry in Transition," June 3, 2005.

maintenance program to go undetected for several years.[4] We found that FAA inspectors had not reviewed SWA's system for compliance with ADs since 1999. In fact, at the time of our review, FAA inspectors had not completed 21 key inspections for at least 5 years. While FAA has subsequently completed some of these inspections, 4 of the 21 inspections were still incomplete at the time we testified before this Subcommittee; some had not been completed for nearly 8 years.

We have recommended that FAA implement a process to track field office inspections and alert the local, regional, and Headquarters offices to overdue inspections required through ATOS. While FAA has implemented a system to track field office inspections, it is unclear whether it has taken any actions in response to identified overdue inspections. At the request of the Subcommittee, we are currently performing a review of FAA's implementation of ATOS and will address this issue as part of that review.

Thus far, we have determined that lapses in oversight inspections were not limited to SWA—FAA oversight offices for seven other major air carriers also missed ATOS inspections. We have found that these missed inspections were in critical maintenance areas such as AD Management, the Continuing Analysis and Surveillance System (CASS),[5] and the Engineering and Major Alterations Program. Some inspections had been allowed to lapse beyond the 5-year inspection cycle by nearly 2 years.

As part of this review, we are also assessing FAA's recent transition of regional air carriers into the ATOS program. FAA inspectors responsible for oversight of large, commercial air carriers have been using this risk-based system for several years, but the majority of FAA offices responsible for oversight of regional air carriers have only recently transitioned to ATOS. This is a completely new way of conducting oversight, and inspectors we interviewed stated that ATOS applies more to large carrier operations and needs to be revised to fit the operations unique to smaller air carriers. We plan to issue our report later this year.

Ineffective Oversight of Repair Stations

Our work has also shown that FAA's oversight of repair stations has struggled to keep pace with the dynamic changes occurring in that industry. Repair stations are rapidly growing as a primary source for aircraft maintenance as air carriers increasingly outsource maintenance in an effort to reduce costs. This is an area of particular concern for regional carriers since they outsource as much as 50 percent of their maintenance to repair stations. The NTSB's investigation into the January 2003 crash of Air Midwest flight 5481 (a regional air carrier), in which there were 21 fatalities, identified serious lapses in the carrier's oversight of outsourced maintenance as a contributory cause of that accident.

In 2005, FAA established a risk-based oversight system for repair stations. However, this system does not include non-certificated repair facilities that perform critical maintenance.[6] To address this concern, FAA issued guidance in 2007 that required inspectors to evaluate air carriers' contracted maintenance providers and determine which ones performed critical maintenance and whether they were FAA-certificated. However, the guidance did not provide effective procedures for inspectors to do so, and FAA is now trying to develop a new method to capture these data.

Another issue we identified was air carriers' inadequate training of mechanics at non-certificated facilities. We found carriers provided from as little as 1 hour of video training for mechanics to as much as 11 hours of combined classroom and video instruction.

In 2008, we reported that while FAA established a system for air carriers to report the volume of outsourced repairs, it was inadequate because air carriers are not required to report this information.[7] When they do voluntarily report it, FAA does not require that they list *all* repair stations performing repairs to critical components[8] or that FAA inspectors validate the information. FAA is reevaluating this

[4] OIG Report Number AV–2008–057, "Review of FAA's Oversight of Airlines and Use of Regulatory Partnership Programs," June 30, 2008.

[5] FAA requires air carriers to maintain a CASS, which monitors and analyzes the performance and effectiveness of their inspection and maintenance programs.

[6] OIG Report Number AV–2006–031, "Air Carriers' Use of Non-Certificated Repair Facilities," December 15, 2005.

[7] OIG Report Number AV–2008–090, "Air Carriers' Outsourcing of Aircraft Maintenance," September 30, 2008.

[8] For the purposes of our report, we used the term "critical components" to identify those components that are significant to the overall airworthiness of the aircraft, such as landing gear, brakes, and hydraulics. FAA does not use this term or include these types of components in its definition of substantial maintenance. FAA defines substantial maintenance as major airframe maintenance checks; significant engine work (*e.g.,* complete teardown/overhaul); major alter-

system in response to our report and expects to implement system improvements by the end of August 2009.

Gathering adequate data to target inspections is important since FAA does not have a specific policy governing when inspectors should initially visit repair stations performing substantial maintenance for air carriers. We found significant delays between FAA's initial approval of repair stations and its first inspections at those locations. For example, during a 3-year period, FAA inspectors reviewed only 4 of 15 substantial maintenance providers used by one air carrier. Among those uninspected was a major foreign engine repair facility that FAA inspectors did not visit until 5 years after it had received approval for carrier use—even though it had worked on 39 of the 53 engines repaired for the air carrier.

We again recommended that FAA develop and implement an effective system to determine how much and where critical maintenance is performed. In addition, FAA must ensure that inspectors conduct initial and follow-up inspections at substantial maintenance providers and perform detailed reviews of air carrier and repair station audits and corrective actions. In response to our report, FAA is reviewing its procedures for opportunities to strengthen its guidance. However, it does not expect to complete these reviews until the fourth quarter of this Fiscal Year.

Differences in Oversight of Aging Aircraft

Following the December 2005 fatal crash of a regional airline, Chalks Ocean Airways, we identified vulnerabilities in FAA's oversight of aging aircraft. FAA rules require inspectors to perform aircraft inspections and records reviews, at least every 7 years, of each multi-engine airplane used in scheduled operations that is 14 years and older. However, the rule does not require a focus on airplane fatigue cracks or crack growth, and these deteriorations can only be detected through supplemental inspections (detailed engineering reviews). FAA requires only those operators using aircraft with 30 or more seats to perform supplemental inspections of areas susceptible to cracks and corrosion.

The Chalks aircraft involved in the crash did not receive a supplemental inspection because it was an outdated aircraft model that fell outside of this FAA requirement. Two months before the accident, FAA did a visual inspection and records review of the aircraft, and no structural issues were noted. However, the NTSB's subsequent investigation determined the probable cause of the accident was the in-flight failure and separation of the right aircraft wing due to fatigue cracking that went undetected by FAA and the air carrier's maintenance program. This incident shows that for those aircraft only covered under FAA's requirements for a visual inspection and records review, the structural integrity of the aircraft cannot be assured. We note that 27 regional operators in Alaska are not required to have any Aging Aircraft Programs.

FAA, Congress, and the aviation industry have made significant strides toward ensuring the structural integrity of aging aircraft. However, as operators continue to operate aircraft beyond their original design service goals, aging aircraft will continue to be an area that bears watching.

Ineffective Utilization of the Aviation Safety Action Program

We recently reported problems in how FAA utilizes ASAP.[9] ASAP is a joint FAA and industry program intended to generate safety information by allowing aviation employees to self-report safety violations of regulations to air carriers and FAA without fear of reprisal through legal or disciplinary actions. When properly implemented, this program could provide valuable safety data to FAA. We found, however, that FAA's ineffective implementation and inadequate guidelines have allowed inconsistent use and potential abuse of the program. For example, we identified repetitive reports of safety violations indicating that pilot training may need to be strengthened at two air carriers we reviewed.

Further, FAA has limited the program's effectiveness because it has not devised a method to fully compile data reported through ASAP and analyze these data on a national level to identify trends. This impedes a primary intent of ASAP—to identify *precursors* of accidents or fatalities. While ASAP has proven highly beneficial to the airlines, FAA currently obtains only limited aviation safety data through the program for use in proactively identifying systemic safety issues. For example, FAA inspectors' quarterly reports of ASAP activity at participating carriers may only pro-

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ations or major repairs performed on airframes, engines, or propellers; repairs made to emergency equipment; and/or aircraft painting.

[9] OIG Report Number AV–2009–057, "FAA Is Not Realizing the Full Benefits of the Aviation Safety Action Program," May 14, 2009.

vide general information on the number—not the nature—of ASAP submissions for that quarter.

As a result of these issues, ASAP, as currently implemented, is a missed opportunity for FAA to enhance the national margin of safety. In addition, ASAP is not widely used by regional carriers. While major carriers view ASAP as an integral safety tool, 37 percent of large regional carriers do not participate in ASAP. In response to our report, FAA agreed to clarify ASAP guidance and establish a centralized system for the acquisition and analysis of ASAP and other safety-related information at a national level. We will continue to monitor FAA's progress in this area.

Mishandling Internal Reviews of Whistleblower Complaints

Our work at SWA and Northwest Airlines (NWA)[10] has identified systemic weaknesses in FAA's processes for conducting internal reviews and ensuring appropriate corrective actions. In the SWA case, FAA's internal reviews found, as early as April 2007, that the principal maintenance inspector was complicit in allowing SWA to continue flying aircraft in violation of an AD requiring inspections of aircraft for structural fatigue cracks. Yet, FAA did not attempt to determine the root cause of the safety issue nor initiate enforcement action against the carrier until November 2007.

At NWA, FAA's reviews of an inspector's safety concerns were limited and also overlooked key findings identified by other inspectors, such as findings related to mechanics' lack of knowledge or ability to properly complete maintenance tasks and documentation. Although FAA found that some of the inspector's safety concerns were valid, FAA informed him that all of his concerns lacked merit.

We also have concerns regarding FAA's failure to protect employees who report safety issues from retaliation by other FAA employees. At both SWA and NWA, we found that FAA managers reassigned experienced inspectors who reported safety concerns to office duties, after an alleged complaint from the airline, and restricted them from performing oversight on carrier premises. Both the SWA and NWA cases demonstrate that FAA must pursue a more reliable internal review process and protect employees who identify important safety issues.

Given the vulnerabilities surrounding FAA's national program for risk-based oversight, ASAP implementation, and protection of whistleblowers, we have made a series of recommendations. Key actions needed from FAA include the following:

- Develop a national review team that conducts periodic reviews of FAA's oversight of air carriers.
- Periodically rotate supervisory inspectors to ensure reliable and objective air carrier oversight.
- Require that its post-employment guidance include a "cooling-off" period when an FAA inspector is hired at an air carrier he or she previously inspected.
- Establish an independent organization to investigate safety issues identified by its employees.

In response, FAA has developed a proposed rule requiring a "cooling-off" period for its inspectors. However, FAA still needs to address our remaining recommendations to demonstrate its commitment to effective oversight. We will continue our efforts to examine FAA's oversight of the aviation industry and will keep this Subcommittee apprised of our progress as well as other actions FAA should take to ensure safety.

Operational Differences Between Regional and Mainline Carriers

As mainline carriers continue to cut their capacity in response to the current economic downturn, regional airlines constitute an increasingly important proportion of operations in the U.S. National Airspace System. Today, regional flights represent one half of the total scheduled flights across the country, and regional airlines provide the only scheduled airline service to more than 400 American communities. Additionally, regional airlines provide passenger air service to communities without sufficient demand to attract mainline service. Regional carriers tend to fulfill two roles: (1) delivering passengers to the mainline airline's hubs from surrounding communities and (2) increasing the frequency of service in mainline markets during times of the day or days of the week when demand does not warrant use of large aircraft.

These smaller airlines typically conduct business as a feeder airline, contracting with a major airline and operating under their brand name in what is essentially

[10] OIG Report Number AV–2007–080, "FAA's Actions Taken To Address Allegations of Unsafe Maintenance Practices at Northwest Airlines," September 28, 2007.

a domestic code share arrangement. Code sharing is a marketing arrangement in which one air carrier sells and issues tickets for the flight of another carrier as if it were operating the flight itself. Under both international and domestic code share agreements, a passenger buys a ticket from one carrier, but the actual travel for all or a portion of the trip could be with another carrier's aircraft and crew. For example, Colgan flight 3407 was operating as a Continental Connection flight.

We reported 10 years ago on carriers' growing use of international code share agreements as a means to increase profit while expanding their network and offering passengers more seamless and efficient international travel services.[11] While such agreements were beneficial, we reported that safety was not treated as a major factor in the Department's code share approval process, and FAA did not take an active role in the approval or oversight of these agreements.

Domestic code shares between major and regional carriers follow a similar business model, with the focus on a more seamless travel experience. However, a significant difference is that FAA certificates and oversees both parties to these agreements. Yet, according to industry sources, FAA has no role in the contractual agreements. This is a potential concern since the safety implications of these agreements are unknown. We are examining this issue as part of the review you requested, Mr. Chairman.

Last month's NTSB hearing brought to light the need to closely examine the regulations governing pilot training and rest requirements and the oversight necessary to ensure their compliance. This is a particular concern at regional carriers since the last six fatal Part 121 accidents involved regional air carriers (see table 1 below), and the NTSB has cited pilot performance as a potential contributory factor in four of those accidents.

Table 1. Part 121 Accidents Involving Regional Carriers

Accident Date	Regional Carrier	Accident Site	Fatalities	Potential Factors
12–Feb–09	*Colgan Air Inc.* (DBA Continental Connection)	Buffalo, NY	50	Not yet determined. Training and pilot fatigue issues have been raised.
27–Aug–06	*Comair Inc.* (DBA Delta Connection)	Lexington, KY	49	Pilot performance, non-pertinent conversation during taxi.
19–Dec–05	*Flying Boat Inc.* (DBA Chalks Ocean Airways)	Miami, FL	20	Deficiencies in the company's maintenance program.
19–Oct–04	*Corporate Airlines* (now Regions Air)	Kirksville, MO	13	Pilots' unprofessional behavior during the flight and fatigue.
14–Oct–04	*Pinnacle Airlines* (DBA Northwest Airlink) repositioning flight	Jefferson City, MO	2	Pilots' unprofessional behavior, deviation from standard operating procedures, and poor airmanship.
8–Jan–03	*Air Midwest* (DBA U.S. Airways Express)	Charlotte, NC	21	Deficiencies in company's oversight of outsourced maintenance.

*Doing Business As (DBA)

In addition to these accidents, there were two, non-fatal accidents in 2007 involving regional air carriers. In both of these accidents, the NTSB concluded that pilot fatigue was a contributing factor.

While we have had only a short time to address the joint request from the Committee and Subcommittee to examine these issues, we have identified operational differences between regional and mainline carriers. These include differences in operations and flight experience and potential differences in pilot training programs. Our review will examine FAA's role in determining whether air carriers have developed programs to ensure pilots are adequately trained and have sufficient experience to perform their responsibilities.

Differences in Operations, Pilot Fatigue, and Flight Experience

Regional carriers typically perform short and medium hauls to hub airports. This could result in many short flights in one day for a pilot with a regional air carrier. While there have been multiple studies by agencies such as the National Aeronautics and Space Administration that concluded that these types of operations can

[11] OIG Report Number AV–1999–138, "Aviation Safety Under International Code Share Agreements," September 30, 1999.

contribute to pilot fatigue, FAA has yet to revise its rules governing crew rest requirements.

FAA last attempted to significantly revise flight duty and rest regulations in 1995, but the rule was never finalized and little or no action has been taken since then. Yet, pilot fatigue remains high on NTSB's list of most wanted safety improvements. As we begin our audits in response to the Committee's and Subcommittee's request, we will evaluate these operations, their potential effects on pilot fatigue, and FAA's oversight of air carrier programs established to meet the current flight and duty rest regulations.

Coupled with potential fatigue issues, another defining factor of regional air carriers is that their pilots tend to have less experience than pilots with mainline air carriers. Generally, pilots are primarily interested in using regional air carrier experience as a stepping stone to the more lucrative pay at a major air carrier. We will also address the potential impact this issue could have on safety during our pending audit.

Potential Differences in Training Programs

To fly for a regional or mainline air carrier, a pilot must have a commercial pilot's license, at a minimum. To obtain a commercial pilot's license, a candidate must have at least 250 hours of flight time. However, many air carriers require more stringent licensing requirements and may require pilots to have an Airline Transport Pilot's license, which requires a minimum of 1,500 flight hours.

Once a pilot has been hired by an air carrier, they are required to undergo training provided by the airline that has been approved by FAA and meet certain minimum requirements. Every Part 121 certificate holder, which includes all scheduled operations with aircraft seating 10 or more passengers, must establish and implement a training program that ensures each crewmember is adequately trained to perform his or her assigned duties. FAA regulations only provide general subjects to be covered during various training phases and minimum hours for the different training phases. The broad language in the regulations leaves air carriers significant latitude in formulating their training programs.

Additionally, air carrier training programs must be approved by the carrier's FAA inspector. However, the lack of more specific requirements in the regulations may hinder FAA inspectors' ability to determine whether air carriers' established programs will ensure crewmembers are "adequately" trained. As we delve deeper into this issue in our upcoming audit, we will analyze more closely the degree of variance of air carrier training programs.

FAA regulations also provide different instructional hour requirements for different types of aircraft. For example, pilots of piston engine aircraft are only required to have 64 hours of initial ground training, and those flying turbo-propeller powered aircraft must have 80 hours. Jet aircraft pilots must have 120 hours of initial ground training, or 50 percent more than turboprops, as shown in table 2 below.

Table 2. Air Carrier Training Hour Requirements by Aircraft Type

Training Type	Piston Engine	Turboprop	Turbojet
Initial Ground Training	64	80	120
Pilot-In-Command Initial In-Flight Training and Practice	10	15	20
Recurrent Ground Training	16	20	25

Similar differences in instructional hours are found among in-flight and recurrent training requirements. Other turboprop crewmembers, such as flight attendants and dispatchers, are also required to receive fewer instructional hours of training than the crewmembers of jet aircraft. The differences in instructional hours for turboprops are significant distinctions because 23 percent of regional aircraft are turboprop aircraft and 24 percent of U.S. airports receive scheduled air service only from turboprop aircraft operations. Colgan flight 3407 was a turboprop aircraft.

While we need to complete additional work in this area, we are also concerned that the broad language of the requirements could result in wide variances between air carrier training programs. We will further focus our efforts on these differences and their potential impact on safety.

OIG Plans for Addressing New Work on FAA Safety Oversight

The NTSB's recent hearing regarding the Colgan accident included evidence suggesting that pilot training and fatigue may have contributed to the crash. We are

in preliminary stages of our review requested by the Committee and Subcommittee and would like to take this opportunity to discuss our overall approach.

We are executing this engagement in three stages. The first review concentrates on several aspects of pilot training. These include standards for certification of pilot training; frequency of training on new technologies; and FAA's oversight of training (including use of simulators) and pilot qualifications. As part of this review, we are specifically examining training for regional pilots on the various types of aircraft since these carriers operate a wide variety of aircraft, including turboprop and regional jets. We are also reviewing FAA's January 2009 proposed rulemaking on pilot training and evaluating its potential impact on air carrier training programs at both mainline and regional carriers. Currently, the comment period on the proposed rule has been extended to the end of August 2009.

Our second review concentrates on regulations covering pilot rest requirements and domicile and duty locations. The third review comprises a statistical analysis to determine if there is a correlation between accidents and pilot experience and compensation. As always, Mr. Chairman, we will adjust the focus of our reviews to address any other specific concerns that the Committee or Subcommittee may identify.

Conclusion

The importance of airline safety is critical to the Department and the flying public. We will continue to do our part in advancing the Department's goal of one level of safety. While all stakeholders are committed to getting it right, our work has identified a number of significant vulnerabilities that must be addressed. This will require actions in areas FAA has already targeted for improvement as well as other areas where FAA will need to revisit differences in standards and regulations and rethink its approach to safety oversight.

That concludes my statement, Mr. Chairman, I would be happy to address any questions you or other Members of the Subcommittee may have.

Senator DORGAN. Mr. Scovel, thank you very much for your testimony and for your work at the Inspector General's office.

Next, we'll hear from The Honorable Mark Rosenker—I hope I have that correct—and he's the Acting Chairman of the National Transportation Safety Board.

Mr. Rosenker, you may proceed.

STATEMENT OF HON. MARK V. ROSENKER, ACTING CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Mr. ROSENKER. Thank you, Mr. Chairman, Ranking Member DeMint, distinguished Members of the Committee.

I'd like to begin my testimony this afternoon with a short summary of the NTSB's investigative actions to date regarding the accident involving Colgan Air Flight 3407. I want to emphasize that this is still an ongoing investigation and there is significant work left for our investigators. My testimony today, therefore, will be limited to those facts we have identified to date, and I will steer clear of any analysis of what we have found so far and avoid any ultimate conclusions that might be drawn from that information.

On February 12, 2009, at about 10:17 p.m. Eastern Standard Time, Colgan Air Flight 3407, a Bombardier Dash 8–Q400, crashed during an instrument approach to runway 23 at Buffalo-Niagara International Airport in Buffalo, New York. The flight was operating as a Part 121 scheduled passenger flight from Liberty International Airport in Newark, New Jersey. The four crew members and 45 passengers were killed, and the aircraft was destroyed by impact forces and postcrash fire. One person in a house was also killed, and two individuals escaped the house with minor injuries.

On May 12, 2009, the NTSB commenced a 3-day public hearing on the accident in which we explored airplane performance, cold

weather operations, sterile cockpit compliance, flight crew training and performance, and fatigue management. I'd like to note that all of these issues are pertinent to every airline operation, major air carriers as well as regional air carriers. Our investigation continues, and we continue to make progress every day.

I'd now like to discuss some of the Board's important safety recommendations that we have made over the years. The NTSB has issued numerous recommendations to the FAA on stall training, stick-pusher training, pilot records, remedial training for pilots, sterile cockpit, situational awareness, pilot monitoring skills, low airspeed alerting systems, pilot professionalism and fatigue, as well as aircraft icing. Two of these issue areas, aircraft icing and human fatigue, are on the Board's Most Wanted List of Transportation Safety Improvements.

While there are currently more than 450 open recommendations to the FAA, on January 12 of this year, the FAA took action on some of those recommendations when they published a Notice of Proposed Rulemaking addressing pilot training and qualifications. The notice also proposes changes to include the requirement of flight training simulators and traditional flight crew-member training programs, and adds training requirements in safety-critical areas. The NPRM address issues raised in numerous safety recommendations that we issued to the FAA.

In 1995, the NTSB issued recommendations to the FAA to require an airline to evaluate an applicant pilot's experience, skills, and ability before hiring the individual. The following year, Congress enacted the Pilot Records Improvement Act, PRIA. That came in 1996 and required any company hiring a pilot for air transportation to request and receive records from any organization that had employed the pilot during the previous 5 years. However, the PRIA does not require an airline to obtain FAA records of failed flight checks. The Board has recognized that additional data contained in FAA records, including records of flight-check failures and rechecks, would be very beneficial for a potential employer to review and evaluate. Therefore, in 2005, the NTSB issued another recommendation to the FAA to require airlines, when considering an applicant for a pilot position, to perform a complete review of the FAA airman records, including any notices of disapproval for flight checks. In response to the NTSB's recommendation, the FAA stated that "Notices of disapproval for flight checks for certificates and ratings are not among the records explicitly required by PRIA of 1996," and therefore, to mandate that air carriers obtain such notices would require rulemaking or a change in PRIA itself. To the credit of the FAA, on November 7, 2007, an advisory circular was issued informing carriers that they can ask pilots to sign a consent form giving the carrier access to any notices of disapproval. The recommendation is currently classified "open acceptable alternative response." However, to date, the FAA has not taken any rulemaking action or asked Congress to modify the Act.

Mr. Chairman, this concludes my testimony, and I will be glad to answer any questions at the appropriate time.

[The prepared statement of Mr. Rosenker follows:]

PREPARED STATEMENT OF HON. MARK V. ROSENKER, ACTING CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Good afternoon. With your concurrence, Mr. Chairman, I would like to begin my testimony with a short summary of the National Transportation Safety Board's (NTSB) actions to date regarding the investigation of the accident involving Colgan Air flight 3407. I want to emphasize that this is still an ongoing investigation and that there is significant work left for our investigative staff. My testimony today will therefore out of necessity be limited to those facts that we have identified to date, and I will steer clear of any analysis of what we have found so far and avoid any ultimate conclusions that might be drawn from that information.

On February 12, 2009, about 10:17 p.m. eastern standard time, Colgan Air flight 3407, a Bombardier Dash 8–Q400, crashed during an instrument approach to runway 23 at Buffalo-Niagara International Airport, Buffalo, New York. The crash site was in Clarence Center, New York, about 5 nautical miles northeast of the airport, and was mostly confined to a single residential house. The flight was operating as a Part 121 scheduled passenger flight from Liberty International Airport, Newark, New Jersey.

The four crew members and 45 passengers were killed, and the aircraft was destroyed by impact forces and post crash fire. One person in the house was also killed and two individuals escaped with minor injuries.

The flight crew reported for duty on the day of the accident at 1:30 p.m. However, the crew's first two flights of the day were canceled because of high winds at the departure airport. The accident flight, which had been delayed due to weather, departed Newark at 9:18 p.m. with a planned arrival time of 10:21 p.m.

The captain was the pilot flying the aircraft, and the cruise altitude was 16,000 feet. During the ascent to 16,000 feet, all de-ice systems were selected on and stayed on throughout the flight. About 40 minutes into the flight, the crew began the descent portion of the flight.

At 9:54 p.m., the captain briefed the airspeed for landing, which was to be 118 knots with the flaps set to 15 degrees. At 10:10 p.m., the flight crew discussed the build-up of ice on the windshield. At 10:12 p.m., the flight was cleared to 2,300 feet and at 10:14 p.m., the airplane reached the assigned altitude. Over the next 2 minutes, with the autopilot engaged, power was reduced to near flight idle and the airspeed slowed from about 180 to about 135 knots. At 10:16 p.m., the crew lowered the landing gear. About 20 seconds later, the first officer moved the flaps from 5 to 10 degrees. Shortly afterward, the stick shaker activated, and the autopilot disengaged. The stick shaker is a stall warning mechanism that warns of slow airspeed and an approaching stall should the pilot take no action to remedy the situation. In this case, the stick shaker activated more than 25 knots before the stall airspeed.

The flight data recorder data from the airplane indicate that the crew added about 75 percent of available engine power and the captain moved the control column aft. This action was accompanied by the airplane pitching up, and a roll to the left, followed by a roll to the right, during which time the stick pusher activated and the flaps were retracted.

At the time of the accident, the weather at Buffalo was: winds from 250 degrees at 14 knots, visibility 3 miles in light snow and mist, a few clouds at 1,100 feet, ceiling overcast at 2,100 feet, and temperature of 1 degree Celsius.

Examination of the flight data recorder data and performance models shows that some ice accumulation was likely present on the airplane prior to the initial upset event, but that the airplane continued to respond as expected to flight control inputs throughout the accident sequence.

The engines exhibited evidence of power at impact. Flight control continuity could not be established due to the extensive impact and fire damage to the airplane.

On May 12, 2009, the NTSB began a 3-day en banc public hearing on the accident. The NTSB swore in 20 witnesses to discuss the following topics:

- Airplane Performance;
- Cold Weather Operations;
- Sterile Cockpit Compliance;
- Flight Crew Training and Performance; and
- Fatigue Management.

I would like to note that these issues are not relevant to regional airlines alone. They are pertinent to every airline operation, major air carriers as well as regional air carriers.

The investigation is continuing with aircraft performance and simulation work, additional interviews, reviews of policies and procedures, and further examination

of selected wreckage. We've identified numerous safety issues that we will explore in significant detail.

During the hearing, the flight crew's experience and training were examined. The captain received his type rating in the Dash 8 in November 2008, only a few months before the crash. He had a total flight time of 3,379 hours, with 1,030 hours as pilot-in-command and 110.7 hours in the Dash 8. The first officer received second-in-command privileges on the Dash 8 in March 2008. She reported 2,244 hours total pilot time with 774 hours in the Dash 8.

The captain had a history of multiple FAA certificate disapprovals involving flight checks conducted before his employment with Colgan. The captain did not initially pass flight tests for the Instrument flight rating (October, 1991), the Commercial Pilot certificate (May, 2002), and the multiengine certificate (April, 2004). In each case, with additional training, the captain subsequently passed the flight tests and was issued the rating or certificate.

In 1995, the NTSB issued 4 recommendations to the FAA to require an airline to evaluate an applicant pilot's experience, skills, and abilities before hiring the individual. The FAA's effort in response to these recommendations resulted in the Pilot Records Improvement Act (PRIA) of 1996 (Public Law 104–264, section 502, which is codified in 49 *United States Code* section 44703 (h), (i), and (j)). The PRIA required any company hiring a pilot for air transportation request and receive records from any organization that had previously employed the pilot during the previous 5 years. However, the PRIA does not require an airline to obtain FAA records of failed flight checks. Although validation of FAA ratings and certifications held by a pilot applicant is necessary in evaluating a pilot's background, additional data contained in FAA records, including records of flight check failures and rechecks, would be beneficial for a potential employer to review and evaluate.

In 2005, the NTSB issued another recommendation to the FAA to require airlines, when considering an applicant for a pilot position, to perform a complete review of FAA airman records, including any notices of disapproval for flightchecks. In response to the NTSB's recommendation, the FAA stated that Notices of Disapproval for flight checks for certificates and ratings are not among the records explicitly required by the Pilot Records Improvement Act (PRIA) of 1996, and therefore, to mandate that air carriers obtain such notices would require rulemaking or a change in the PRIA itself. The FAA indicated that such changes are likely to be time consuming and controversial. The FAA noted that some air carriers currently require applicants for pilot positions to sign a consent form permitting the FAA to release these records to the air carrier requesting them as part of the applicants' pre-employment screening. When this is done, the FAA furnishes these records to the air carrier without violating privacy laws. To date, the FAA has not issued any rulemaking to require airlines to obtain a release from all flight crew applicants to release their records to permit the airline to consider past performance in hiring decisions. These changes could also be made by modifying the statute, but to our knowledge, the FAA has not asked the Congress to do so. On November 7, 2007, the FAA issued Advisory Circular AC120–68D, which informs carriers that they can ask pilots to sign a consent form giving the carrier access to any Notices of Disapproval. The recommendation is currently classified "Open-Acceptable Alternate Response."

The investigators also are pursuing why Colgan did not have a remedial training program in place as recommended in the FAA's 2006 Safety Alert for Operators (SAFO) 06015, the purpose of which was to promote voluntary implementation of remedial training programs for pilots with persistent performance deficiencies.

Specifically, the SAFO provides guidance to safety directors on the development of programs to identify pilots with persistent performance deficiencies, those who have experienced multiple failures in training and proficiency checks. It was suggested that three objectives be accomplished: (1) review the entire performance history of any pilot in question; (2) provide additional remedial training as necessary; and (3) provide additional oversight by the certificate holder to ensure that performance deficiencies are effectively addressed and corrected.

The investigation is also exploring how commuting may have affected the pilots' performance. Both pilots were based in Newark, New Jersey, but lived outside of the Newark area. The captain commuted to Newark from Tampa, Florida, 3 days before the accident, and spent the night in Colgan's operations room the night before the accident. The first officer commuted from Seattle, Washington, on a "red eye" flight the night before the accident. She did not arrive into Newark until 6:30 a.m. the day of the accident flight, and there is evidence that she spent the day in the crew room.

Of the 137 Colgan pilots based at Newark in April 2009, 93 identified themselves as commuters. Forty-nine pilots have a commute greater than 400 miles, with 29 of these pilots living more than 1,000 miles away.

During post-accident interviews, the Newark regional chief pilot said no restrictions were placed on pilots regarding commuting, but pilots had to meet schedule requirements. Colgan has a commuting policy that is outlined in its Flight Crewmember Policy Handbook. The handbook states "a commuting pilot is expected to report for duty in a timely manner." A previous edition of the handbook stated that flight crewmembers should not attempt to commute to their base on the same day they are scheduled to work. This statement is not in the current handbook edition. Additionally, Colgan's procedures do not allow pilots to sleep in the operations room.

The investigation is examining whether conversations inconsistent with the sterile cockpit rule (which prohibits crew members from engaging in non-essential conversation below 10,000 feet) impacted the pilots' situational awareness of the decreasing airspeed. For example, there was a 3-minute discussion on the crew's experience in icing conditions and training; this conversation occurred just a few minutes before the stick shaker activated and while the crew was executing the approach checklist.

Another issue that the investigation is pursuing is whether fatigue may have affected the flight crew's performance. We know that on the day of the accident, the captain logged into Colgan's crew scheduling computer system at 3 a.m. and 7:30 a.m. And we know that the first officer commuted to Newark on an overnight flight and was sending and receiving text messages periodically the day of the accident.

At the time of the accident, Colgan had a fatigue policy in place. The fatigue policy was covered in the basic indoctrination ground school. Colgan did not provide specific guidance to its pilots on fatigue management.

On April 29, 2009, Colgan issued an operations bulletin on crewmember fatigue. The bulletin reiterated the company's fatigue policy and provided information to crewmembers on what causes fatigue, how to recognize the signs of fatigue, how fatigue affects performance, and how to combat fatigue by properly utilizing periods of rest.

Once again, the issues we are exploring in the Colgan investigation are not new issues and are not unique to the regional airlines. The NTSB has previously issued recommendations on stall training, stick pusher training, pilot certification and recurrent training records, remedial training for pilots, sterile cockpit, situational awareness, pilot monitoring skills, low airspeed alerting systems, pilot professionalism, and fatigue. (See attachments.)

As you may know, the NTSB maintains a list of Most Wanted Transportation Safety Improvements. Issues on this list are selected for follow-up and heightened awareness because the Board believes they will significantly enhance the safety of the Nation's transportation system, have a high level of public visibility and interest, and will otherwise benefit from being highlighted on the Most Wanted List. Of the six aviation issues currently on the Most Wanted List, two issue areas are in some manner related to the Colgan investigation. I would like to briefly explain the two issue areas, and recent FAA activities in response.

1. Reduce dangers to aircraft flying in icing conditions.
2. Reduce accidents and incidents caused by human fatigue.

Both of these issue areas currently have a red timeliness classification indicating that the FAA's response has not been acceptable from the NTSB's perspective. In many cases, the FAA's response has been slow in coming, allowing important safety issues that the NTSB has identified to remain unresolved for a lengthy period of time. The FAA has recently indicated that actions are being taken in response to some of these recommendations, and the NTSB is currently reviewing this information. Some of the details, and recent FAA actions for each area are:

- Flight in Icing Conditions: These recommendations date back to 1996, and ask that aircraft approved to fly in icing conditions be certified in icing conditions that represent the most serious threats. In the 13 years since these recommendations were issued, the FAA has not yet taken the requested action. Recent staff level discussions with the FAA revealed that they soon plan to propose changes to the certification regulations that include revised icing conditions that are more representative of the icing conditions that pose the greatest aviation safety risk. In 2007, the FAA issued an NPRM calling for activation and continuous operation of de-icing boots at the first signs of icing. The NTSB is still awaiting a final rule mandating this needed change.
- Human Fatigue: Human fatigue is another issue that has been on the Most Wanted List since it was created 19 years ago. In 1995, the FAA issued a notice of proposed rulemaking (NPRM) that addressed many of the issues identified by the NTSB. That NPRM was controversial and encountered considerable opposition. The FAA later withdrew the NPRM and has not proposed any further

revisions to existing flight and duty time regulations. The regulations have not been significantly revised in over 50 years, although there has been substantial scientific-based research over that time-frame that the NTSB believes supports changes in the existing flight and duty time regulations. Throughout the 19-year period that this issue has been on the Most Wanted List, right up through today, the NTSB has continued to investigate accidents where flight crew fatigue was a significant issue.

Finally, I would like to address pilot training issues. As you are aware, on January 12, 2009, the FAA published an NPRM titled, "Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers." The notice proposes to amend the regulations for flight and cabin crewmembers and dispatcher training programs in domestic, flag, and supplemental operations. Proposed changes include requiring the use of flight simulation training devices (FSTD) in traditional flight crewmember training programs and adding training requirements in safety-critical areas. In addition, the proposal reorganizes qualifications and training requirements in the existing rule by moving several sections of advisory information to the regulatory section. The NPRM also addresses issues raised in numerous safety recommendations issued to the FAA by the NTSB; 13 of these recommendations remain open.

On May 7, 2009, the NTSB provided comments to the NPRM. While the NTSB generally supports the proposed rule changes, we suggested additional requirements, including substantive changes that would improve or enhance crew and dispatcher procedures, qualifications, and training and the replacement of advisory circulars and other recommended guidance with regulatory changes mandating compliance.

At an April 7, 2009, presentation on the NPRM, the NTSB was briefed that the FAA principle regarding training is "Train like you fly, and fly like you train." The NTSB agrees with this principle and with several proposed initiatives that are especially appropriate for flight operations in today's environment. For example, the NTSB supports the NPRM's proposals for adding a continuous analysis process and FSTDs to training programs, requiring special hazards and environment training, and establishing qualifications for training centers and other 14 *Code of Federal Regulations* (CFR) Part 119 facilities. The NTSB also concurred with the FAA that it is important for flight crewmembers to be trained and evaluated in a complete flight crew environment, which means that, during training for pilot flying and pilot monitoring roles, crewmembers should occupy the seats for—and perform the duties of—the position for which they are being trained.

The NTSB is aware that, in the past, some considered upset recovery training to be inappropriate due to limitations in aerodynamic model fidelity of simulators; however, unusual attitudes do not equate to being outside the angle of attack and sideslip range of the aerodynamic model. Many, if not most, upsets occur well within this envelope. Therefore, the NTSB supports the "Airplane Upset Recovery Training Aid," which is an FAA-industry effort referenced in the NPRM, and believes that training could be further improved by feedback to the pilot from the simulator. The training aid suggests that, in a scenario in which the pilot has maneuvered the simulator to an extremely high angle of attack or sideslip, there should be a change in the visual display when the aerodynamic envelope is exceeded; specifically, a color change would alert pilots that they are at an angle of attack or sideslip that should be avoided during recovery efforts.

The NTSB notes that some aircraft, such as the Saab 340 and the Bombardier CRJ, have experienced upsets due to premature stall caused by icing that disrupted the airflow over the wing or otherwise altered the aerodynamic stall characteristics of the wing or control surface. Because icing contamination can cause the critical angle of attack to be reduced considerably, these upsets can occur without warning. A stall roll-off departure from normal flight is often the flight crew's first indication of an upset due to icing contamination; however, the NTSB has found that flight crews often do not apply decisive and timely recovery controls when this occurs, which results in prolonged upsets that increase the probability of ground impact. For aircraft that have experienced upsets due to icing contamination, the NTSB suggests that upset recovery training should include recognition of these excursions from normal flight attitudes and prompt application of proper recovery procedures.

Although the NPRM continues to encourage the traditional training approach to stall recovery (recovery from stick shaker), the NTSB is concerned that flight crews are not recognizing stalls and are not applying aggressive recovery procedures, as indicated by several aviation events. Among these events is the October 14, 2004, accident in which a Bombardier CL–600–2B19 crashed in Jefferson City, Missouri, when the flight crew was unable to recover after both engines flamed out as the result of a pilot-induced aerodynamic stall. Another example occurred during a De-

cember 22, 1996, accident in which a Douglas DC–8–63 experienced an uncontrolled flight into terrain in Narrows, Virginia, after the flying pilot applied inappropriate control inputs during a stall recovery attempt and the nonflying pilot failed to recognize, address, and correct these inappropriate control inputs. Because of examples like these, the NTSB advises that training in stall recovery should go beyond approach to stall to include training in recovery from a full stall condition. In addition, in cases when flight data are available (whether from flight tests or accidents/incidents), these data should be used to model stall behavior to facilitate training beyond the initial stall warning.

If the proposed rule becomes final, it would likely meet the intent of 5 of the 13 open safety recommendations related to crewmember training. The following is a list of the 13 recommendations and an explanation of whether or not the NPRM addresses each of them.

A–93–46

Amend 14 CFR Parts 121, 125, and 129 to require Traffic Alert and Collision Avoidance System [TCAS] flight simulator training for flight crews during initial and recurrent training. This training should familiarize the flight crews with TCAS presentations and require maneuvering in response to TCAS visual and aural alerts.

The NPRM contains requirements for TCAS training, as recommended. Therefore, the NPRM is responsive to the recommendation. If the NPRM (as currently presented) becomes a final rule, the NTSB would likely consider it an acceptable action, and the recommendation could be closed. The NTSB notes that this is currently the oldest open aviation recommendation.

A–94–107

Revise 14 CFR Section 121.445 to eliminate subparagraph (c), and require that all flight crewmembers meet the requirements for operation to or from a special airport, either by operating experience or pictorial means.

The NPRM proposes the following language for 14 CFR 121.1235(c): "The Administrator may determine that certain airports (due to items such as surrounding terrain, obstructions, or complex approach or departure procedures) are special airports requiring special airport qualifications and that certain areas or routes require a special type of navigation qualification." In addition, special routes, areas, and airports for special operations are among the subjects in the NPRM's list of required training. Therefore, the NPRM is responsive to the recommendation. If the NPRM (as currently presented) becomes a final rule, the NTSB would likely consider it an acceptable action, and this recommendation could be closed.

A–94–199

Revise the certification standards for Part 25 and for Part 23 (commuter category) aircraft to require that a flight simulator, suitable for flight crew training under Appendix H of Part 121, be available concurrent with the certification of any new aircraft type.

The NPRM proposes a requirement that a flight simulator be available for training. The NTSB has previously indicated that such a requirement would be an acceptable alternative response to a design requirement for an aircraft. Therefore, if the proposed rule becomes final, the NTSB would likely consider it an acceptable action, and this recommendation could be closed.

A–95–124

Require, by December 31, 1997, operators that conduct scheduled and nonscheduled services under 14 CFR Part 135 in Alaska to provide flight crews, during initial and recurrent training programs, aeronautical decision-making and judgment training that is tailored to the company's flight operations and Alaska's aviation environment, and provide similar training for Federal Aviation Administration principal operations inspectors [POI] who are assigned to commuter airlines and air taxis in Alaska, so as to facilitate the inspectors' approval and surveillance of the operators' training programs.

The FAA has previously indicated to the NTSB that the NPRM would include aeronautical decision-making and judgment in the crew resource management portion of the proposed training rule. However, this Safety Recommendation is specific to Part 135 operations in Alaska, while the NPRM addresses Part 121 operations. Therefore, the FAA has not supplied a satisfactory response. Thus, the NPRM, as drafted, would not meet the intent of this recommendation, and the status would remain "Open—Unacceptable Response."

A–96–95

Develop a controlled flight into terrain training [CFIT] program that includes realistic simulator exercises comparable to the successful windshear and rejected takeoff training programs and make training in such a program mandatory for all pilots operating under 14 CFR Part 121.

The NPRM proposes to require special hazards training, including methods for preventing CFIT and approach and landing accidents. Therefore, if this requirement is included in the final rule, the NTSB would likely consider it an acceptable action, and the recommendation could be closed.

A–96–120

Require 14 CFR Part 121 and 135 operators to provide training to flight crews in the recognition of and recovery from unusual attitudes and upset maneuvers, including upsets that occur while the aircraft is being controlled by automatic flight control systems, and unusual attitudes that result from flight control malfunctions and uncommanded flight control surface movements.

The NTSB is pleased that, in response to Safety Recommendation A–96–120, the NPRM includes training on recognizing and recovering from "special hazards," which are sudden or unexpected aircraft upsets. The NTSB interprets that this proposal would also include a requirement that gives FAA POIs the authority to review and require changes to training programs that do not adequately address a special hazard. Lack of such authority was a concern identified during the NTSB's investigation of a November 12, 2001, accident involving American Airlines flight 587, an Airbus Industrie A300–605R.[1] During this investigation, the NTSB learned that the POI knew that aspects of American Airlines' training program had undesirable effects; however, he lacked the authority to force American Airlines to change its program.

In addition, a topic covered in the special hazards training section of the NPRM is recovery from loss of control due to airplane design, airplane malfunction, human performance, and atmospheric conditions. The "Upset Recognition and Recovery" section of the NPRM lists a number of items that should be covered, including catastrophic damage due to rapidly reversing controls and the use of light pedal forces and small pedal movements to obtain the maximum rudder deflection as speed increases.

This recommendation is currently classified "Open—Unacceptable Response" because of the FAA's delayed response. Although the NPRM proposes requirements for Part 121 operators, similar action for Part 135 operators will be needed before Safety Recommendation A–96–120 can be closed.

A–98–102

Require air carriers to adopt the operating procedure contained in the manufacturer's airplane flight manual and subsequent approved revisions or provide written justification that an equivalent safety level results from an alternative procedure.

The FAA has previously indicated to the NTSB that the NPRM would address the issues in this recommendation. However, the NTSB did not see any language in the NPRM that specifically addresses Safety Recommendation A–98–102, which currently is classified "Open—Acceptable Response" pending a requirement for the recommended action.

A–01–85

Amend 14 [CFR] 121.417 to require participation in firefighting drills that involve actual or simulated fires during crewmember recurrent training and to require that those drills include realistic scenarios on recognizing potential signs of, locating, and fighting hidden fires.

The NPRM addresses the substantive issues in this recommendation. Although the NPRM does not propose to revise 14 CFR 121.417, it contains training requirements on the actions to take in the event of fire or smoke in the aircraft, including realistic drills with emphasis on combating hidden fires. This training includes simulated locations of hidden fires, such as behind sidewall panels, in overhead areas and panels, or in air conditioning vents. The NPRM also contains firefighting training requirements for flight attendants, including operation of each type of installed hand fire extinguisher. This recommendation is currently classified "Open—Unacceptable Response" pending a requirement for the recommended action. If the re-

[1] For more information, see *In-Flight Separation of Vertical Stabilizer, American Airlines Flight 587, Airbus Industrie A300–605R,* N14053, Belle Harbor, New York, November 12, 2001, Aircraft Accident Report NTSB/AAR–04/04 (Washington, DC: NTSB, 2004).

quirements proposed in the NPRM are enacted in the final rule, the NTSB would likely consider it an acceptable action, and this recommendation could be closed.

A–05–30

Require all 14 [CFR] Part 121 and 135 air carriers to incorporate bounced landing recovery techniques in their flight manuals and to teach these techniques during initial and recurrent training.

Although the NPRM contains detailed requirements for training on landing, the NTSB did not see anything in the NPRM related to bounced landing recovery techniques. This recommendation is currently classified "Open—Acceptable Alternate Response" pending the results of a survey indicating that all operators' training programs include the recommendations in a safety alert for operators.

A–07–44

Require that all 14 [CFR] Part 91K, 121, and 135 operators establish procedures requiring all crewmembers on the flight deck to positively confirm and cross-check the airplane's location at the assigned departure runway before crossing the hold short line for takeoff. This required guidance should be consistent with the guidance in Advisory Circular 120–74A and Safety Alert for Operators 06013 and 07003.

The NPRM contains training requirements related to runway safety. Special hazards topics must include how to ensure that takeoff clearance is received and that the correct runway is being entered for takeoff before crossing the hold-short line. This recommendation is currently classified "Open—Unacceptable Response" because of continuing delays in the issuance of this NPRM. If the NPRM becomes final, the proposed requirement is partly responsive to this recommendation because it addresses only Part 121 operators. Action will still be needed for Part 135 and Part 91 subpart K operators before this recommendation can be closed.

A–07–96

Require air carriers to revise their cabin crew training manuals and programs to ensure that the manuals and programs state that a door must remain open while the air conditioning (A/C) cart is connected, advise that the A/C cart can pressurize the airplane on the ground if all doors are closed, and warn about the dangers of opening any door while the air conditioning cart is supplying conditioned (cooled or heated) air to the cabin.

The NPRM proposes a requirement for training that will familiarize cabin crewmembers with each aircraft on which they will work. Among these aircraft familiarization requirements are cabin pressurization indicators and systems. However, the NPRM does not fully address the recommended action because it only addresses specific actions to take when the door remains open while the A/C cart is connected. This recommendation is currently classified, and would remain, "Open—Acceptable Response" pending timely and acceptable revisions to Notice 8400.35 and Order 8900.1.

A–08–16

Require 14 [CFR] Part 121, 135, and Part 91 subpart K operators to include, in their initial, upgrade, transition, and recurrent simulator training for turbojet airplanes, (1) decision-making for rejected landings below 50 feet along with a rapid reduction in visual cues and (2) practice in executing this maneuver.

The NPRM proposes a requirement to use a simulator for training on rejected landing maneuvers, including the initiation of a rejected landing between 30 and 50 feet above the runway. Thus, the NPRM addresses the second part of this recommendation ("practice in executing this maneuver"). In addition, although the NPRM did not specifically address decision-making, this topic may be covered during training in the maneuver. Safety Recommendation A–08–16 is currently classified "Open—Response Received." The NPRM partially responds to the recommendation because it addresses only Part 121, and not Part 135 or Part 91 subpart K, carriers. Action for Part 135 and Part 91 subpart K operators will still be needed before this recommendation can be closed.

A–08–17

Require 14 [CFR] Part 121, 135, and Part 91 subpart K operators to include, in their initial, upgrade, transition, and recurrent simulator training for turbojet airplanes, practice for pilots in accomplishing maximum performance landings on contaminated runways.

The NTSB did not find any language describing how to accomplish maximum performance landings on contaminated runways in the NPRM. In addition, any proposed requirements associated with this NPRM would only apply to Part 121 car-

riers and not Part 135 or Part 91 subpart K operators. This recommendation is currently classified "Open—Response Received."

Mr. Chairman, this concludes my testimony, and I will be glad to answer questions you may have.

Attachments:

Recommendation history on:

- stall training;
- stick pusher training;
- pilot training records;
- remedial training for pilots;
- sterile cockpit;
- situational awareness;
- pilot monitoring skills;
- low airspeed alerting systems;
- pilot professionalism;
- and fatigue.

Recommendation Report

Tuesday, October 20, 2009

REC:A-78-043

Log Number 0940
Issue Date 7/7/1978

THE NATIONAL TRANSPORTATION SAFETY BOARD IS CONCERNED BY THE CONTINUED OCCURRENCE OF STALL/SPIN ACCIDENTS IN RECENT YEARS. THE ACCIDENT STATISTICS ARE ALARMING AND REINFORCE OUR BELIEF THAT POSITIVE, INNOVATIVE ACTION BY THE FEDERAL AVIATION ADMINISTRATION MUST BE TAKEN TO ALLEVIATE THE SITUATION. FROM 1974 TO 1976, THERE WERE 723 STALL/SPIN ACCIDENTS WHICH RESULTED IN 668 FATALITIES AND 246 SERIOUS INJURIES. MANY OF THESE ACCIDENTS COULD HAVE BEEN PREVENTED IF FAA HAD IMPLEMENTED PAST SAFETY BOARD RECOMMENDATIONS RELATING TO STALL/SPIN PROBLEMS.

Recommendation #	Overall Status	Priority
A-78-043	CUA	CLASS I

INCORPORATE ALL OF THE ESSENTIAL ELEMENTS OF THE GROUND AND FLIGHT TRAINING INCREMENTS DEVELOPED IN THE "GENERAL AVIATION PILOT STALL AWARENESS TRAINING STUDY," OR THEIR EQUIVALENT, IN FAR PARTS 61 AND 141.

FAA	Closed - Unacceptable Action	2/3/1989

9/1/1978	Addressee	FAA LTR: WE BELIEVE THAT CERTAIN ELEMENTS CONTAINED IN THE GENERAL AVIATION PILOT STALL AWARENESS TRAINING STUDY SHOULD BE SURVEYED FOR POSSIBLE INCORPORATION INTO THE SECTIONS OF FAR PARTS 61 AND 141 WHICH DEAL WITH TRAINING IN STALL AWARENESS AND RECOVERY. ACTION IS CURRENTLY UNDERWAY TO IDENTIFY RELEVANT ELEMENTS AND INCORPORATE THEM INTO REGULATORY PROPOSALS FOR UPDATING PILOT TRAINING STANDARDS. WE EXPECT TO COMPLETE THIS SURVEY BY MARCH 1979.
10/8/1980	NTSB	The faa letter of september 1, 1978, indicated that a survey wasexpected to be completed by march 1979, and if the results of the survey indicated rulemaking to be appropriate, regulatory projects would be established. In order to evaluate the status of this recommendation and bring the public docket up to date, we would appreciate a progress report.
11/13/1980	Addressee	FEDERAL AVIATION ADMINISTRATION LTR: THE STALL AWARENESS TRAINING STUDY WILL BE INCLUDED, IN ITS ENTIRETY, INTO FAR PARTS 61 AND 141 AGENDA FOR CONSIDERATION IN THE UPGRADING OF PILOT TRAINING STANDARDS. THE FAA IS PLANNING A REGULATORY REVIEW OF FAR PARTS 61 AND 141 DURING THE CURRENT FISCAL YEAR. WE ARE FULLY AWARE OF THE IMPORTANCE OF THIS ACTION AND ARE HOPEFUL THAT WORK CAN BEGIN DURING THIS CALENDAR YEAR. IN THE MEANTIME, THE FAA HAS WRITTEN TO ALL INDUSTRY SPONSORS OF FAA APPROVED FLIGHT INSTRUCTOR REFRESHER COURSES TO INCLUDE TRAINING ON STALL SPIN AWARENESS. FURTHER, THE FAA EXAMINER STANDARDIZATION SECTION HAS INCLUDED A UNIT OF INSTRUCTION ON STALL SPIN AWARENESS TO ALL PILOT EXAMINERS. THE INTENT OF THESE ACTIONS IS TO INFORM THE FLIGHT INSTRUCTORS AND PILOT EXAMINERS OF THE ELEMENTS OF STALL SPIN AWARENESS TRAINING.
12/1/1986	Addressee	THE STALL AWARENESS TRAINING STUDY WILL BE INCLUDED IN ITS ENTIRETY, INTO FAR PARTS 61 AND 141 AGENDA FOR CONSIDERATION IN THE UPGRADING OF PILOT TRAINING STANDARDS. THE FAA IS PLANNING A REGULATORY REVIEW OF FAR PARTS 61 AND 141 DURING THE CURRENT FISCAL YEAR. WE ARE FULLY AWARE OF THE IMPORTANCE OF THIS ACTION AND ARE HOPEFUL THAT WORK CAN BEGIN DURING THIS CALENDAR YEAR. IN OUR JUDGEMENT, THESE ACTIONS WILL SATISFY THE INTENT OF SAFETY RECOMMENDATION A-78-43. WE WILL KEEP THE BOARD INFORMED OF THE STATUS OF UPGRADING FAR PARTS 61 AND 141.
12/1/1986	NTSB	In a letter dated november 13, 1980, we were informed that the faa was planning a regulatory review of far parts 61 and 141 in fy 1981 andwould include the general aviation pilot stall awareness training study in the agenda. Based on this information, the safety board in a letter dated december 16, 1980, classified this recommendation as open--acceptable action. However, we have not received any further response from the faa and would appreciate being informed of the present status of the review. In the expectation that the faa intends to take action as planned, we are main- taining a-78-43 in an open--acceptable action status.

Recommendation Report

Tuesday, October 20, 2009

REC:A-94-173

Log Number **2527**

Issue Date **10/24/1994** **COLUMBUS OH** **1/7/1994**

ON JANUARY 7, 1994, A JETSTREAM J4101, N304UE, OPERATED BY ATLANTIC COAST AIRLINES AS UNITED EXPRESS FLIGHT 6291, WAS ON A SCHEDULED FLIGHT FROM DULLES INTERNATIONAL AIRPORT TO PORT COLUMBUS INTERNATIONAL AIRPORT, IN GAHANNA, OHIO. AT 2321 EASTERN STANDARD TIME, WHILE ON AN INSTRUMENT LANDING SYSTEM APPROACH TO RUNWAY 28L, THE AIRPLANE STRUCK A CONCRETE BLOCK BUILDING THAT WAS ABOUT 1.2 MILES EAST OF THE RUNWAY. THE PILOT, CO-PILOT, FLIGHT ATTENDANT, AND TWO PASSENGERS WERE FATALLY INJURED. THE THREE OTHER PASSENGERS, A HUSBAND AND WIFE AND THEIR 5-YEAR-OLD DAUGHTER, SUSTAINED MINOR INJURIES. THE AIRPLANE WAS DESTROYED BY POSTCRASH FIRE.

Recommendation # **A-94-173** **Overall Status** **CAA** **Priority** **CLASS II**

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ENSURE THAT THE TRAINING PROGRAMS FOR 14 CODE OF FEDERAL REGULATIONS PART 135 PILOTS PLACE AN INCREASED EMPHASIS ON STALL WARNING RECOGNITION AND RECOVERY TECHNIQUES, TO INLCUDE STICK SHAKER AND STICK PUSHER, DURING TRAINING.

FAA	Closed - Acceptable Action	11/14/1995

12/21/1994	Addressee	THE FAA AGREES WITH THIS RECOMMENDATION. THE FAA WILL ISSUE A FLIGHT STANDARDS INFO BULLETIN DIRECTING PRINCIPAL OPERATIONS INSPECTORS TO ENSURE THAT THEIR APPROPRIATE OPERATORS PLACE EMPHASIS ON STALL WARNING RECOGNITION & RECOVERY TECHNIQUES, INCLUDING STICK SHAKER & STICK PUSHER, DURING TRAINING.
4/27/1995	NTSB	THE BOARD NOTES THAT THE FAA WILL ISSUE A FLIGHT STANDARDS INFO BULLETIN DIRECTING ALL PRINCIPAL OPERATIONS INSPECTORS TO ENSURE THAT THEIR APPROPRIATE OPERATORS PLACE EMPHASIS ON STALL WARNING RECOGNITION & RECOVERY TECHNIQUES, INCLUDING STICK SHAKER & STICK PUSHER, DURING TRAINING. THEREFORE, THE BOARD CLASSIFIES A-94-173 "OPEN--ACCEPTABLE RESPONSE & AWAITS RECEIPT OF A COPY OF THE SUBJECT BULLETIN.
8/7/1995	Addressee	THE FAA ISSUED FLIGHT STANDARDS INFO BULLETIN 95-10A, INSTRUMENT APPROACH PROCEDURES & TRAINING. THIS BULLETIN BECAME EFFECTIVE 6/26/95, & DIRECTS PRINCIPAL OPERATIONS INSPECTORS TO ENSURE THAT THEIR APPROPRIATE 14 CFR PART 135 OPERATORS PLACE EMPHASIS ON STALLWARNING RECOGNITION & RECOVERY TECHNIQUES, INCLUDING STICK SHAKER & STICK PUSHER, DURING TRAINING.
11/14/1995	NTSB	THE BOARD NOTES THAT THE FAA ISSUED FLIGHT STANDARDS INFO BULLETIN 95-10A, "INSTRUMENT APPROACH PROCEDURES & TRAINING," WHICH BECAME EFFECTIVE 6/26/95. THE FSIB DIRECTS ALL PRINCIPAL OPERATIONS INSPECTORS TO ENSURE THAT THEIR APPROPRIATE OPERATORS PLACE EMPHASIS ON STALL WARNING RECOGNITION & RECOVERY TECHNIQUES, INCLUDING STICK SHAKER & STICK PUSHER, DURING TRAINING. BECAUSE THE FSIB COMPLIES WITH THE INTENT OF THE RECOMMENDATION, A-94-173 IS CLASSIFIED "CLOSED--ACCEPTABLE ACTION."

Recommendation Report

Tuesday, October 20, 2009

REC:A-95-116

Log Number **2576**

Issue Date **11/15/1995** **RALEIGH-DURHAM NC** **12/13/1994**

ON 12/13/94, A FLAGSHIP AIRLINES JETSTREAM 3201, DOING BUSINESS AS (DBA) AMERICAN EAGLE (AMR) FLIGHT 3379, CRASHED ABOUT 4 NAUTICAL MILES SOUTHWEST OF THE RUNWAY 5L THRESHOLD DURING AN INSTRUMENT LANDING SYSTEM APPROCH TO THE RALEIGH-DURHAM INTERNATIONAL AIRPORT (RDU). THE FLIGHT WAS REGULARLY SCHEDULED PASSENGER FLIGHT UNDER 14 CODE OF FEDERAL REGULATIONS (CFR), PART 135. THIRTEEN PASSENGERS & THE TWO CREWMEMBERS WERE FATALLY INJURED, & THE OTHER FIVE PASSENGERS SURVIVED. THE AIRPLANE WAS DESTROYED BY IMPACT & FIRE. THE WEATHER AT THE TIME OF THE ACCIDENT WAS CEILING 500 FEET, VISIBILITY 2 MILES, LIGHT RAIN & FOG, TEMPERATURE 38 DEGREES F, & DEW POINT 36 DEGREES F.

Recommendation # A-95-116

Overall Status CR

Priority CLASS II

THE NTSB RECOMMENDS THAT THE FAA: REQUIRE ALL AIRLINES OPERATING UNDER 14 CFR PARTS 121 & 135 & INDEPENDENT FACILITIES THAT TRAIN PILOTS FOR THE AIRLINES TO MAINTAIN PERTINENT STANDARDIZED INFO ON THE QUALITY OF PILOT PERFORMANCE IN ACTIVITIES THAT ASSESS SKILLS, ABILITIES, KNOWLEDGE, & JUDGMENT DURING TRAINING, CHECK FLIGHTS, INITIAL OPERATING EXPERIENCE, & LINE CHECKS & TO USE THIS INFO IN QUALITY ASSURANCE OF INDIVIDUAL PERFORMANCE & OF THE TRAINING PROGRAMS.

FAA	Closed - Reconsidered	1/3/2000

2/13/1996 Addressee

THE FAA RESPONDED THAT THE CURRENT REGULATIONS (14 CFR 121 APPENDIX E & F) CONTAIN ADEQUATE MANEUVERS & PROCEDURES, WITH "...STANDARDIZED INFO NEEDED TO ASSESS PILOT PERFORMANCE ADEQUATELY." THEY ALSO COMMENTED ON THE RECENT ISSUANCE OF A FINAL RULE, AIR CARRIER & COMMERCIAL OPERATOR TRAINING PROGRAMS, WHICH UPGRADED THE TRAINING, CHECKING & QUALIFICATION REQUIREMENTS FOR 14 CFR 135 OPERATORS, & MANDATED CREW RESOURCE MANAGEMENT TRAINING.

7/15/1996 NTSB

THE BOARD NOTES THAT THE FAA BELIEVES THAT CURRENT RULES, AS SPECIFIED IN 14 CFR PART 121 APPENDIXES E & F, PROVIDE THE STANDARDIZED INFO NEEDED TO ASSESS PILOT PERFORMANCE ADEQUATELY. IN ADDITION, ON 12/8/95, THE FAA ISSUED A FINAL RULE ENTITLED, "AIR CARRIER & COMMERICAL OPERATOR TRAINING PROGRAM," WHICH REQUIRES CERTAIN CERTIFICATE HOLDERS OPERATING UNDER PART 135 TO COMPLY WITH THE TRAINING, CHECKING, & QUALIFICATIONS REQUIREMENTS OF PART121, THUS ASSURING THAT THE TRAINING & CHECKING REQUIREMENTS OF THOSE OPERATING UNDER PART 135 WILL MEET THE SIMILAR REQUIREMENTS OF PART 121. HOWEVER, THE BOARD BELIEVES THAT THE EXISTING REQUIREMENTS OF PART 121 DO NOT PROVIDE THE TYPE OF RECORDKEEPING REQUIREMENTS URGED IN THIS RECOMMENDATION. IN FACT, APPENDIXES E & F WERE IN EFFECT AT THE TIME OF THE BOARD'S INVESTIGATION OF THE ACCIDENT TO WHICH THIS RECOMMENDATION WAS ADDRESSED (THE AMERICAN EAGLE JETSTREAM 3201 CRASH AT MORRISVILLE, NORTH CAROLINA, ON 12/13/94). IN THE INVESTIGATION OF THIS ACCIDENT, THE BOARD WAS UNABLE TO LOCATE THE TYPE OF INSTRUCTOR COMMENTS ON THE QUALITY OF THE CAPTAIN'S PERFORMANCE IN ACTIVITIES THAT TRAIN OR ASSESS THE NECESSARY PILOT SKILLS, ABILITIES, KNOWLEDGE, & JUDGMENT REQUIRED OF PILOTS OPERATING UNDER PART 135 & 121 IN THE CAPTAIN'S OFFICIAL PERSONNEL & TRAINING FILES. MOREOVER, THE BOARD LEARNED THAT THE AIRLINE MANAGEMENT ITSELF WAS UNAWARE OF CRITICAL ASPECTS OF THE CAPTAIN'S PERFORMANCE, DESPITE THE MANAGEMENT'S ADHERENCE TO THE PROVISION OF APPENDIXES E & F, PERHAPS BECAUSE SUCH INFO WAS ABSENT FROM THE AIRLINE'S OFFICIAL PERSONNEL & TRAINING FILES ON THE CAPTAIN. CONSEQUENTLY, THE BOARD CLASSIFIES A-95-116 "OPEN--UNACCEPTABLE RESPONSE" & REQUESTS THAT THE FAA RECONSIDER ITS POSITION ON THIS RECOMMENDATION.

2/11/1997 Addressee

THE FAA BELIEVES THAT THE MANEUVERS & PROCEDURES FOR AIR CARRIER TRAINING & QUALIFICATION CONTAINED IN 14 CFR PART 121, APPENDIXES E & F, PROVIDE THE STANDARDIZED INFO NEEDED TO ASSESS PILOT PERFORMANCE OF PILOTS REQUIRED TO TRAIN UNDER 14 CFR PART 121, SUBPART N & O.

Recommendation Report

Tuesday, October 20, 2009

REC:A-05-014

Log Number **2931**

Issue Date **5/31/2005** **Memphis TN** **12/18/2003**

On December 18, 2003, about 1226 central standard time, Federal Express Corporation (FedEx) flight 647, a Boeing MD-10-10F (MD-10),1 N364FE, crashed while landing at Memphis International Airport (MEM), Memphis, Tennessee. The right main landing gear collapsed after touchdown on runway 36R, and the airplane veered off the right side of the runway. After the gear collapsed, a fire developed on the right side of the airplane. Of the two flight crewmembers and five nonrevenue FedEx pilots2 on board the airplane, the first officer and one nonrevenue
pilot received minor injuries during the evacuation. The postcrash fire destroyed the airplane's right wing and portions of the right side of the fuselage. Flight 647 departed from Metropolitan Oakland International Airport, Oakland, California, about 0832 (0632 Pacific standard time) and was operating under the provisions of 14 Code of Federal Regulations (CFR) Part 121 on an instrument flight rules flight plan.

Recommendation # A-05-014

Overall Status
OAAR

Priority

The National Transportation Safety Board recommends that the Federal Aviation Administration: Require all 14 Code of Federal Regulations Part 121 air carrier operators to establish programs for flight crewmembers who have demonstrated performance deficiencies or experienced failures in the training environment that would require a review of their whole performance history at the company and administer additional oversight and training to ensure that performance deficiencies are addressed and corrected.

FAA	Open Acceptable Alternate Response

9/8/2005	Addressee	Letter Mail Controlled 9/14/2005 3:07:09 PM MC# 2050430 Marion C. Blakey, Administrator, FAA, 9/8/05: The Federal Aviation Administration agrees with the intent of this safety recommendation. Many 14 CFR Part 121 certificate holders already have, in place, voluntary programs of review, oversight, and remedial training developed in cooperation with their respective pilots' collective bargaining unit representatives. These voluntary programs have been shown to be effective. The FAA will issue a notice by December 2005 recommending that all 14 CFR Part 121 certificate holders develop and implement a program consistent with the intent of this safety recommendation. I will provide the Board with a copy of the notice as soon as it is issued.
1/19/2006	NTSB	The FAA stated that many 14 CFR Part 121 air carriers already have voluntary programs of review, oversight, and remedial training. The FAA further stated that it will issue a notice recommending that all 14 CFR Part 121 certificate holders develop and implement a program consistent with the intent of this safety recommendation. The Safety Board believes that the FAA's proposed action of issuing a notice instead of requiring the establishment of these programs may be an acceptable alternative, so long as the FAA can readily report to the Board how many carriers have established a program. Pending issuance of the notice and confirmation that all Part 121 carriers have established the recommended program, Safety Recommendation A-05-14 is classified "Open-Acceptable Alternate Response."
4/13/2007	Addressee	Letter Mail Controlled 4/27/2007 8:49:34 AM MC# 2070178:Marion C. Blakey, Administrator, FAA, 4/13/07 The Federal Aviation Administration has issued Safety Alert for Operators (SAFO) 06015 (copy enclosed), recommending implementation and incorporation of a voluntary remedial Part 121 pilot training module to supplement an air carriers' approved training program. Directors of Safety of Part 121 certificate holders that do not have a voluntary remedial training module for pilots should recommend this type of program to top managers of air carriers. This remedial training program should initiate the review of pilot's performance history, provide additional remedial training and engage the representatives of pilots to accomplish the objectives of SAFO 06015. I believe that the FAA has satisfactorily responded to this safety recommendation, and I look forward to your response.

Recommendation Report

Tuesday, October 20, 2009

REC:A-87-008

Log Number **1955**

Issue Date **3/19/1987** **MILWAUKEE WI** **9/6/1985**

AT 1521 C.D.T. ON SEPTEMBER 6, 1985, MIDWEST EXPRESS AIR LINES, INC. (MIDWEST EXPRESS), FLIGHT 105, A MCDONNELL DOUGLAS DC-9-14 AIRPLANE, CRASHED INTO AN OPEN FIELD AT THE EDGE OF A WOODED AREA ABOUT 1,680 FEET SOUTHWEST OF THE DEPARTURE END OF RUNWAY 19R SHORTLY AFTER TAKING OFF FROM GENERAL BILLY MITCHELL FIELD, MILWAUKEE, WISCONSIN. THE WEATHER WAS CLEAR WITH VISIBILITY 10 MILES. DURING THE INITIAL CLIMB, ABOUT 450 FEET ABOVE GROUND LEVEL (A.G.L.), THERE WAS A LOUD NOISE AND A LOSS OF POWER ASSOCIATED WITH AN UNCONTAINED FAILURE OF THE 9TH TO 10TH STAGE HIGH PRESSURE COMPRESSOR SPACER OF THE RIGHT ENGINE. FLIGHT 105 CONTINUED TO CLIMB TO ABOUT 700 FEET A.G.L. AND THEN ROLLED TO THE RIGHT UNTIL THE WINGS WERE OBSERVED IN A NEAR VERTICAL, APPROXIMATELY RIGHT 90 DEGREE BANKED TURN. DURING THE ROLL, THE AIRPLANE ENTERED AN ACCELERATED STALL, CONTROL WAS LOST, AND THE AIRPLANE CRASHED. THE AIRCRAFT WAS DESTROYED BY IMPACT FORCES AND POSTCRASH FIRE. THE PILOT, THE FIRST OFFICER, BOTH FLIGHT ATTENDANTS, AND ALL 27 PASSENGERS WERE FATALLY INJURED.

Recommendation # A-87-008

Overall Status **CAA**

Priority **CLASS II**

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ISSUE AN AIR CARRIER OPERATIONS BULLETIN DIRECTING PRINCIPAL OPERATIONS INSPECTORS TO REVIEW THEIR RESPECTIVE AIR CARRIER'S FLIGHTCREW TRAINING PROGRAMS TO ENSURE THE EXISTENCE OF NEW COORDINATION PROCEDURES THAT, NOTWITHSTANDING A POLICY ENDORSING NONESSENTIAL CONVERSATION DURING AN EMERGENCY CONDITION, REQUIRE ANY CREWMEMBER WHO OBSERVES A POTENTIAL OR ACTUAL EMERGENCY SITUATION TO VERBALLY CALL IT TO THE CAPTAIN'S ATTENTION.

FAA	Closed - Acceptable Action	4/13/1988

5/29/1987	Addressee	THE FAA CONCURS THAT THE FAILURE OF A CREWMEMBER TO CALL OUT VERBALLY A POTENTIAL OR ACTUAL EMERGENCY SITUATION COULD LEAD TO DISASTER AND BELIEVES THIS FACT SHOULD BE EMPHASIZED. THEREFORE, AN AIR CARRIER OPERATIONS BULLETIN (ACOB) WILL BE ISSUED ON THIS SUBJECT. THE ESTIMATED COMPLETION DATE FOR THIS ACOB IS SEPTEMBER, 1987.
7/21/1987	NTSB	We are pleased that the FAA concurs in these recommendations and will, accordingly, issue air carrier operations bulletins by September 1987. Pending your further response, these recommendations are classified "Open--Acceptable Action."
4/13/1988	Addressee	THE FAA HAS ISSUED ACOB 8-88-2, REQUIRE ANY CREWMEMBER WHO OBSERVES A POTENTIAL OR ACTUAL EMERGENCY SITUATION TO VERBALLY CALL IT TO THE CAPTAIN'S ATTENTION. THIS ACOB DIRECTS PRINCIPAL OPERATIONS INSPECTORS TO ENSURE THAT THEIR ASSIGNED CARRIERS DO NOT TEACH THE CONCEPT OF "SILENT COCKPIT" IN THEIR PILOT TRAINING PROGRAMS. I HAVE ENCLOSED A COPY OF THE ACOB FOR THE BOARD'S INFORMATION.
6/28/1988	NTSB	We are pleased that the FAA has issued Air Carrier Operations Bulletin (ACOB) No. 8-88-2, to require any crewmember who observes a potential or actual emergency situation to verbally call it to the captain's attention. This recommendation is classified as "Closed--Acceptable Action."

Recommendation Report

Tuesday, October 20, 2009

REC:A-96-106

Log Number **2612**

Issue Date **10/16/1996** **BUGA COL** **12/20/1995**

ON 12/20/95, ABOUT 2142 EASTERN STANDARD TIME, AMERICAN AIRLINES (AAL) FLIGHT 965, A REGULARLY SCHEDULED PASSENGER FLIGHT FROM, MIAMI, FLORIDA, TO CALI, COLOMBIA, STRUCK A TREES AND THEN CRASHED INTO THE SIDE OF A MOUNTAIN NEAR BUGA, COLOMBIA, IN NIGHT, VISUAL METEOROLOGICAL CONDITIONS, WHILE DESCENDING INTO THE CALI AREA. THE AIRPLANE CRASHED 33 MILES NORTHEAST OF THE CALI (CLO) VERY HIGH FREQUENCY OMNIDIRECTIONAL RADIO RANGE (VOR) NAVIGATION AID. THE AIRPLANE WAS DESTROYED, AND ALL BUT FOUR OF THE 163 PASSENGERS AND CREW ON BOARD WERE KILLED.

Recommendation # A-96-106

Overall Status
CAA

Priority
CLASS II

THE NTSB RECOMMENDS THAT THE FAA: REVISE ADVISORY CIRCULAR 120-51B TO INCLUDE SPECIFIC GUIDANCE ON METHODS TO EFFECTIVELY TRAIN PILOTS TO RECOGNIZE CUES THAT INDICATE THAT THEY HAVE NOT OBTAINED SITUATIONAL AWARENESS, & EFFECTIVE MEASURES TO OBTAIN THAT AWARENESS.

FAA	Closed - Acceptable Action	3/1/1999

12/31/1996	Addressee	THE FAA WILL FUND A RESEARCH PROJECT TO DETERMINE CUES WHICH FLIGHT CREWMEMBERS CAN READILY RECOGNIZE TO INDICATE SITUATIONAL AWARENESS PROBLEMS. THIS PROJECT WILL FOCUS ON DEVELOPING SPECIFIC CUES FOR SITUATIONAL AWARENESS IN AUTOMATED COCKPITS. AS SOON AS THIS PROJECT IS COMPLETED, THE FAA WILL REVISE ADVISORY CIRCULAR 120-51B TO INCLUDE GUIDANCE ON TRAINING THE CREWS ON CUE RECOGNITION. I WILL KEEP THE BOARD INFORMED OF THE FAA'S PROGRESS ON THIS RECOMMENDATION.
4/11/1997	NTSB	A-96-106 ASKED THE FAA TO REVISE AC 120-51B TO INCLUDE SPECIFIC GUIDANCE ON METHODS TO EFFECTIVELY TRAIN PILOTS TO RECOGNIZE CUES THAT INDICATE THAT THEY HAVE NOT OBTAINED SITUATIONAL AWARENESS, & PROVIDE EFFECTIVE MEASURES TO OBTAIN THAT AWARENESS. PENDING THE BOARD'S EVALUATION OF THE FAA'S COMPLETED ACTION, A-96-106 IS CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."
6/29/1998	Addressee	Letter Mail Controlled 7/7/98 3:57:35 PM MC# 980845
8/3/1998	Addressee	(Letter Mail Controlled 8/6/98 3:49:30 PM MC# 980977) THE FAA FUNDED A RESEARCH PROJECT TO DETERMINE CUES WHICH FLIGHT CREWMEMBERS CAN READILY RECOGNIZE TO INDICATE SITUATIONAL AWARENESS PROBLEMS. THE RESEARCH FOCUSED ON DEVELOPING SPECIFIC CUES FOR SITUATIONAL AWARENESS IN AUTOMATED COCKPITS. THE RESULTS OF THIS RESEARCH PROJECT ARE OUTLINED IN A REPORT ENTITLED "GUIDELINES FOR SITUATION AWARENESS TRAINING," WHICH WAS PUBLISHED IN FEBRUARY 1998. THE REPORT INCLUDES AN OVERVIEW, SPECIFIC TRAINING TIPS, & SAMPLE TRAINING COURSES FOR USE BY THE AVIATION COMMUNITY. THE REPORT HAS BEEN WELL-RECEIVED BY AIR CARRIER OPERATORS & CONTAINS CONCEPTS & GUIDANCE FOR INSPECTORS IN ASSESSING CREW RESOURCE MANAGEMENT TRAINING OF THEIR OPERATORS. THE REPORT IS ALSO POSTED ON THE FAA AIR CARRIER TRAINING HOME PAGE(HTTP://WWW.FAA-GOV/AVR/AFS/TRAIN.HTM>). THE FAA WILL INCORPORATE GUIDANCE ON CUE RECOGNITION TRAINING FOR CREWMEMBERS IN ADVISORY CIRCULAR (AC) 121-51B, CREW RESOURCE MANAGEMENT TRAINING. I WILL PROVIDE THE BOARD WITH A COPY OF THE AC AS SOON AS IT IS REVISED.
11/2/1998	NTSB	A-96-106 ASKED THE FAA TO REVISE ADVISORY CIRCULAR 120-51B TO INCLUDE SPECIFIC GUIDANCE ON METHODS TO EFFECTIVELY TRAIN PILOTS TO RECOGNIZE CUES THAT INDICATE THAT THEY HAVE NOT OBTAINED SITUATIONAL AWARENESS & PROVIDE EFFECTIVE MEASURES TO OBTAIN THAT AWARENESS. PENDING PUBLICATION OF AN UPDATED AC, A-96-106 IS CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."

Recommendation Report

Tuesday, October 20, 2009

REC:A-94-001

Log Number 2482
Issue Date 2/3/1994

U.S. AIR CARRIER OPERATIONS ARE EXTREMELY SAFE, AND THE ACCIDENT RATE HAS DECLINED IN RECENT YEARS. HOWEVER, AMONG THE WIDE ARRAY OF FACTORS CITED BY THE NATIONAL TRANSPORTATION SAFETY BOARD AS CAUSAL OR CONTRIBUTING TO AIRPLANE ACCIDENTS, ACTIONS OR INACTIONS BY THE FLIGHTCREW HAVE BEEN CITED IN THE MAJORITY OF FATAL AIR CARRIER ACCIDENTS. RECOGNIZING THAT DEFICIENCIES IN VARIOUS ASPECTS OF THE AVIATION SYSTEM MAY UNDERLIE THE ERRORS MADE BY FLIGHTCREWS, THE SAFETY BOARD CONDUCTED A STUDY TO LEARN MORE ABOUT FLIGHTCREW PERFORMANCE BY EVALUATING THE CHARACTERISTICS OF THE OPERATING ENVIRONMENT, THE FLIGHTCREWS AND ERRORS MADE IN MAJOR ACCIDENTS OF U.S. AIR CARRIERS.

Recommendation # A-94-001

Overall Status
CAA

Priority
CLASS II

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: APPLY THE RESULTS OF RESEARCH CONDUCTED TO DATE ON THE DESIGN AND USE OF CHECKLISTS TO IMPROVE THE ERROR-TOLERANCE OF AIR CARRIER CHECKLIST PROCEDURES FOR TAXI OPERATIONS, BY ENHANCING FLIGHTCREW MONITORING/CHALLENGING OF CHECKLIST EXECUTION, PROVIDING CUES FOR INITIATING CHECKLISTS, AND CONSIDERING TECHNOLOGICAL OR PROCEDURAL METHODS TO MINIMIZE THE OMISSION OF ANY ITEMS ON A CHECKLIST. PROVIDE SPECIFIC GUIDANCE TO AIR CARRIERS FOR IMPLEMENTING THESE PROCEDURES.

FAA	Closed - Acceptable Action	2/18/1997

4/26/1994	Addressee	THE FAA AGREES WITH THIS RECOMMENDATION & IS ISSUING AN ADVISORY CIRCULAR TO ADDRESS THE BOARD'S CONCERNS. PRESENTLY, ORDER 8400.10, AIR TRANSPORTATION OPERATIONS INSPECTOR'S HANDBOOK, CONTAINS EXTENSIVE GUIDANCE ON THE SUBJECT OF CHECKLISTS. THIS GUIDANCE IS BASED ON THE RESULTS OF VARIOUS STUDIES & RESEARCH & IS AVAILABLE TO ALL AIR CARRIERS. THE FAA HAS ALSO DEVELOPED & ISSUED SUBSTANTIVE GUIDANCE ON CRM THAT WILL BE USEFUL TO AIR CARRIERS IN THE DEVELOPMENT & USE OF AIRCREW CHECKLISTS...
7/6/1994	NTSB	THE BOARD IS PLEASED THAT THE FAA PLANS TO ISSUE AN ADVISORY CIRCULAR THAT ADDRESSES THE BOARD'S CONCERNS. PENDING THE BOARD'S RECEIPT & REVIEW OF THIS AC, A-94-1 IS CLASSIFIED "OPEN--ACCEPTABLE RESPONSE."
12/18/1996	Addressee	IN A DECEMBER 18, 1996, LETTER THE FAA RESPONDED TO THE BOARD DETAILING ACTIONS TAKEN TO ADDRESS A-94-001. THE FAA'S ACTIONS INCLUDED: (1) MANDATING CRM TRAINING FOR CERTIFICATE HOLDERS REQUIRED TO COMPLY WITH 14 CFR PART 121 TRAINING REQUIREMENTS (2) REVISING ADVISORY CIRCULAR 120-51B "CREW RESOURCE MANAGEMENT TRAINING" TO ADDRESS TRAINING IN CHALLENGING ERRORS INVOLVING INADEQUATELY COMPLETING CHECKLISTS & TO PROVIDE CLARIFYING CRM GUIDANCE IN RESPECT TO CHECKLIST PROCEDURES, (3) ISSUING FLIGHT STANDARDS INFO BULLETIN 95-20, WHICH INSTRUCTS POIS OF 14 CFR PART 121 & 135 CARRIERS TO REEMPHASIZE THE NEED TO STRICTLY COMPLY WITH STANDARD OPERATING PROCEDURES & IN-FLIGHT CHECKLIST PROCEDURES, & (4) ISSUING A REPORT IN JANUARY 1995 ENTITLED "HUMAN PERFORMANCE CONSIDERATIONS IN THE USE & DESIGN OF AIRCRAFT CHECKLISTS," WHICH SUMMARIZES CONTEMPORARY HUMAN FACTORS PRINCIPLES AFFECTING THE DESIGN & USE OF ALL AIRCRAFT CHECKLISTS, NOT ONLY TAXI CHECKLISTS AS STATED IN A-94-001. THE REPORT ALSO PROVIDES GUIDANCE ON CHECKLIST DESIGN.

Recommendation Report

Tuesday, October 20, 2009

REC:A-03-053

Log Number **2900**

Issue Date **12/2/2003** **Eveleth MN** **10/25/2002**

On October 25, 2002, about 1022 central daylight time, a Raytheon (Beechcraft) King Air A100, N41BE, operated by Aviation Charter, Inc., crashed while the flight crew was attempting to execute the VOR approach to runway 27 at Eveleth-Virginia Municipal Airport, Eveleth, Minnesota. The crash site was located about 1.8 nautical miles southeast of the approach end of runway 27. The two pilots and six passengers were killed, and the airplane was
destroyed by impact forces and a postcrash fire. The airplane was being operated under the provisions of 14 Code of Federal Regulations (CFR) Part 135 as an on-demand passenger charter flight. Instrument meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan.

Recommendation # A-03-053

Overall Status
OAA

Priority

The National Transportation Safety Board makes the following recommendation to the Federal Aviation Administration: Convene a panel of aircraft design, aviation operations, and aviation human factors specialists, including representatives from the National Aeronautics and Space Administration, to determine whether a requirement for the installation of low-airspeed alert systems in airplanes engaged in commercial operations under 14 Code of Federal Regulations Parts 121 and 135 would be feasible, and submit a report of the panel's findings.

FAA	Open - Acceptable Action

4/12/2004 Addressee

Letter Mail Controlled 4/12/2004 12:32:08 PM MC# 2040165 The FAA shares the Board's concern regarding flightcrew awareness of low airspeed situations. As noted in the Board's letter dated December 2, 2003, failure to maintain adequate airspeed can result in unsafe circumstances like loss of control, impact with terrain or water, hard landings, and tail strikes. The Board further states that it has investigated numerous accidents and incidents involving commercial flightcrcws that inadvertently failed to maintain airspeed. For example, the Board has investigated at least 11 events since 1982 involving 14 CFR Part 135 flights and at least seven events involving 14 CFR Part 121 flights in which stall or failure to maintain airspeed during approach or landing phases was cited as a causal or contributing factor and in which icing was not cited as a factor.

Current rules require stall warning (stick shaker or natural buffet) for both small airplanes and transport airplanes. The Board acknowledges the existing requirements for stall warning, but challenges the premise that stall warnings and flightcrew vigilance provide adequate low airspeed awareness. The Board states that a low airspeed alert, which would be activated at some airspeed higher than stall warning, would provide additional protection against low airspeed conditions that may lead to stall. The Board noted the existing installation of a low airspeed alert in the Embraer 120. The FAA required this alert as an interim solution until Embraer redesigns the stall warning system to account for icing conditions adequately.

Many current transport airplanes include additional cues on airspeed indicators. These cues are intended to provide improved low airspeed awareness. While not alerts, these color-coded symbols indicate the low airspeed region (the maneuver margin, typically at about 1.3 Vstall) in which the airplane is approaching the stall warning speed. As noted by the Board, such displays are now becoming available for use in less sophisticated general aviation airplanes.

Additionally, the Board has recognized that there are unresolved technical, operational, and human factors issues that will need to be carefully evaluated and addressed in connection with the design and implementation of a low airspeed alert system.

On January 21,2004, the Board provided the FAA with more complete information on the 18 accidents cited by the Board to support these safety recommendations. The FAA will include a review of these 18 accidents in determining what action needs to be taken to address the safety issue. The FAA will also consider efforts already accomplished or in progress under the Safer Skies programs and other initiatives dealing with airspeed awareness.

I will keep the Board informed of the FAA's progress on these safety recommendations.

Recommendation Report

Tuesday, October 20, 2009

REC:A-72-140

Log Number 0392
Issue Date 8/28/1972 **NEW HAVEN CT** 6/7/1971

ALLEGHENY AIRLINES, INC., ALLISON PROP JET CONVAIR 340/440, N5832, OPERATING AS ALLEGHENY FLIGHT 485, CRASHED DURING AN APPROACH TO THE TWEED-NEW HAVEN AIRPORT, AT 0949 E.D.T., ON JUNE 7, 1971. TWENTY- EIGHT PASSENGERS AND TWO CREWMEMBERS WERE FATALLY INJURED. TWO PASSENGERS AND THE FIRST OFFICER SURVIVED. THE AIRPLANE WAS DESTROYED. THE FLIGHT, OPERATING BETWEEN WASHINGTON, D.C., AND NEWPORT NEWS, VIRGINIA, WITH STOPS AT GROTON AND NEW HAVEN, CONNECTICUT, AND PHILADELPHIA, PENNSYLVANIA, WAS MAKING A NONPRECISION INSTRUMENT APPROACH AND STRUCK COTTAGES AT AN ALTITUDE OF 29 FEET M.S.L., 4,890 FEET FROM THE THRESHOLD AND 510 FEET TO THE RIGHT OF THE EXTENDED CENTER-LINE OF RUNWAY 2.

Recommendation # A-72-140 **Overall Status** CAA **Priority**

THAT THE AIR LINE PILOTS ASSOCIATION AND THE ALLIED PILOTS ASSOCIATION IMPLEMENT A PROGRAM WITHIN EXISTING PROFESSIONAL STANDARDS COMMITTEES TO PROVIDE AN EXPEDITIOUS MEANS FOR PEER GROUP MONITORING AND DISCIPLINING THE VERY SMALL GROUP OF AIR CARRIER PILOTS WHO MAY DISPLAY ANY UNPROFESSIONAL (INCLUDING HAZARDOUS) TRAITS AS EXEMPLIFIED BY THIS ACCIDENT.

FAA	Closed - Acceptable Action	2/20/1975

9/14/1972 Addressee INADEQUATE ACTION INITIALLY. BUT SUBSEQUENT ACCIDENTS PRECIPITATED NEW RECOMMENDATIONS TO FAA.

Recommendation Report

Tuesday, October 20, 2009

REC:A-08-044

Log Number 3010
Issue Date 6/12/2008 **Kirksville MO** 10/19/2004

On October 19, 2004, about 1937 central daylight time, a BAE Systems BAE-J3201, Corporate Airlines flight 5966, struck trees on final approach and crashed short of the airport in Kirksville, Missouri. Both pilots and 11 passengers were killed, and 2 passengers received serious injuries. The pilots had been executing a nonprecision approach at night in instrument conditions at the end of a 14.5-hour-long duty day for which they reported to duty early and during which they had conducted five previous landings in poor visibility. The National Transportation Safety Board determined that the probable cause of the accident was the pilots' failure to follow established procedures and properly conduct the approach and to adhere to established division of duties. The Safety Board also determined that the pilots' fatigue likely contributed to their degraded performance.

Recommendation # A-08-044 **Overall Status** OAA **Priority** CLASS II

The National Transportation Safety Board recommends that the Federal Aviation Administration: Develop guidance, based on empirical and scientific evidence, for operators to establish fatigue management systems, including information about the content and implementation of these systems. (A-08-44) (This safety recommendation supersedes Safety Recommendation A-06-11)

FAA	Open - Acceptable Action	

8/11/2008 Addressee Letter Mail Controlled 8/22/2008 8:34:53 AM MC# 2080510: Robert A. Sturgell, Acting Administrator, FAA, 8/11/08 The Federal Aviation Administration hosted an international symposium on the subject of fatigue in aviation operations June 17 through 19, 2008. The purpose of the symposium was to gather and make public the best available knowledge on fatigue and fatigue mitigations. Staff members from the Board were key presenters at the symposium and Vice Chairman Sumwalt was a keynote speaker. The Board's contribution to the symposium was a direct and valuable part of its overall success.

This symposium was part of an overall "systems" approach that the FAA is taking regarding fatigue in aviation operations. We agree with the safety intent of these recommendations and seek to educate the industry on the reality of fatigue and ways to effectively mitigate its dangers.

As part of our planned approach to fatigue we have established the following priorities:

· We are consolidating into proceedings the information derived from the fatigue symposium. We expect the proceedings of the symposium to be distributed by September 30, 2008;

· We are developing operations specification guidance for fatigue management in ultra long range (ULR) flight operations -flights greater than 16 hours in duration. This is our immediate focus since there is no existing guidance for this flight regime. We believe that lessons learned from this action likely can be applied to other flight profiles; and

· Parallel and related to the ULR fatigue management effort is a scientific data gathering effort that will collect data on fatigue aspects of ULR and other flight operations. This data effort will form the basis for improved fatigue guidance documents and will lead to standardized protocols for such data gathering. These standardized protocols will provide us with reliable tools to validate air operators' fatigue management actions and also will give solid basis for policy guidance to the industry.

Senator DORGAN. Mr. Rosenker, thank you very much.

And finally, we will hear from John O'Brien, who is a Board Member of the Flight Safety Foundation.

Mr. O'Brien, you're—we're pleased you're here. Your entire statement will be part of the record, if you will summarize.

STATEMENT OF JOHN O'BRIEN, MEMBER OF THE EXECUTIVE COMMITTEE, FLIGHT SAFETY FOUNDATION

Mr. O'BRIEN. Thank you, Mr. Chairman.

Chairman Dorgan, Senator DeMint, and Members of the Committee, thank you for the opportunity to appear before you today. We commend you, Mr. Chairman and the Committee, for focusing on these critical aviation safety topics.

We've submitted a written statement, but I'll summarize, in the interest of time.

I'm here today representing the Flight Safety Foundation, but I also speak to you as a pilot who has served for 22 years as a Director of Engineering and Air Safety for ALPA. Although I don't speak for ALPA today, I've participated in more than 50 accident investigations, so these issues are near and dear to my heart.

The Flight Safety Foundation was founded 60 years ago. It's a neutral forum where competitors can work together to share information, ideas, and best practices for safety. Today we represent over 1,000 organizations from 142 nations.

As the Committee requested, our testimony is focused on specific measures that may be appropriate to improve pilot training, prevent errors resulting from crew fatigue, and address aircraft icing hazards. But, in the interest of time, I'd like to highlight for the Committee two topics that need particular attention. These topics cut across all of the Committee's issues.

The oldest and most venerable aviation safety tool is accident investigation. These investigations identify causes that lead to findings and recommendation. Objective investigations will always be an essential part of the air safety equation, but today they are only part of a more complex picture. Today there's a management approach that can do more. The technique is a systems approach to aviation safety, a safety management system. This system will allow the FAA to carry out its inspection and oversight responsibilities in a much more effective way and allow the operators to also assure that they are complying with the regulatory requirements.

Aviation safety professionals now have much more work with which they can adopt a more proactive safety management approach. They can identify risks and prioritize actions by collecting and analyzing data from many different sources. Studies show that this type of data can give us hundreds of warnings before an accident occurs. By protecting this data and acting on it early, lives are saved.

Safety data is an invaluable commodity, but, if compromised, the consequences can be catastrophic. We cannot go back to the time when the only safety data was purchased at the cost of human life.

In wake of recent judicial decisions over the disclosure of voluntary supplied safety information and the use of accident investigation reports in civil litigation and criminal prosecutions around the world, we believe there is a need for legislative protection against the release or use of voluntary self-disclosed reporting pro-

grams. We are calling for the creation of a legislative qualified exception from discovery of voluntary self-disclosed reporting programs similar to that which is provided in U.S. law against discovery and use of cockpit and service vehicle recordings and transcripts.

The Foundation recommends legislative protection of such information against disclosure in any judicial proceedings, except that a court may allow limited discovery if it decides the requesting party has demonstrated a unique need for the information and that the party would not receive a fair trial absent the information. In the event any discovery is permitted, the Foundation urges that it only be made available to a party under protective order and not generally made available to the public. We believe this legislative protection for the safety data is absolutely necessary and will save lives.

With regard to the issues of pilot training, fatigue, and anti-icing programs, including those raised by the Colgan crash, we would strongly commend the FAA's call for action this week, with one comment. We suggest that the FAA reexamine the report described in our submission for the record. This report contains discussions and recommendations on aspects of pilot training and qualifications beyond airline pilot training and qualifications. And the FAA might wish to investigate why the fatigue countermeasures and aircraft countermeasures training modules described in our written testimony concerning aircraft icing and fatigue have not produced the results that were intended.

Thank you very much for allowing us the opportunity to testify before you today. I will be happy to take any of your questions.

[The prepared statement of Mr. O'Brien follows:]

PREPARED STATEMENT OF JOHN O'BRIEN, MEMBER OF THE EXECUTIVE COMMITTEE, FLIGHT SAFETY FOUNDATION

Chairman Dorgan, Senator DeMint and Members of the Subcommittee:

Thank you for the opportunity to appear before this committee to discuss these recent important matters of aviation safety. We commend the Committee for focusing on these areas.

I'm here today representing the Flight Safety Foundation, where I serve on its Board of Governors and Executive Committee. I also speak to you as a pilot who served for 22 years as the Director of Air Safety and Engineering for the Air Line Pilots Association—although I do not speak for ALPA today—but I've participated in more than 50 accident investigations, so these issues are near and dear to my heart.

The Flight Safety Foundation was founded 60 years ago to address the problem of how to solve safety issues. The founding members believed that the industry needed a neutral ground where competitors could work together to share information, ideas, and best practices for safety.

Today, our membership is over 1,100 and crosses into all segments of the aviation industry. We bring unions and management, regulators and operators, and rival manufacturers to the table and work together to find solutions. The Foundation occupies a unique position among the many organizations that strive to improve flight safety standards and practices throughout the world. Effectiveness in bridging cultural and political differences in the common cause of safety has earned the Foundation worldwide respect.

The air transport industry is a unique global enterprise—a single flight can cross the borders of several countries and several continents. The Foundation, with members from 142 nations around the globe, transcends local, regional, or national political interests. This global membership provides a broad range of aviation safety expertise, which the Foundation can call upon to address a multitude of domestic and international matters of aviation safety.

As the Committee requested, our testimony is focused on specific measures that may be appropriate to improve pilot training, prevent errors resulting from crew fatigue, and address aircraft icing hazards. But I'd like to highlight for the Committee two areas that need particular attention and cut across all of these issues, which is the urgent need to adopt effective Safety Management Systems and better protect voluntarily supplied aviation safety data.

Aviation Safety Regime

All pilot training, crew fatigue, and anti-icing programs share the goal of improving safety. They all take advantage of the latest science and, to the best of their ability, make use of accident data and other data or information supplied by operators, manufacturers, and other members of the aviation community.

The benefits they achieve, however, make us realize that increased enforcement of outdated oversight standards and processes will not produce the results we desire. For example, I'll note in a minute the leadership of this Committee in forming a Blue Ribbon panel on pilot training, which came up with great recommended changes to pilot training methodologies and rules, most of which have not been accomplished today. We've seen fatigue studies and the de-icing studies that have produced, among other things, training modules for regional airlines that, if properly utilized, can produce effective results.

But there is a management approach that can reach far beyond these issues into the entire aviation safety regime. This management approach can be jointly employed by FAA and industry. The technique is a systems approach to aviation safety, a safety management system (SMS). If employed properly, SMS can produce significant safety improvements to the entire aviation system.

The oldest and most venerable aviation safety tool is accident investigation. These investigations identify causes that lead to findings and recommendations. Objective accident investigations will always be an essential part of the safety equation, but today they are only part of a more complex picture.

Aviation safety professionals now have much more to work with. They can adopt a more proactive safety management approach. They can identify risk and prioritize actions by collecting and analyzing data from many different sources. They can use automated systems to collect and analyze flight data on a continuous basis. They can use reporting systems that allow pilots, mechanics, and others to report problems that would normally go unrecognized. Studies show that this type of data can give us hundreds of warnings before a crash occurs. By protecting this data and acting on it early, lives are saved.

Under provisions of the International Civil Aviation Organization (ICAO) that took effect in November 2006, the Organization's 189 Member States are required to ensure that aircraft and aerodrome operators, air traffic services providers, and maintenance organizations all implement safety management systems. Some States have mandated SMS in response to the ICAO recommendation. The FAA has provided guidance for those U.S. operators who wish to voluntarily implement SMS.

This new approach to safety saves lives by focusing attention on those items likely to cause the *next* crash. Accident investigations focus attention on what caused the *last* crash. In a safety management approach, information comes from monitoring data that is the product of reporting programs built on a foundation of trust and commitment.

Safety management is now the main driver of aviation safety. It functions quietly in the background outside the view of the public and the press, but if it were to be compromised, the consequences would be unbearable. We cannot go back to a time where the only safety information available was purchased at the cost of human life in an accident.

In this country, Flight Operational Quality Assurance (FOQA) and Corporate C–FOQA have been implemented by many operators. These programs depend on automated systems that produce information that is automatically collected and analyzed. To supplement this, we have seen the increased usage of voluntary reporting systems such as the Aviation Safety Action Program (ASAP). These programs would be an important part of any SMS program.

Protecting Safety Data

The key to success for all of these safety programs is the ability to collect good quality data and then analyze and apply it properly. The quality of the data gathered is only as good as the assurances for the operators and the operator's employees that data will be used to improve safety, not to facilitate prosecution or discipline. Therefore, whether it might be from the investigator on the scene of a crash or collected automatically by FOQA or reported by a member of a flight or ground crew, one of the most important keys is to protect the data from disclosure.

In the wake of recent judicial decisions ordering disclosure of voluntarily supplied safety information, and the use of accident investigation reports in civil litigation and criminal prosecutions, the Flight Safety Foundation believes that there is a need for legislative protection against the release or use of voluntary self-disclosure reporting programs.

The Foundation has called for the creation of a legislative "qualified exception" from discovery of voluntary self-disclosure reporting programs, similar to that provided in U.S. law against discovery and use of cockpit and surface vehicle recordings and transcripts.

Examples of such voluntary self-disclosure reporting programs include the Aviation Safety Action Program (ASAP), Flight Operations Quality Assurance (FOQA), and the Aviation Safety Information Analysis and Sharing (ASIAS) System, which airlines increasingly have embraced as a means to obtain predictive information, instead of relying on forensic evidence after a crash.

The Foundation recommended legislative protection of such information against disclosure in any judicial proceeding, except that a court may allow limited discovery if it decides the requesting party has demonstrated a particularized need for the information, and that the party would not receive a fair trial absent the information. In the event any discovery is permitted, the Foundation has urged that it only be made available to a party under protective order, and not generally made available to the public. We believe this legislative protection for safety data is absolutely necessary, and will save lives.

Pilot Training

The Foundation has a long standing record of initiating or participating in programs or projects on these issues, from both a domestic and global perspective.

In fact, one of the projects that the Foundation participated in had its beginning in hearings held by this Committee in August 1989. Senator Wendall Ford, the distinguished Chairman, held hearings on the supply and training of civilian and military pilots, at the urging of Senator McCain, a subcommittee member, who was concerned over the threat posed to the stability of the military pilot inventory caused by the growing demand for civilian pilots.

It became clear at the hearings that the civilian flight training institutions would not be able to meet the demand posed by the airlines for the quality and quantity of needed pilots. Because it was not possible to provide a complete picture of this issue within the scope of the hearings, you might recall a "sense of the Congress" statement in the National Defense Authorization Act of 1989 calling for the establishment of a commission to study the national shortage of aviators. In early 1991, the Department of Transportation established a Blue Ribbon Panel to accomplish the work of the commission recommended by this Senate Committee.

The work of the panel, which had been modified to include "an assessment of availability and quality for pilots and aviation maintenance technicians for the twenty-first century", began in early 1992 and was completed in August 1993 with the publication of a report titled "Pilots and Aviation Maintenance Technicians for the Twenty-First Century—An Assessment of Availability and Quality." This report contains recommendations regarding pilot and technician training. All of these recommendations are still pertinent today and could go a long way toward addressing the pilot training issues presently confronting us. However, only one of those recommendations has been successfully implemented. In summary, this report recommended that:

- That increased cooperation and an exchange of information between the air transport industry and pilot schools is necessary. Therefore, an aviation industry coalition designed to improve and promote partnerships between industry and training institutions should be established. Action: FAA
- Convene a pilot training advisory board consisting of air transportation industry and pilot training school representatives to provide a continuing forum to devise performance-based standards for entry-level air carrier and air taxi pilots. Training organizations could use these standards to prepare pilots for careers in transportation and the industry would benefit from enhanced training. Action: FAA
- Develop a detailed plan to establish a civilian pilot training program to be implemented at such time as private sector resources are unable to satisfy the demand for well-trained, highly-qualified pilots. Action: DOT
- Examine ways in which at pilot training methods can be improved and training costs can be reduced. Action: FAA
- Because a baccalaureate degree reflects an excellent preparation for the intellectual demands, knowledge and tasks required of a professional pilot, it should

be considered a desirable factor during the screening and selection process for entry-level carrier pilots. Action: Employers and UAA

- Provide financial assistance to professional pilot candidates through loans and scholarships. Action: FAA
- Initiate legislative efforts to provide pilot training schools with priority notification and receipt of available surplus military and Federal property. Action: DOT

While none of the above-mentioned recommendations have been implemented, I am pleased to note that the U.S. Congress did implement recommendation 4: enacting legislation designed to provide relief from excessive product liability awards, which allows U.S. manufacturers to resume production of training aircraft at a reasonable cost. This has made the U.S. more competitive with foreign manufacturers who had been the primary source of new general aviation and training aircraft in the U.S.

There is a growing recognition within the U.S. aviation community that the FAA regulations covering the Air Transport Pilot rating must be reviewed and upgraded where appropriate. FAA should take a fresh approach to this issue beginning with a review of the Blue Ribbon Panel's recommendations followed by a comparison of U.S. requirements to those which exist in Europe for equivalent pilot ratings. Following this assessment changes should be made to the U.S. regulations so that a pilot trained under the new requirements would be capable of serving in an airline cockpit in a safe and efficient manner.

Fatigue

The Foundation has also participated in many projects associated with flight crew fatigue. Many of these activities involved participation in studies undertaken by the National Aeronautics and Space Administration (NASA). In 1980, in response to a Congressional request, NASA, Ames Research Center created a Fatigue/Jet Lag Program to examine whether "there is a safety problem of uncertain magnitude, due to transmeridian flying and a potential problem due to fatigue in association with various factors found in air transportation operations." Since 1980, the Program has pursued the following three goals: (1) to determine the extent of fatigue, sleep loss, and circadian disruption in flight operations; (2) to determine the effects of these factors on flight crew performance and (3) to develop and evaluate countermeasures to reduce the adverse effects of these factors and to maximize flight crew performance and alertness. It has been a priority since the Program's inception to return the information acquired through its extensive research to the operators—the pilots, air carriers, and others. In 1991, the Program underwent a name change, becoming the NASA Ames Countermeasures Group, to highlight the increased focus on the development of fatigue countermeasures.

By 2000, this NASA Program produced enough scientific and operational data to produce an Education and Training Module on strategies for alertness management for members of the regional airlines operating community. The overall purpose of this Module was to promote aviation safety, performance, and productivity. It was intended to meet three specific objects: (1) to explain the current state of knowledge about the physiological mechanisms underlying fatigue; (2) to demonstrate how this knowledge can be applied to improve flight crew sleep, performance and alertness; and (3) to offer strategies for alertness management.

Since NASA published this training and education Module in 2002, it has evolved through new scientific information developed by research organizations and information from operators and other industry organizations such as the Foundation. This Module contains information which addresses most of the factors which brought the attention of the Committee to the issue of flight crew fatigue.

Icing

On a regular basis, the Foundation publishes information on the hazards associated with winter operations. Icing can be one of the most hazardous conditions encountered during winter flight operations. Both FAA and NASA have conducted research and produced information on aircraft icing and on pilot training for the hazards associated with ice on ground and flight operations. The Foundation, along with other members of the aviation community, has spent significant time participating in these government studies and on efforts to supply this information to the operating segment of our industry. Similar to the fatigue issue previously discussed, NASA produced a training module dealing with the Hazards posed by in-flight icing to turboprop aircraft operated by regional airlines. Like the fatigue module, this module addresses most of the factors which brought the issue of aircraft icing to the attention of the Committee.

In regard to the issues of flight crew fatigue and aircraft icing we have provided the Committee with examples of training products which have been developed to assist the regional operators in their efforts to combat the safety hazards associated with fatigue and icing. The availability of such tools alone does not necessarily prevent accidents. It is a combination basic pilot qualifications, properly designed and applied training, and the conduct of affective FAA oversight which produce the desired results. We believe that the application of an SMS program with appropriate data protection provisions would produce an environment where training and oversight could be carried out in a much more effective manner.

I'm encouraged when I consider all the progress that the aviation industry, in working with the FAA and other safety professionals, has made over the past decades. While we have achieved great levels of safety, the FAA needs to continue to work with the industry in encouraging the latest efforts to improve safety. The FAA needs to lead the world in this, not follow.

Thank you very much for allowing me this opportunity to testify before you today. I would be happy to take any questions.

Senator DORGAN. Mr. O'Brien, thank you very much for your testimony.

Mr. Babbitt, my understanding is that an airplane, a commercial airplane—a 737, a DC–9, perhaps an Airbus 320—that airplane has a record somewhere, and everything that has gone wrong, or all the maintenance, all the work that's been done on that airplane, is recorded so that someone can go to that record and see everything that exists about that airplane since its birth. Is that correct?

Mr. BABBITT. Yes, sir, that is correct.

Senator DORGAN. Is the same true of the pilot, the person in the cockpit of that airplane? Is it possible to find all the information that you might want to find about the human factor in that plane, whether a pilot passed or failed the multi-engine rating, commercial license, instrument rating?

So—the reason I ask that question is, a pilot that has been described here had, I believe, five failures in various exams, and I believe the carrier did not know that. So, if you can learn everything there is to know about an airplane, why do we not, at this point, have a central repository of everything there is to know about a pilot's records?

Mr. BABBITT. Yes, sir, that does shine a little light on an area that we really have to look at.

Currently, the records exist. I think the issue that surrounds the concern is they exist in two different places. Any check ride, any testing that was done, written or otherwise, with the FAA is recorded by the FAA. However, when a pilot goes to work for an airline, if he's receiving routine training, whether it's upgrade, transition, recurrent training, proficiency checks, line checks, those records are not reported to the FAA, but instead they're maintained by the carrier. And I think it was alluded to here by some of the other witnesses that perhaps we'd better take another look at how we join or provide access, so that everyone can determine that information.

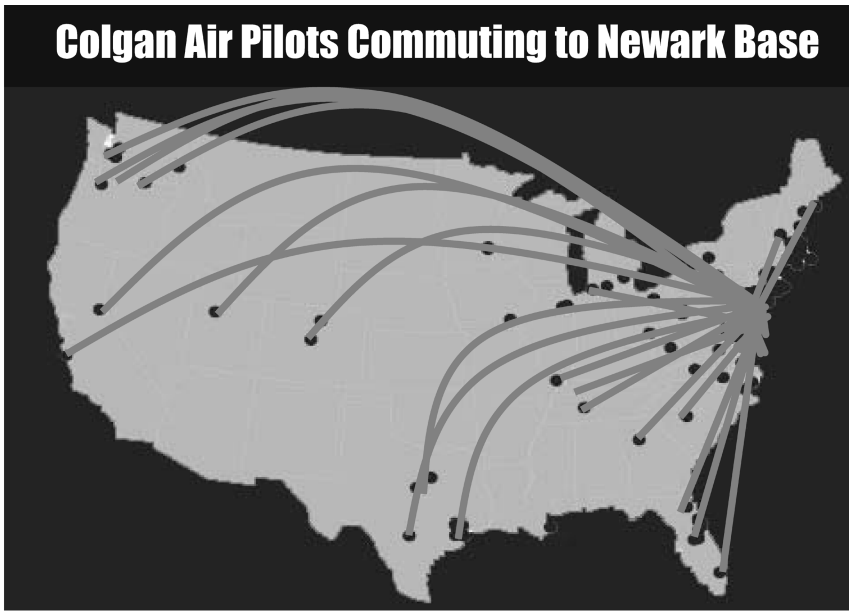
Senator DORGAN. But, they are not easily available, and I think someone said the pilot would have to sign a waiver request to allow the employing company to get them, in which case perhaps the employing company simply goes back the 5 years and gets what records exist. And it seems to me that we need to fix that, and fix that soon, because there's no reason to know everything that you

can know about the airplane, but not the pilot that's flying the airplane.

I'd like to ask a question about commuting, if I might, and the issue of fatigue.

I want to put up a chart that I understand—I think it's an NTSB chart—that shows—this happens to be Colgan Air pilots, probably not too different from most carriers. I'll ask you about that, Mr. Babbitt. This is Colgan Air pilots commuting to the Newark base to begin work. You see that they live in one part of the country and commute to their duty station in Newark and then get on an airplane to fly. And the issue of fatigue has been cited by some as a potential significant issue here. Perhaps, in that cockpit, both the pilot and the co-pilot were affected by fatigue issues.

[The information referred to follows:]



Is—would this chart look different if we were talking about another commuter or a trunk carrier? Is this unusual, Mr. Babbitt?

Mr. BABBITT. No, sir. One of the issues that should be interesting to note for the record, is that Colgan was a relatively new service provider. The capacity sale of their seats and service to Continental Airlines, is the reason its pilots are commuting to Newark. This same carrier could sign an agreement 6 months from now and pilots could be commuting to Memphis. And so, the pilots often don't move immediately.

Underlying that, there are regulations. The regulations in force require the lookback, as far as their airline duty is concerned. There is no reference—the pilot has an obligation, a professional obligation to show up rested, just like everyone else going to work.

Senator DORGAN. Yes. I'm a lot less interested in what regulations are in force versus how regulations are enforced. And so, I would ask this question. Mr. O'Brien, is it your sense that we have

one level of safety, as between commuters and trunk carriers, these days?

Mr. O'BRIEN. There certainly is a goal of one level——

Senator DORGAN. I understand the goal.

Mr. O'BRIEN.—of safety that everybody is aware of. The ability to obtain this goal is still being sought after very diligently. However, there is work to be done in this area.

Senator DORGAN. Mr. Scovel, your impression?

Mr. SCOVEL. Mr. Chairman, I do not believe we do. One level of safety has become code within the aviation industry and among stakeholders to describe the move of regional air carriers from Part 135 regulations to Part 121, in 1995. You mentioned, earlier, that when an American buys a ticket and boards an aircraft in this country, and understands that that aircraft is subject to FAA regulation, he or she could reasonably think that the level of safety would be the same, no matter what aircraft or what carrier. Yet, that is not entirely true.

Senator DORGAN. If that's the case, Mr. Rosenker—it is, I assume, a fact that the major carriers in this country have an enormous stake in the records of commuters, because they paint their airplanes with their colors and their name, and consumers often aren't able to make a distinction, or don't make a distinction, of whether they're on the commuter or the main carrier. What—do you think that what has happened is that we have migrated to two standards? And, if so, is that not contrary to the interests of the major carriers?

Mr. ROSENKER. I don't believe, Mr. Chairman, we have migrated. What I do believe is, as the witnesses have indicated, we are looking to achieve one level of safety, and that is a high level of safety. In fairness, about 50 percent, perhaps a little more, of the flights that are made, are done by these commuter carriers. We want to make aviation a safe industry; and overall, as you indicated in your introduction, we enjoy a very safe aviation record in the United States. The objective is to raise that even higher, not only with the regional carriers, but with the major carriers, as well.

We just recently investigated two major air carrier accidents, one in December and one in January, where we lost the entire hull of both aircraft. Thank goodness no one was seriously hurt, everyone got off. We are assisting our counterparts in France, right now, where the outcome was not as successful.

Senator DORGAN. My time is about up, but I want to say that I have read all that I can read about this particular accident in Buffalo, and I know that we put a magnifying glass on this and looked at every part of it, but I was stunned, frankly, learning what I learned. And I wondered, is this a complete anomaly? Is it just happenstance that, in this cockpit, at below 10,000 feet in significant icing conditions, there was discussion about careers and career choices and things that deal with—I think one of you mentioned, professionalism? Clearly, that was not what the requirements would be at that point. And the amount of time in the equipment, the compensation paid to the pilot, the fatigue of, potentially, both the—what appears to be an inappropriate response to controls that gave them appropriate warning—I mean, a whole series of things. And you look at that, and you think, this is a stunning set of fail-

ures. Is it just something that is byzantine and unusual to that cockpit? Or, is this a harbinger of something that is much broader and that we ought to be very concerned about?

And that's why—Mr. Babbitt, you assumed the reins of an agency that's very, very important, and you've flown these airplanes. I mean, you have had a career as a pilot. And we're going to rely on you, in future hearings, to help steer us to the right conclusions, here. And we appreciate very much the work of the NTSB, and we're going to have a lot of information from the Inspector General to be very helpful to us as we proceed.

So, let me thank all of the witnesses.

Let me call on Senator Lautenberg.

Senator LAUTENBERG. Thanks, Mr. Chairman.

As we listen to the testimony and review the matters that got us to this point of concern and investigation, and we see that the captain of the Colgan flight had several test failures, I ask, Mr. Babbitt, how many strikes put you out? Should there be a measure there that says, "Look, if we have to squeeze you through the test, what are you going to do when the pressure's on?" I think that there ought to be some finite limit that says, "Look, if you can't get through it in a couple of turns, you're not fit for this kind of post." What do you think?

Mr. BABBITT. Senator, the—that's a—it's an excellent question. Let me address it. If you'd indulge me for a second; there are a couple of things to look at, here. Number one, the regulations require—and the carrier standards require—training to a level of proficiency. And people are human, they have a bad day. And you could have a situation where a pilot takes—a good pilot takes an excellent check right. I've had situations in my own career, taking a check ride in parallel with someone, and watched someone that I knew was a good pilot, who didn't feel well, had no business taking the check—failed it. Is that, you know, grounds to terminate their career?

Senator LAUTENBERG. Well, would NASA say, if you want to go up in a Shuttle, that they'll give you a bunch of turns to—times to pass the test?

Mr. BABBITT. Well, but——

Senator LAUTENBERG. I hope not.

Mr. BABBITT.—following on to that, we would take that pilot, the particular element that they failed, and we'd train them to proficiency.

I think there's another human aspect that we have to look at. If we had a system of strikes—whatever the number may be—one strike, two strikes, three strikes and you're out—the check pilots, would, in effect, be vested with management hire-fire decision authority. We will have someone who's giving another pilot a check ride, just a training check pilot, and now somebody else's career will be in their hands. If they fail this pilot, that's the end of the pilot's career. My concern would be that you might have the wrong reaction, that someone, instead of saying, "Look, you've busted this portion. Go back, get trained, come back when you get this right," as opposed to, "You know what? I'm not going to end his career. I'm going to"——

Senator LAUTENBERG. Well, Mr. Babbitt, I have great respect for you and the others at the table, but I would say this to you. I'd rather end his career than have my wife and my children on that airplane, I can tell you that.

Mr. BABBITT. Yes, sir.

Senator LAUTENBERG. So, I think—you know, these are things that we saw with the brilliance of Captain Sellinger, who——

Mr. BABBITT. Sullenberger, yes.

Senator LAUTENBERG.—took that airplane down—past my apartment building, by the way, on the way to the river. I wasn't home then. I'm—but, you know, it's—how do we know that the react time—that the training is sufficient, as the Captain did on the United flight, saved over 150 lives. And the thing—I think that picture of them standing on that wing will go down in history as——

Mr. BABBITT. Yes, sir.

Senator LAUTENBERG.—an icon of what safety——

Mr. BABBITT. Yes, sir.

Senator LAUTENBERG.—is about.

Mr. BABBITT. Well, I wanted to add one other point. And your point is a good one, and I appreciate that. But, there are mechanisms. And this is one of the reasons we're bringing everybody together. We have carriers today that have good practices, where they have training review boards. And, we at the FAA, look at two things. Is a particular pilot showing and/or exhibiting an excessive failure rate? Maybe the training program itself——

Senator LAUTENBERG. Like a mechanic——

Mr. BABBITT. Maybe you wouldn't want to see——

Senator LAUTENBERG.—I'd rather a chance.

Mr. BABBITT. Well, we wouldn't. But, what you have today are training review boards at some of the carriers, and I think what you're going to see is more movement towards this model. Maybe, if one particular pilot is failing over and over again, that's not acceptable, and I think we do need to deal with that.

Senator LAUTENBERG. Yes. The—is there any concern about the population in the towers? You know, Newark, for instance, required 36 fully-trained controllers in the tower. We have 26 or 27. Seven of them are controllers in training. As we all know, we have a fantastic aviation system. We have lots of brilliant people doing things, but we don't have enough. And if you were to go into the operating room short a radiologist, you wouldn't say that's good for the patient. And so, are we concerned enough, Mr. Administrator, that we have enough people to take care of the needs presently and the prospective retirements that are right in front of us?

Mr. BABBITT. Appreciating that I'm relatively new on the job, I certainly have been looking into this. I will say that everyone starts a job somewhere as a rookie. And the way that's handled, whether it's in the cockpit, every pilot makes a first flight, and he goes with a trained captain with him. Every controller is going to pick up a microphone for the first time and control traffic; and standing next to him is going to be a fully-trained qualified controller, watching him and mentoring him as he learns. But, everybody has to start in the training program. So, yes, sir, there may be some times and some conditions where there is a training con-

troller, but the provisions are there that there is always a fully-trained controller with him, or, in the case of the cockpit——

Senator LAUTENBERG. Yes, I don't want to put too much pressure on your learning curve in this short period of time, but that's a question I'll be asking you repeatedly until we get the answer I want.

Mr. BABBITT. Hopefully, I'll be able to say, "Yes, sir, they're all trained now."

Senator LAUTENBERG. The—a recent report suggests that FAA ignored warnings in 2008 from one of its safety inspectors over the same type of airplane that crashed in Buffalo earlier this year, and that—it's also said that this inspector may have been retaliated against for raising these concerns.

Now, once gain, I know you're new there, but you're an experienced person with aviation. What might we do to prevent—what would you recommend that we do to prevent intimidation of whistleblowers and blocking their points of views?

Mr. BABBITT. Interestingly, I was, you might recall, a member of the IRT, which was a special committee appointed by former Secretary Peters, and we looked into some of these cases. That Board, by the way, included a former Chairman of the NTSB as well as a number of safety experts on that panel. And we looked into this particular allegation. At the time, it was simply an allegation about conduct and the retaliation. I was, reasonably convinced, as a member of the Committee, that the FAA took appropriate action. I wasn't with the FAA then. We were critiquing the FAA. It was pursued by the IG, and it seemed to us, at the time, that it was handled in accordance with what we should do.

Having said that, I will tell you that I want to make sure that those procedures set forward in that report, are followed and that we do actively pursue and make certain that no one is subject to retaliation or is ever inhibited from raising a safety question with fear of reprisal.

Senator LAUTENBERG. Thanks, Mr. Chairman. Thank you.

Senator DORGAN. Senator Lautenberg, thank you very much.

Senator Isakson?

STATEMENT OF HON. JOHNNY ISAKSON, U.S. SENATOR FROM GEORGIA

Senator ISAKSON. Thank you very much, Mr. Chairman.

Mr. Babbitt, we have tremendous confidence in you. I was very impressed with our meeting before your confirmation, and I appreciate your taking on this responsibility. And you certainly have the record and the training to be a quality administrator of the FAA.

Mr. BABBITT. Thank you, sir.

Senator ISAKSON. My understanding is that FAA requires that all pilots have adequate rest before they fly. Is that correct?

Mr. BABBITT. Yes, sir.

Senator ISAKSON. And they're the ones that certify to that. Is that correct?

Mr. BABBITT. Yes, sure.

Senator ISAKSON. In the case of the flight that crashed, I—as I understand it, the pilot had commuted, that day, from Tampa, and had slept in a pilot lounge, and there was no record of an accommo-

dation, and that the co-pilot had flown from Seattle to Memphis to bump to Newark before they flew as a—not a—she didn't fly as a pilot, but flew as a passenger—before they flew on the flight that ended up crashing in Buffalo. I think that the Chairman asked a very—she has a graph there that showed the number of commuters commuting into Newark to then fly out. And from what I understand, it being with Hartsfield in Atlanta, how many pilots commute to Atlanta and then take their flights, should there be some requirements on the time in the air, whether you're flying as a passenger to get to the flight that you're going to fly as a pilot or a co-pilot?

Mr. BABBITT. I would make the observation that, when we pull this industry group together, we might want to look at that. I will tell you, from my own personal experience, I had over 20 years of line flying, and I commuted, myself, for 5 of those years. But, I took it upon myself to go up the night before and get a good night's rest. Now, I was flying for a major airline and economic circumstances might be different, but, the professionalism should not be any different, and that's another reason why we're pulling people in. There seems to be some gap. This type of thing doesn't go on at the major carriers. And I think we're—the semantics here—we talk about one level of safety. There is, in fact, one standard of safety, and that's the Federal regulations. However, we're seeing at some levels, people far surpassing that with either their own inspired professionalism or their carrier. In the case of some of the carriers, they have remarkably good training programs. And that's what we're going to try to do, is glean from that and ask "Are there better practices out there? Is there a better way?"

Because currently all the regulations do is ensure that the pilot is rested when he's on duty. We have defined "duty," and we have defined "required rest." When someone comes back from vacation, we don't know how much rest they got the day before they came in, but, that's true in every profession. So, we've depended upon—and perhaps unfortunately the professionalism of the pilot to show up rested and ready for work, and prepared to exercise the privileges of his airman's certificate, or hers, that he's obligated to do that. And we need to make sure they take that seriously.

Senator ISAKSON. Your answer on what you imposed on yourself was very responsible, and I would venture to say it was probably partially ingrained in you in the corporate culture that you flew for in the corporation that you were in. Is that correct?

Mr. BABBITT. Yes, sir.

Senator ISAKSON. I don't want to make any indictment, but it—if you have two pilots in a plane that crashed, both of whom commuted within the same 24 hours to get to the flight that they then flew, it might not be, as the Chairman said, an anomaly, but it could be a part of the corporate culture, that, where there was a little less restrictive approach on the part of the corporation than might be true at another airline. Would that be a fair statement to make?

Mr. BABBITT. Well, the professionalism certainly wasn't being pushed from the top down. And one of the things that we're going to have to look at—and when we talked, I mentioned this—is mentoring, you know, from the major carriers. I happen to know one

carrier who if they don't already have, is about to have, a requirement that everyone who provides capacity purchase service to them—meaning they're bringing their passengers, they have their logo on the tail of that carrier—has a FOQA program. They're also going to require them to have an ASAP program.

We're going to suggest they go a step further. We're going to suggest that they need their seasoned safety folks mentor some of the younger pilots. Let's face it, when an airline expands very rapidly, it's not inconceivable that you have a pilot with 2 years sitting in the left seat and a pilot with 6 months, in the right seat. How much mentoring is going on in that environment? But, you know, I think we have an obligation, at the FAA and as a transportation system, to make sure that they are getting that professionalism instilled in them.

Senator ISAKSON. Mr. Rosenker, I understand one of the top six recommendations of NTSB is a requirement that all turboprop aircraft be flown—hand-flown during icing conditions. Is that correct?

Mr. ROSENKER. It is something we've recommended, yes, sir.

Senator ISAKSON. And, Mr. Babbitt, as I understand it, the FAA has no requirement with regard to the use of the autopilot or hand-flying in a turboprop during icing conditions.

Mr. BABBITT. There may well be, but given my newness, I'm not aware of any requirement.

Senator ISAKSON. I think, in the transcript from the cockpit, as the Chairman was referring to, there was a direct comment by the first officer that, although she had—well, she didn't—she had 2,600 hours flying, but had never flown in icing conditions. I believe that's correct.

Mr. BABBITT. My understanding of reading some of that transcript was that she was describing that she had flown in icing conditions before. She was describing how that earlier experience concerned her. She was actually looking to get more experience, appreciated building some time, and suggested that, even if she could be promoted to captain, she wanted more time in the Northeast before she would accept that.

Senator ISAKSON. My time's running out, but when NTSB makes a recommendation, which they've made regarding icing conditions and turboprops, what does FAA do? Do you have a response procedure that you go through, or do you just—you take it or leave it, depending on what you think?

Mr. BABBITT. My understanding of the process today is that we certainly evaluate every single one. And I don't think, honestly, that there's an expectation on behalf of the NTSB that we should adopt every single one they make. I've actually had, you know, some discussions with former chairmen to that effect.

In my opinion, one of the three things should happen to an NTSB recommendation to the FAA. Number one, we should either adopt it as they have suggested it. Number two, modify it, you know, because of some reason, reasonableness or otherwise, and explain why. Or, third, if we don't adopt it, I think we have an obligation to explain to the NTSB and to the public why we didn't adopt it, what was the rationale that we didn't adopt it.

Senator ISAKSON. I think that's exactly the right answer, and I appreciate your candor.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Isakson, thank you.

I'm going to call on Senator Begich, but I just want to make two points relative to your questions. One, I went back and read the de-icing issues—or, the icing issues, this morning in the transcript, and the co-pilot—this is a quote from the transcript, "I've never seen icing conditions. I've never de-iced. I've never seen any—I've never experienced any of that. I don't want to have to experience that and make those calls. You know, I freaked out. I'd like to—I'd have, like, seen this much ice and thought, 'Oh, my gosh, we're going to crash.'" Yet, when you read the several descriptions from the person in the cockpit about this, I think it does imply, at least, this person had minimum icing experience.

The other point I wanted to make, that Senator Isakson asked you about, Mr. Babbitt, is, when you traveled and commuted and got a full night's rest, my guess is that someone making $20,000 or $22,000 traveling all the across the country is not going to be paying rent on a hotel room or a crash pad to find a place to stay, because they probably can't afford it. And so, I just wanted to—you know, that's a very important issue that Senator Isakson was raising.

I apologize to my colleagues.

Senator LAUTENBERG. Let me suggest that the question is—I think it's a good question—the guy's got to work, perhaps, another job. You know, what's he thinking about?

Senator DORGAN. Senator Begich?

STATEMENT OF HON. MARK BEGICH,
U.S. SENATOR FROM ALASKA

Senator BEGICH. Thank you very much, Mr. Chairman.

And I apologize to the panel, I'm going to have to leave after my questions. But, for me, this is not only an important discussion, my father perished in a plane crash, so I'm very familiar with the issues and the impact it can have on a family. So, I appreciate you all here today.

I have—you know, from Alaska's perspective, you know, it is, you know, the small plane capital of the world. I mean, small planes are like vehicles; that's how we get around. And so, as we think of safety issues, we have to keep that in perspective, and especially in rural areas, in how we deal with that. So, I am very aware of what could be an impact.

But, I want to follow up on a couple of questions. And it was intriguing to me, as I was listening to the recommendations—and, Mr. Babbitt, we've had some good conversations in regards to the FAA and your new role, and you've kind of come in with a firehouse coming at you—but, I want to make sure I understood what you said. And then, I saw your body language, so I'm going to try to connect the two, here.

I can't imagine you would make recommendations that are not necessarily recommendations you're looking to have implemented, so I'm—I want to make sure I heard you right. And that is, if the NTSB is making a recommendation, my assumption is, you want to see elements—or, those implemented. Yes or no?

Mr. ROSENKER. That is correct, sir.

Senator BEGICH. Because, Mr. Babbitt, what I heard you say was, not all of them are they looking to have implemented. I just heard—and I don't think you meant that, but I want to make sure I'm clear, because as soon as you said that, I saw—I don't want to say "recoil," but——

[Laughter.]

Senator BEGICH.—I saw movement. And so, can you just clarify that and make sure we're on the same page, here? Because, otherwise, they shouldn't make the recommendations, if they're not going to be implemented.

Mr. BABBITT. No, that's a valid clarification that you seek.

I spent time, as I mentioned, for 4 months, with this IRT. And on that IRT was the former Chairman of the NTSB, Carl Vogt. And in our discussions, we talked about this, that there are a number of recommendations. And they're excellent. I mean, the NTSB does a great job, and it's a great arm to help us enhance safety. But, we heard a statistic that the FAA adapts somewhere in the range of 82, 85, some percentage—not all—and that's where, you know, the honorable former Chairman Vogt said, you know, "We have an obligation to report everything."

Senator BEGICH. And that's where I wanted to make sure we were clear. That other 18, 15 percent is—the question is, What happened?

Mr. BABBITT. Yes, sir.

Senator BEGICH. And for—not only for NTSB to know, but for the public to know, why you didn't implement those——

Mr. BABBITT. Precisely.

Senator BEGICH.—and is it—you know, what are the reasons, and then where do you go from there?

Mr. BABBITT. That——

Senator BEGICH. That's what——

Mr. BABBITT. And that's—that was the point I tried to say. Perhaps I didn't make it clear.

Senator BEGICH. Well, I saw a recoil occur, so I wanted to make——

Mr. BABBITT. Yes.

Senator BEGICH.—sure we're all clear, here. But, I want to make sure that your policy that you're going to implement—not look at, but you're going to implement—is that percentage that is not taken into—as a full recommendation, you're going to respond, in some way that the NTSB can see that and the public can see why.

Mr. BABBITT. Yes, sir.

Senator BEGICH. OK.

Mr. BABBITT. That's——

Senator BEGICH. And that will then, obviously, draw some other potential pathway.

Mr. BABBITT. Right.

Senator BEGICH. Maybe or maybe not. It depends on what happens.

Mr. BABBITT. Yes, sir.

Senator BEGICH. Good.

I want to—you know, I'm struggling—and the Chairman just said it again, about the salary levels. I just—I struggle with this, because I know, in our State, we passed—and I don't want the

regionals to start to call me after I make this comment, so regionals who are represented in the audience, please don't call me——

VOICE. That won't——

Senator BEGICH. Well, I know it won't work, but——

[Laughter.]

Senator BEGICH. You know, we had bus driver—school bus driver incidences, quite a few, and we made a requirement of a certain pay level, a minimum pay level, in order to ensure we have the quality and that they're not taking second jobs or third jobs or whatever might be, and it has had a very positive impact. Is that a discussion—by anyone who wants to comment on this, and I'll start, maybe, with you, Mr. Babbitt—of discussion? Because this $16,000—and just assume it's a full year pay—is just barely above minimum wage.

Mr. BABBITT. Yes, sir. I think the carrier did correct that minimum. It was about $23,000, if I recall.

Senator BEGICH. OK, so it's just now—instead of $7.69 an hour, it's about $8.10, maybe—$8.10 an hour.

VOICE. Great.

Mr. BABBITT. It might surprise you that there are major carriers who start pilots at that number. There are a——

Senator BEGICH. That does surprise me, to be very frank with you.

Mr. BABBITT. Now, there are some that start considerably higher than that.

Senator BEGICH. Sure.

Mr. BABBITT. There are some major carriers flying large airplanes under Part 121 that start that low. I think Captain Sullenberger mentioned it in testimony, before. It is a concern. I know that during the era that I was hired in (and I am very badly dating myself into the 1960s) probably half of the people that were hired, you know, when I was hired as a pilot, not only came out of the military, half of them came out of military academies. So, we had a wonderful pool.

Senator BEGICH. Right.

Mr. BABBITT. Of course, the service, at that time, was training—you know, we had 50,000 pilots flying in Vietnam, so we had a lot of veterans, we had a lot of very seasoned people. They came with discipline, and they were well trained, they were well educated. They had other options. So, if you wanted a pilot like that, you were going to pay, because they had other options; they could go be an engineer, they could go into another profession.

Senator BEGICH. Sure. But, it's an area of interest.

Mr. BABBITT. Yes, sir.

Senator BEGICH. OK.

Anyone else want to comment on it? Does that sound—does anyone disagree with that, that that's an area that has to be looked at?

Mr. Scovel?

Mr. SCOVEL. Senator, I will note that the Committee has asked my office to examine pilot pay.

Senator BEGICH. Excellent.

Mr. SCOVEL. It is an important factor, as several members of the Committee have pointed out, as an influencer on the question of fatigue and also perhaps as a proxy for the question of experience and how that will relate to performance in the cockpit.

Senator BEGICH. OK.

Mr. ROSENKER. I——

Senator BEGICH. Let me——

Mr. ROSENKER. I'm sorry.

Senator BEGICH. Go ahead.

Mr. ROSENKER. As we continue our investigation of the Colgan accident, facts will continue to be analyzed, and we could end up with some form of recommendation dealing with fatigue that could also have relevance to low pay scales.

Senator BEGICH. Compensation issues, OK.

Mr. ROSENKER. Yes, sir.

Mr. O'BRIEN. Senator, if I may?

Senator BEGICH. Sure.

Mr. O'BRIEN. If you refer back to our statement we submitted for the record, there is reference in there to a blue-ribbon panel report. This report was stimulated by hearings held by this Committee back in 1990. That report covers pre-employment requirements for airlines, it covers salary ranges for pilots, it covers what kind of basic training should be provided by the civilian flight schools, because, at that time, the primary reason for the report was the Committee's interest in why there was such a drain on military pilots.

So, I think if we would look at that report again, we'll find that the 13 recommendations made by that particular panel speak directly to the issues that we're talking about today.

Senator BEGICH. Very good.

Mr. O'BRIEN. That was back in 1990.

Senator BEGICH. Thank you very much. And this—I'll end on this; my time has expired, but I hope this is just a yes-or-no, and that is—for each one of you—I'll start—Mr. Babbitt, I'll start with you—do you believe you have the necessary resources within the organizations you work in to do the job with regards to safety?

Mr. BABBITT. Yes, sir, I do. And having said that, we depend heavily on input from a number of the people here. We certainly respect what the IG has to say. We certainly respect what the NTSB has to say. And with those tools, together, yes, sir.

Senator BEGICH. Mr. Scovel?

Mr. SCOVEL. Generally, I would agree, certainly. The programs that FAA has in place, properly implemented, would allow it to exercise proper safety oversight.

Senator BEGICH. OK.

Mr. SCOVEL. It's always a question of——

Senator BEGICH. But, there's a little——

Mr. SCOVEL.—execution and——

Senator BEGICH.—room there.

Mr. SCOVEL.—implementation versus the plan, itself.

Mr. ROSENKER. Sir, the FAA is doing as good a job as it can possibly do. I believe these are well-intentioned people. These people care about safety as much as any of us here do. But, they have a lot to do. They have the objective and the mission of making sure that our aviation system is as safe as it possibly can be. And with

that, it will take oversight, it will take new 21st-century equipment, and that comes with money. I'm not here to lobby on behalf of my colleague, because I could use a little money for my organization, at the same time.

[Laughter.]

Senator BEGICH. So, the answer is simply "a little bit helps."

Mr. ROSENKER. A lot would help——

Senator BEGICH. A lot helps——

Mr. ROSENKER.—these people——

Senator BEGICH.—OK.

Mr. ROSENKER.—yes, sir.

Senator BEGICH. And—last question—Mr. O'Brien, anything on your——

Mr. O'BRIEN. In spite of what Administrator Babbitt may have indicated, I believe the FAA could do much more with a little bit more help.

Senator BEGICH. Excellent.

I thank you very much. Thank you for your testimony. And again, from a personal perspective, thank you for everything you do to ensure our air safety is at the highest level possible. There is always room for improvement. That's what we're here to do.

Thank you.

Senator DORGAN. Senator Boxer?

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM CALIFORNIA

Senator BOXER. Thank you so much, Mr. Chairman, for this important hearing. And thank you all, and good luck to you, Administrator Babbitt.

I've had problems with the FAA and safety for so many years, I can't even tell you, and it had nothing to do with if it was a Republican President or a Democratic President. I just felt that the NTSB, which is one of my hero agencies in government all my life, one of the agencies that just tells the truth, and they don't—they just come right out and say it—that they have been ignored and ignored and ignored, and it really gets to me, and it's upsetting. And I hope we'll have a change with this Administration. And if we don't have a change, you'll be hearing from me. I mean, I want you to succeed, but I think you need to be honest about what you need. And if you—you know, I would ask, Mr. Rosenker, how many years have you been on the NTSB?

Mr. ROSENKER. Six years, ma'am.

Senator BOXER. Six. So, you have a good background on it. It seems to me, over the years, there have been dozens and dozens and dozens of recommendations that have been ignored—am I correct?—by the FAA, regardless of who is President.

Mr. ROSENKER. Four hundred and fifty are outstanding today, many of which are more than 10 to 15 years old.

Senator BOXER. Well, it's an outrage. Four hundred—and, you know, my friend Mark, who suffered such a loss, and his family, you know, he needs to hear this—450 recommendations of the NTSB have been ignored by the FAA over the years. That, to me, is an indictment of the FAA. It's not about anybody personally; it's

the institution, it's the way they think. And it's very disturbing to me.

Now, I want to pick up on a very disturbing transcript, and I'm going to quote from the *Buffalo News.* And I thank Senator Dorgan for his intense interest in this. Senator Snowe and I have—had written a letter to The Honorable Ray LaHood about this Buffalo accident. And as we read this, it just got to us. And I wanted to share this article, in part:

"Captain Marvin Renslow began the last hour of his life by engaging the autopilot on the Continental connection Flight 3407."

He said, "Autopilot's engaged."

"All right," replied his co-pilot, Rebecca Shaw.

"'It's probably a good thing,' Renslow replied."

"Those words show both pilots highlighting their lack of experience. Renslow complained about the plane he was flying. Shaw said she'd never flown on an icy night."

"In addition, the transcript shows Renslow and Shaw panicking once the plane lost control. While engaging in the idle banter in the last minutes of the flight, Renslow and Shaw stopped checking the plane's instruments and failed to recognized—failed to realize that the plane was flying so slowly that it could stall."

"But Flight 3407's troubles apparently began far earlier."

Renslow might have been joking when he said, "It's probably a good thing that the plane was on autopilot."

"But, in reality, it wasn't a joke. The Safety Board recommends the pilots turn off the autopilot and fly manually when icing could be an issue."

"A minute later, Renslow noted he was hired by Colgan Air, which operated the flight, with just 625 hours of flying experience." Quote, "That's not much for, uh, back when you get [sic] hired,' Shaw said. A moment later, Shaw complained of her own inexperience."

"The crew then lowered the plane's flaps and landing gear. The plane quickly encountered trouble. The plane's stick shaker, a stall-warning device, activated at 10:16 p.m. for nearly 7 seconds. A horn then sounds to signal the autopilot was disconnecting."

"At that board [sic], Renslow inappropriately pulled back on the plane's yoke, pushing its nose upward. The—that altered the airflow over the wings and sent the plane tumbling."

And then a quote from Mr. Rosenker, Acting Chairman, told reporters that "Renslow and Shaw violated regulations banning extraneous conversation once a plane descends below 10,000 feet. Clearly, there were violations of the sterile cockpit rules which ban such conversations," he said. "Critical phases of flight need clear and direct focus. Without that, there is a risk of mistakes."

This is chilling—chilling to everyone. And if you have had a loved one on that plane, it's beyond chilling; it's unforgivable, it seems to me.

So, I want to get to a letter that Senator Snowe and I sent to Secretary LaHood. And we said some tough things, Mr. Babbitt, and I want you to tell me if you think that we were too tough. I'm serious.

"We are troubled by reports suggesting the FAA would talk to carriers about duty time." That's a direct quote, "talk to carriers

about duty time." This refers to this flight and pilot fatigue. "The FAA," we say, "must become a proactive agency, and merely talking doesn't fulfill their primary mission to ensure the safety of the flying public. We cannot afford to act after it is discovered that inspectors are overly friendly with the airlines they oversee, and we cannot continue to wait until another tragedy occurs before we implement improvements in training requirements, much less simply enforcing existing regulations."

So, I mean, that's a tough charge. We are suggesting that there's too much coziness between the FAA and the airlines that they regulate. Could you respond to that?

Mr. BABBITT. Yes, Senator Boxer. As I mentioned—I'm not sure if you were in here—I was part of the internal review team that was set up by the Department of Transportation under Secretary Peters, and we looked into this very charge. There were questions about relationships, in both the American Airlines case and the Southwest case. We certainly have reported a number of things in that report, in findings, and as I stated in this hearing, we'll follow up on that.

Senator BOXER. But, I'm not asking you specifically about this, really. It is in the context of the crash, but it's in the institutional relationships, here. It's in the culture. And we need to hear that that culture must change.

Mr. BABBITT. And I'm——

Senator BOXER. So, talk to me about how——

Mr. BABBITT. Sure.

Senator BOXER.—you feel about this, because you are—you've been around—my God, you went into these aircraft, and you had the passengers' safety on your back——

Mr. BABBITT. Sure.

Senator BOXER.—for all those years. If anybody can change the culture over there, it's you. But, can you tell me, are you doing anything to change the culture?

Mr. BABBITT. We're certainly trying. I've only been there—I can count——

Senator BOXER. I know.

Mr. BABBITT.—my tenure on my watch——

Senator BOXER. I know.

Mr. BABBITT.—at this point.

[Laughter.]

Senator BOXER. I know.

Mr. BABBITT. But, yes, I want——

Senator BOXER. But, I'm asking for a commitment that you will look into this charge, that we made, Olympia and I, and get back to us, on what you're finding. And be honest, like the NTSB is honest. Don't cover up anything, because, I'll tell you, you've got too much responsibility on your hands, and I—we want to help you; that's the purpose of this. This isn't an inquisition, here; it's—we want to—we don't want to be back here on another day about another crash.

Thank you.

Senator DORGAN. Thank you.

Senator Klobuchar?

STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM MINNESOTA

Senator KLOBUCHAR. Thank you so much, Chairman Dorgan, for chairing this, and to our witnesses, many of whom—Mr. Rosenker and I worked extensively together on the 35W bridge collapse. And, Mr. Scovel, thank you.

The—I was, ironically, working, at the beginning of this hearing, having to get a speech done in honor of Paul Wellstone. He and his wife are, posthumously, getting a big award from a mental health association, and I had crossed off the part about their tragic plane accident, because I thought it sounded too negative for this award ceremony. As I sat here, then, listening, I flipped over to what we were doing here, thinking about—that their plane went down. It was a private plane, but, because of icing conditions, as well as pilot issues, that were not that dissimilar to this, with training and things like that. So, it hit home to me.

My colleagues have done a great job of asking some good questions in the areas of fatigue and icing and other things, so I thought I would just follow up with some of these ideas I'm trying to get at with the clear problem and training issues with these pilots. And one of the things that I thought about a lot was that the regional carriers—and Senator Dorgan and I both are in States that—where we have a lot of regional airlines and flights going—that they typically fly short-haul flights to hub airports. And this means that regional pilots, unlike their counterparts at the large carriers, are more likely to fly many short flights. Is that right, Administrator Babbitt?

Mr. BABBITT. Yes, it is.

Senator KLOBUCHAR. And are the—so they're—instead of doing one long flight, they're doing a bunch of short flights, sometimes. And I would think that that could mean that they are more prone to fatigue or stress, that it's more difficult. Is that——

Mr. BABBITT. That's correct. One of the things that we're looking into—it has been a challenge of mine; I stated it in my confirmation hearing—is flight time and duty time. There are different types of duty during a 12- or 14-hour period. There's the nonstop flight to Narita from Detroit, and there's the 12-stop flight never leaving the State of Michigan. And those are dramatically different environments. We have science, we have knowledge——

Senator KLOBUCHAR. And so, you're looking at potentially changing the regulations on rest requirements to reflect these different flying experiences?

Mr. BABBITT. Yes.

Senator KLOBUCHAR. Would that be a fair thing? Is that something you've recommended before?

Mr. ROSENKER. Senator, we have recommended that, and we also want to close a loophole which enables a pilot to continue to fly his 8 hours, for example, which is the legal amount during the day, and then continue on in a Part 91 or a "ferry" status, where there are no passengers on the aircraft and they move it to a maintenance site, which could be another hour or two or three away.

Senator KLOBUCHAR. OK.

Mr. ROSENKER. We believe that needs to be changed.

Senator KLOBUCHAR. All right. Then, the second thing I was thinking about, from just common sense, is that the pilots for the regional carriers are flying these shorter distances, and they're flying at lower altitudes. And can that lead to worse weather? At least that's how I feel when I'm in a plane; it seems harder when you're down close. Is that right?

Mr. BABBITT. Certainly, you're exposed to more convective weather, although I would note, almost humorously, that every airplane I ever flew was going to be the one that would clear all the weather, and I've never gotten in one yet that would.

[Laughter.]

Senator KLOBUCHAR. So—but, just that you'd have an argument that, because they're on these shorter flights and they might have—be more—you know, have—deal with this worse weather, I'm just thinking it, again, goes to the training requirements, that they may have to deal more often with more difficult situations if they're doing multiple flights that are at lower altitudes.

Mr. BABBITT. That's absolutely true. And I think there's another thing we have to take into consideration—and that's where, you know, the science comes in. But, again, during a very tight instrument approach—an approach down to 200-foot minimums or something like that—there's a lot of focus in the cockpit. And if you're going to do that six or eight times in a duty period, in an 8-hour flying period, that's considerably more fatiguing than just making two or three flights and flying 3-hour legs. We need to address, with science, what is the right way to do this. And it has been an open question, in my opinion, for way too long. I've made it a challenge and a commitment, and we will follow up on it.

Senator KLOBUCHAR. OK. The other thing I was reading up is—and with the second—the co-pilot, which was an issue in the private plane that flew Paul Wellstone—it was the inexperience of the second pilot. And in this case, on this regional airline, the first officer told the pilot, "I've never seen icing conditions. I've never deiced. I've never experienced any of that." And what we've heard that some industry experts say is that co-pilots or first officers basically can be an apprentice position in—on regional flights, and that the pilots only view these positions as short-time assignments, a stepping stone for a job with a major carrier. I mean, if this is looked on as regional—with regional airlines with that number-two position as something of a farm system for them to get to the major leagues, does that present some training challenges, as well?

Mr. BABBITT. Well, I think it raises a good question for us to take a look at, and that's the difference in training, qualitative versus quantitative. You know, there have been suggestions that maybe we should require more hours. My suggestion would be we should perhaps look at the quality of the training that people are getting. To have 1,500 hours, you know, flying as the SIAC, 20-hour legs at a time, that's not a lot of experience with takeoffs and landings. Someone else with high-quality training and much less time could, in fact, be a better-trained pilot. And that's one of the things we're going to try and glean from bringing this industry together to look at training. Do we make a distinction, should we make a distinction, between the quality of the training that people are exposed

to versus an arbitrary measure of an amount of flying time? And I think that's a very legitimate question.

Senator KLOBUCHAR. Does anyone want to add anything on the training issue?

Mr.——

Mr. Rosenker: I think Administrator Babbitt is right on target. It's not always about high numbers of hours. We have investigated, unfortunately, a number of accidents where we have seen 15,000-hour pilots make mistakes. The question again is, is it quality, is it a performance-standard base, and are we getting the best people we possibly can into this career so that they can do their jobs safely and efficiently?

Senator KLOBUCHAR. OK.

Mr. O'Brien?

Mr. O'BRIEN. I just want to again refer the Committee to that blue-ribbon panel report. The interesting thing about that report is, it was stimulated by this Committee, it does address all of these issues we're talking about. The panel was staffed by experts from the fields of training and operations. And so, all of these issues have been addressed. Specific recommendations were made that apply to the NTSB, the DOT, the FAA, industry in general, and to Congress.

Senator KLOBUCHAR. All right. Very good.

Mr. Scovel?

Mr. SCOVEL. Senator, I will note, again, that the Committee has asked my office to investigate these matters. Training will be the first phase of our ongoing review.

Senator KLOBUCHAR. I really appreciate that. And I will also, I know, at another time, Administrator Babbitt—Senator Snowe and I have a bill focusing on some of the inspections and the relationship with the FAA that we hope to be included in the reauthorization. And we can talk about that and the cooling-off periods at another time.

Thank you.

Mr. SCOVEL. Thank you.

Senator DORGAN. Senator Klobuchar, thank you very much.

Senator Thune?

STATEMENT OF HON. JOHN THUNE,
U.S. SENATOR FROM SOUTH DAKOTA

Senator THUNE. Thank you, Mr. Chairman.

And thank you, gentlemen, for appearing before us today. And I just have—I want to follow up with Mr. Rosenker, if I can.

In your testimony regarding the background of the pilot of the Colgan Air flight number 3407, you noted that, and I quote, "The captain had a history of multiple FAA certificate disapprovals involving flight checks conducted before his employment with Colgan. The captain did not initially pass the flight test for the instrument flight rating in October 1991, the commercial pilot certificate, May 2002, and the multi-engine certificate in April 2004. In each case, with additional training, the captain subsequently passed the flight test and was issued the rating or certificate."

Now, I'd—recognizing that, you know, not every pilot's going to pass various flight tests on the first attempt, my question is, What

is the general pass-fail percentage when it comes to instrument flight ratings, commercial pilot certificates, and multi-engine certificates?

Mr. ROSENKER. I can't give you the specific numbers. Perhaps the Administrator would have a better idea of that. Before I turn it over to the Administrator if that's OK with you, Senator—one of the issues we're particularly concerned about is that the carriers themselves should have the ability, when they are comparing new hires and candidates, to say, "Here is somebody who seems to demonstrate less than adequate proficiency over a period of time, and here is another candidate that seems to be demonstrating much better proficiency. That's the individual I want to have in my airline."

As I indicated earlier in my testimony, we believe that some changes in PRIA could do much to improve that situation.

[The information referred to follows:]

According to the Federal Aviation Administration's Airman Registry, the pass rate for Airmen Knowledge Tests for an Instrument Rating-Airplane in 2008 was 88.73 percent. In 2008, FAA examiners approved 79.9 percent of original commercial airmen certificates (8,309 total); FAA inspectors approved 89.7 percent (122 total). In 2008, FAA examiners approved 90.5 percent of the additional commercial airmen certificates (8,852 total); FAA inspectors approved 94.0 percent (237 total).

Mr. ROSENKER. Administrator Babbitt?

Senator THUNE. Mr. Babbitt?

Mr. BABBITT. Thank you. Yes, sir. The—as a rule of thumb, you know, the inspector, the principal operation inspector, would be reviewing the training that's ongoing in an airline. And if he began to see a failure rate, for written tests and so forth, in the 80-percent—you know, if it got worse than 80-percent success, he would be talking to that carrier about revisions to their training process. So, you know, that's just a kind of a rule of thumb.

These are written tests. That means, you know, if they're getting 75s, they're passing, but something's wrong, here. They're not getting the training; we need to reevaluate the training at that particular carrier, and they need to reevaluate their training curriculum.

Senator THUNE. But, do you have, and what is that—the—do you have a percentage—pass-fail percentage on each of those various tests?

Mr. BABBITT. No, the carriers—each POI—I would tell you from experience, it's much higher than that. The pass percentage is much higher than that.

Senator THUNE. Gotcha.

Mr. BABBITT. But, that would set off an alarm. An inspector would say, "This is not acceptable." If the majority of your pilots are reflecting this in their testing, then your instruction technique is lacking, and let's reevaluate it. You're not getting it to them. It's not being presented to them properly—you know, there's something wrong." The format or the training techniques could be wrong, and it would be reevaluated.

Again, I can tell you that, in reality, if you go out or if the Inspector General did an audit, I think he'd find—and I think he will find—that those training numbers are considerably higher. They take this very seriously.

And I think it's worth noting, too, there's probably no profession out there that gets tested more than airline pilots. A typical captain, assuming he's just stable in one airplane, is going to take two physicals a year. He's also going to take multiple check rides; he's going to take one that tests his proficiency, he's going to take another to test—that's actually a check ride; and then he's going to have a third random line check, where someone will just show up and ride with him, unannounced. So, this is a lot of testing that goes on. The first officer has one physical and one check and an occasional line check. So, they're certainly being well scrutinized, and they're scrutinized by their peers with professional standards and other feedback mechanisms.

Senator THUNE. Go ahead. Mr. Scovel?

Mr. SCOVEL. Senator, if I may, just for a moment. Mr. Babbitt has referred to his service on the independent review team under then-Secretary Peters. One of the findings of the team was that there was an unambiguous commitment to the core mission of safety on the part of FAA safety staff. And that has been my experience, as well, since the time I've been IG and observed FAA in action.

A follow-on observation of the independent review team, however, was that there was, quote, "a remarkable degree of variation in regulatory ideologies among field office staff, which could result in wide variances and possible errors in regulatory decision-making." In fact, there is no FAA standard referring to training failures that you described.

Mr. Babbitt, of course, is correct when he says that FAA inspectors have a wide degree of latitude; they are expected to exercise significant judgment and discretion. So, we will find, from office to office, inspector to inspector, carrier to carrier, significant variations. The next phase of my office's review will explore those facts in more detail.

Senator THUNE. Is it—my understanding is, though, that—and you talked about—Mr. Rosenker, about possible amendments to PRIA—that PRIA does not require an airline to retain FAA records of failed flight checks, and that the FAA does allow airlines the ability to have pilots sign a privacy waiver so that this information can be shared with prospective employers, but that the FAA has said such a process would be time-consuming and controversial. And so, I'm curious to know—it seems, to me at least, that that info being shared from a carrier to another prospective employer would be a very practical consideration and something that I wouldn't think would be overly time-consuming and controversial.

Mr. BABBITT. No, I wouldn't disagree with you at all. The Pilot Records Improvement Act allows, and, in fact, requires, that the hiring carrier do the lookback. I think what this instance and these cases are shining a pretty bright line on is that there is a gap. To my knowledge—and I will, you know, stand corrected and provide you the correction if I'm wrong—but I believe we have an advisory circular that suggests that carriers should ask for the pilot's FAA records. Now, the carrier does, because of Privacy Act restrictions, have to ask for waiver. If I were hiring pilots and I asked you to give me a waiver so that I could look at your FAA certificate ac-

tions of the past, such as your training, and you denied it, I think it would raise my eyebrows.

Senator THUNE. Go ahead.

Well, it seems to me, Mr. Chairman, that that—maybe one part of any proposals to reform that statute, that it makes sense. So, thank you.

I thank you all very much for your——

Senator DORGAN. Senator Thune, thank you very much. Yes, we did talk about that a bit earlier. I think we have to propose some legislation that fixes that.

But, let me ask Mr. Babbitt if—if, in fact, the recommendation had been made—now, you weren't there, but—the NTSB had made the recommendation to the FAA—what, 2 years ago?

Mr. ROSENKER. The recommendation was actually made a number of years ago.

Senator DORGAN. All right.

Mr. ROSENKER. But, an advisory circular came out, to their credit, which suggested that this can be done by having the waiver signed. We would like to see it——

Senator DORGAN. No, that's—no, we understand that you can get a signature on a waiver form, but you had recommended, I believe, that the FAA do a rulemaking and proceed to allow an easy access to the complete records of the pilot, just as they have easy access to the complete records of the airplane.

Mr. ROSENKER. Yes, sir.

Senator DORGAN. Now, I guess, Mr. Babbitt, I would ask the question, Based on your knowledge of the culture of the FAA, why, a couple of years after that recommendation was made, would the FAA not have initiated a rulemaking?

Mr. BABBITT. To be honest with you, I can't answer that. I don't know why they didn't. I'll certainly look into it, and I'll certainly get the information back to you.

[The information referred to follows:]

In 2005, the National Transportation Safety Board recommended that the Federal Aviation Administration require all Part 121 and 135 air carriers to obtain any notices of disapproval for flight checks for certificates and ratings for all pilot applicants and evaluate this information before making a hiring decision. Because these records contain information protected under the Privacy Act, FAA could not require airlines to request these records. Instead, FAA advised airlines to ask a pilot job applicant to sign a consent form permitting the FAA to release records of Notices of Disapproval to the air carrier requesting them, as part of their pre-employment screening. The FAA issued Advisory Circular 120–68, which explained that, consistent with the Privacy Act, the FAA could release records of Notices of Disapproval to prospective employers who provided letters of consent.

Senator DORGAN. I mean, of all the issues here, the one that just is just filled with common sense is, you ought to know the same about the pilot that you know about the plane, the entire—the record from the day the guy—the person started flying. And yet, we don't. And it is not as if we don't know that doesn't exist. The NTSB has said it doesn't. And we should make it accessible to the airlines.

And the captain, as you know, had failed—or, had flight crew disapprovals of the private-pilot instruments—excuse me—the private instrument check ride, I assume it is, perhaps; commercial pilot initial; the commercial multi-engine ATP Saab 340; and, as a

first office, the flight instruction initial. So, those must be the five failures. But, the point is, that commuter airline that hired this captain did not know this information. They have indicated to us they did not—they were not aware of this.

The other question is—Mr. Rosenker, you've stressed several times today that the investigation is not complete. I understand that. But, I, having read a lot of what the NTSB has done and learned, it's pretty impressive to me. What is there that you yet have to learn? I mean, at this stage of the investigation, it appears to me that you're well down the road. So, what remains that you expect to learn?

Mr. ROSENKER. Senator, it was only the day before yesterday that we were actually able to get into a simulator where we could fly those same parameters, those same patterns, those same actions to understand more about the human performance factor and the aircraft performance factor. And there's analysis that's going on at this moment. We literally sent a crew to that simulator to enable us to understand more of what happened in that cockpit. So, there is a good deal of analysis which still must be done if we're going to cross every "t" and dot every "i," and that's what we do in our investigations.

Senator DORGAN. Why are you only able to get in a simulator in June?

Mr. ROSENKER. We just finished a public hearing on this. We go through a process which, in fact, takes us to various stages of an investigation.

Senator DORGAN. I see.

Mr. ROSENKER. So, in this particular accident, early June is when we could put everything that we had learned from our public hearing into what we needed to do and test in the simulator.

Senator DORGAN. Mr. Scovel—well, thank you—Mr. Scovel, you mentioned something, I think, that is likely not related to this particular issue, but it may well be related, it certainly is, perhaps, related, to safety, and that is the issue of outsourcing of maintenance. Tell me again your testimony about that and your judgment about it. And you—the reason I ask the question is, you suggested that the evidence is that there is a greater outsourcing of maintenance among commuters than the major carriers, although the—what I have understood about major carriers is that an increasing amount of their maintenance is now outsourced.

Mr. SCOVEL. You are correct, Mr. Chairman. Major carriers are outsourcing an increasing amount of all of their maintenance; whereas, formerly they did it in-house. Now they are looking to have it done by contract maintenance providers. Among regional carriers, our research shows that up to 50 percent of maintenance needed by regional carriers is now being outsourced.

My office examined outsourced maintenance in 2003, 2005, and 2008. A key finding of ours is that the new risk-based safety oversight system for repair stations, initiated by FAA in 2005, is currently ineffective, in our judgment, due primarily to the fact that FAA has not yet got a handle on exactly what type of and how much is being outsourced maintenance, and where it is conducted when outsourced. Until FAA gathers that data and is able to feed

it into this risk-based system, it will not be able to assign its inspector resources where they are most needed.

Senator DORGAN. Mr. Scovel, I—in a book I wrote, I described maintenance by one large carrier in this—one of the carriers, I should say, in this country, in which they would fly an empty 320 Airbus from the U.S. to El Salvador to do the maintenance, then fly an empty 320 back after it did the maintenance. Can you tell me what the equivalent standards are, or if the standards are equivalent, in terms of the FAA's ability to inspect a maintenance station in El Salvador, for example, versus outsourcing or contracting maintenance in Detroit or Chicago?

Mr. SCOVEL. There are a number of factors that go into FAA's inspection of repair stations, wherever they are located, sir, whether in the United States or overseas. If it is a certificated repair station, FAA has much wider latitude with which to go in and inspect. If it is a non-certificated facility, companies may still use it, and FAA may still inspect it, but this will not be done by inspectors dedicated to the inspection of that facility. Rather, it will be by inspectors who are following airlines' use of that facility, and they will follow the aircraft into the repair facility in order to do their inspections, as well. It results in a more tenuous inspection trail, if you will, sir.

The conclusion of my office over the years has been, really, that the key point is not where the outsourced maintenance is conducted, whether it's in the United States or overseas, or whether it is done by a certificated or non-certificated facility, but the quality of FAA's oversight over the process.

Senator DORGAN. I'm, perhaps, going to ask you more about that at some other occasion. I know that you've done some work on it. And so, I'll be interested in evaluating that.

Let me talk just for a moment with all of you again about this issue of fatigue, because I think fatigue likely played some role, here, in a crash that is prominently mentioned during this hearing. And let me put up, again, the chart that shows—we can just put it on an easel, perhaps. And I want to especially ask Mr. Babbitt about that, because you say you commuted for 5 years.

The one with the description of the commuting. The map. Is there one with a map? All right, thank you.

That shows—and I—again, this perhaps would show the same kind of thing for virtually any commuter airline that we would talk about, and perhaps the same map for any major trunk carrier. Would most of you agree with that?

[No audible response.]

Senator DORGAN. And I think the question that remains in the minds of many, as you—evidenced by the questions today from members of the Committee is, Does this matter? Does it make a difference? And if—if several pilots are in Seattle or Portland or Los Angeles or wherever, and fly to the East Coast to start their duty station and start their work, is fatigue something that we should be concerned about?

And, Mr. Babbitt, you indicated that, as a conscientious pilot, you would go early, you'd check into a motel or wherever you—and you'd get your rest. And I understand that and applaud that. I—it is clear to me, however, that that's probably not likely going to

be the case with someone who's a new hire that's making $23,000 a year, to go find a place to rent.

The reason I ask these questions is, I fly a lot, on a lot of airlines, and I have sat next to a lot of crew members who are flying to get to their duty station; in some cases, very long distance. Has this ever been discussed in—at the FAA, or has there ever been an effort to decide? Does this contribute to fatigue in a way that is significant enough to want to do more than just ask people, "Well, you're on your own. We're going to expect you to have adequate rest, and that's about all we can do?" Is there something more than that that exists here? Because, again, it starts with the question I asked at the front end of this hearing, Was this circumstance in this cockpit a complete anomaly, or is it referencing symptoms that we should be concerned about?

Mr. BABBITT. Well, I think the map, is based on some factual locations, where people live. But, I think what we're focused on here is people who didn't professionally deal with what they should have; in other words, they did not have the adequate rest that a professional should. That doesn't mean that most of these people commuting weren't doing it the right way, coming in the night before. I don't know. We can't tell from that.

Senator DORGAN. But, isn't that the key: You don't know.

Mr. BABBITT. We don't know.

Senator DORGAN. We don't know.

Mr. BABBITT. That's correct.

Senator DORGAN. None of us know. So, that's—I mean——

Mr. BABBITT. Right.

Senator DORGAN.—that's the reason I asked the question.

Mr. BABBITT. And different carriers have different methodologies. I know some of the cargo operations, they really don't care where you're based, they will actually buy you a hotel room. They expect you to come in the night before, and they'll pay for the hotel room. And that's a solution. They have looked at it, they don't want their pilots fatigued. So, that's a solution.

And again, that's exactly why we're bringing everybody in. If this is going on and there are better ways to do it, we need to know about it, and we need to know about it now.

Senator DORGAN. And you're bringing them in Monday?

Mr. BABBITT. Yes, sir.

Senator DORGAN. Next Monday?

Mr. BABBITT. Yes, sir.

Senator DORGAN. Yes. You and I talked yesterday about that, and I—that makes a lot of sense to me, too, because——

Mr. BABBITT. Thank you.

Senator DORGAN.—we should address the issue rather than ignore the issue.

Mr. Rosenker, you've obviously been looking at this issue. Your reaction?

Mr. ROSENKER. We have concerns about commuting. We want to make sure that both management and the pilots have a responsible outlook on how commuting can be done in a safe and efficient way. The reality of life is, these people are going to live where they wish to live. Many of these bases don't exist where they would like to live, and some of the bases are in cities where the cost of living is

very high, where it costs a fortune to try to buy a home or to rent an apartment. The practice of commuting has been around since commercial aviation. Pilots traditionally are allowed to fairly inexpensive, if not free, transport anytime they wish.

So, we realize this is a fact of life, and what we are trying to strive for is the safest way we can get there, because we can't ignore it. But, we've made recommendations to the FAA concerning fatigue. Fatigue is a very insidious condition. And many times people don't even know they're fatigued until, unfortunately, it's too late.

So, we're hoping that the FAA will be taking our recommendations and incorporating them into some regulations. And we believe that, if implemented, they will go a long way to reducing the insidious effects of——

Senator DORGAN. What——

Mr. ROSENKER.—fatigue.

Senator DORGAN.—percent of the commercial airline flights in our country are by commuter carriers?

Mr. ROSENKER. About 50 percent of the flights, representing about 20 percent of the passengers.

Senator DORGAN. OK. Fifty percent of the flights, by commuters. Do you have data that's accessible with respect to accidents in the last 10 years of commuters versus major carriers?

Mr. ROSENKER. I don't have that handy. We could get that, if you wish, and I can——

Senator DORGAN. Does anyone have that?

[No response.]

Mr. ROSENKER.—supply that to you.

[The information referred to follows:]

Accident and Major Accident Rates: Regional Airlines Versus Other Passenger Operators Conducting Operations Under Part 121 of Title 14, Code of Federal Regulations

The table below compares overall accident rates and major accident rates for regional airlines with rates for all other Part 121 passenger operations for 5-year periods since 1984–2008. For purposes of this table, regional airlines defined as follows: revenue passenger flights operated under Part 121 (excludes all cargo operations, regardless of business model or fleet, and all non-revenue flights, such as the Pinnacle Airlines accident in October 2004 and the Colgan Air accident in August 2003), including all turboprop aircraft that operate passenger services under Part 121 and all RJ aircraft that operate in passenger service, including the ERJ–190. All other jet passenger service under Part 121 is assumed to constitute the comparison group.

Accident and Major Accident Rates: Regional Carriers and Other Part 121 Passenger Operators

[Per 100,000 Aircraft Departures]

	All Accidents		Major Accidents		Million Departures	
	Regionals	Other 121 Pax	Regionals	Other 121 Pax	Regionals	Other 121 Pax
1984–1988	0.519	0.342	0.120	0.050	13.3	27.8
1989–1993	0.308	0.272	0.074	0.043	18.8	30.5
1994–1998	0.250	0.403	0.035	0.027	20.0	33.0
1999–2003	0.327	0.459	0.005	0.016	20.5	30.9
2004–2008	0.211	0.275	0.013	0.011	23.2	28.0

*Major accidents include all hull losses, whether fatal or not, and all non-hull loss accidents with multiple fatalities. The premise is that major accidents best represent the frequency of accidents that impose high risks that are broadly shared by occupants and others.

The table shows that, over the long-term, accident rates and major accident rates for regional airlines have decreased steadily and sharply. This reflects the changes brought by "one level of safety" rulemaking which was promulgated in 1994 and was implemented in spring 1997, and the major upgrading of the regional fleet that followed.

The table also shows that the regional industry expanded rapidly through the late 1990s. Growth then slowed after September 11, 2001. Volume later rebounded but has slowed once more during the recession. However, the regional industry has continued to increase its share of overall passenger traffic.

Finally, the table shows that overall accident rates for regional airlines have been lower than overall rates for main-line carriers since the final "one level of safety" rule was published in 1994. This partly reflects the greater exposure of larger aircraft operated by mainline carriers to relatively minor accidents involving turbulence and ramp events, in which risk or injury typically are isolated to a single person or two. However, major accident rates for regionals have been comparable to those for mainline carriers for the past 15 years, sometimes being lower than the comparison group and sometimes higher.

The major accidents involving regional airlines come after two sustained periods of zero major accidents (January 1998 through January 2003, then 2007 and 2008). Prior to the 2009 Colgan Air accident, regional airlines had just 3 major accidents in 10 years.

Senator DORGAN. My—the reason I asked the question is, my understanding is that somewhere around seven out of the most recent nine accidents were accidents with commuter carriers. Is that—does that sound reasonable to you?

Mr. ROSENKER. That may not be including the three accidents that we are investigating right now, which include the Hudson River, which include a Denver 737 Continental——

Senator DORGAN. Right.

Mr. ROSENKER. These were not fatal, but they were major air carrier, major hull loss. And, of course, now the Air France, that we are participating with the French authorities.

Senator DORGAN. And we should say that we are discussing this through the lens of a tragedy, and understand, always, that that is the case. And the tragedy existed in the cockpit, as well. I mean, in some ways I feel bad about talking about two people who flew that airplane who can't represent themselves, and yet, we're very concerned, all of us are very concerned, about what happened, what could have been done differently, and how do we make certain that others who board airplanes understand that the things that we can learn from this crash will be implemented.

Mr. Babbitt, one final question. You will, no doubt, appear before this committee many, many times. I understand that when you are asked whether you have sufficient funding at the FAA, I believe most witnesses are instructed to support whatever the President's budget request is. The last person I recall who came to the Congress, one of the committees that I was on, in fact, and said the President's budget request is far inferior and far short of what is needed for his agency, was fired the next morning, publicly, in a great show of strength. So, I understand, you must say that you have all the money you need, and yet, a couple of the witnesses have suggested that you might well need some additional funding to implement, assuming that you have the will and the agency has the will, to implement the things that are necessary and to enforce what is necessary to enforce. So, we'll talk when you don't have a microphone in front of you——

Mr. BABBITT. All right, sir.

[Laughter.]

Senator DORGAN.—about those issues.

But, I do say that, when you come back here, I'm going to ask the same question, after you've had a couple of weeks, Have you begun a rulemaking on that which the NTSB suggests? There's no excuse, in my judgment, for the FAA to wait another month to begin a rulemaking to make certain that all the records of a pilot are available immediately and now to a potential employer of that pilot. That ought to happen now. And I will ask you, the next time you're here, whether the rulemaking has started. And I hope you will consider that a priority.

Mr. BABBITT. Well, if you don't invite me back for at least a week, the answer will be, "Yes, sir."

Senator DORGAN. All right. Thank you very much.

Let me thank the four of you for appearing. As I indicated, next week we will have a discussion with the airlines and some other witnesses in addition to the airlines.

This is, as I said, a serious subject; in many ways, as is probably always the case, these subjects are most aggressively and often discussed when they are borne of tragedy. And our heart goes out to those who are involved in the tragedy and those who loved them. And we just hope that, through these discussions, we will make progress in protecting others.

And I want to end it the way I started this, to say that we have an unbelievable safety record in this country with air travel. But, that ought not suggest any of us sit on our laurels. I know enough, from having studied this, that there are a lot of recommendations out there that are not yet implemented, and I don't want the next airplane tragedy to be one in which we discussed a recommendation that we knew about, but was never implemented. We can do a lot better than that, and should. And at least my stewardship of this Subcommittee is going push—to push, and push very hard, to implement that which we know can save lives.

Thank you very much for appearing.

This hearing is adjourned.

[Whereupon, at 4:20 p.m., the hearing was adjourned.]

A P P E N D I X

PREPARED STATEMENT OF HON. MARIA CANTWELL,
U.S. SENATOR FROM WASHINGTON

Thank you, Chairman Dorgan, for calling this hearing. On the FAA's website, under agency values, it says quote "Safety is our passion. We are the world leaders in aerospace safety." And by-and-large, the U.S. airspace is the safest in the world. But there are events such as the crash of Colgan Air Flight 3407 in Buffalo, New York, that requires us all to take a step back and examine whether we are doing all we can when it comes to having the necessary safety rules on the books and enforcing compliance of the rules that do exist.

Each new detail coming out of the investigation into the crash of the Colgan Air Flight 3407 in Buffalo, New York, turns out to be even more disturbing than the last. My heart goes out to the families who lost loved ones. This includes the family of the co-pilot who had to live at home in Washington State and commuted to her job on the east coast because Colgan Air paid her a little over sixteen thousand dollars a year.

For over the past decade the FAA has a policy of "one level of safety" for all commercial flights carrying ten or more passengers. Prior to that, regional carriers had to meet lesser standards. The FAA has moved to a risk-based approach for oversight, which only recently has been extended to the 70 regional carriers. To date, it is not clear that the FAA has the will or available resources available to make this strategy effective.

Company culture plays a more significant role than many of us like to admit. Some regional airlines still may have an engrained culture from the time prior to "one level of safety" of doing the bare minimum, if that. Also some regional carriers may have chosen to cut corners on safety and training, aware that the oversight during the previous Administration was limited at best. For these carriers, they need to understand that times have changed.

There are regional carriers, though, such as Washington-based Horizon Air that realize it is its own best interests to meet the FAA's one level of safety. One critical difference at Horizon Air is its pilots. Unlike many regional carriers where the job of a pilot is often considered an entry-level position for the industry, Horizon's captains average 14 years of experience and have logged an average of 12,500 flight hours. Horizon pilots have a low attrition rate and I am told only 10 percent commute to work by aircraft. Pilots receive recurrent training in the classroom, in simulators, and in actual flights, in excess of the FAA annual requirements. And while Horizon's primary aircraft is the Q–400, its pilots are trained to react properly when the stall protection system warning alarm goes off.

I would be remiss if I did not mention that on Monday, I introduced the Air Medical Service Safety Improvement Act of 2009. It follows the NTSB's recommendations for improving helicopter emergency medical services made in 2006. The changes in this Act from the Act I introduced last Congress, are as result of the four-day NTSB hearing this February and the hearing in the Transportation and Infrastructure that I served on when I was a member of the House.

I want to thank Chairman Rosenker for his leadership, Board Member Hersman for her assistance over the years, and Stacey Friedman for her persistence. I know her sister would be proud. I also note that the Flight Safety Foundation issued a report this past April on the HEMS Industry Risk Profile.

Thank you.

PREPARED STATEMENT OF HON. CHARLES E. SCHUMER,
U.S. SENATOR FROM NEW YORK

First, I'd like to thank my colleagues, Senators Dorgan and DeMint, for holding this important hearing. I am proud to represent the people from Western New York. They are a resilient community, and if there is any comfort to come from this trag-

edy, it is in knowing that their outreach to the victims' families has been nothing short of heroic.

I would also like to say how much I admire the family members of the victims of Continental Connection Flight 3407. On February 12, 2009, their lives changed in tragic and dramatic ways when they lost their loved ones on a Buffalo-bound flight from Newark Airport. I met with the families, as so many of you did, during the week of the National Transportation Safety Board public hearings on the crash, and I can't say enough how humbled I am by all of their hard work. It is a tribute to their loved ones' lives that they are a presence in Washington to advocate for aviation safety, and I am honored to help in their cause.

The crash of Flight 3407 in Clarence, NY claimed 50 lives, and serves as a tragic reminder that our Nation's aviation industry is not immune to tragic accidents. Unfortunately this seems to be particularly true of the regional airline industry. The 3 day-long NTSB hearings revealed some very disturbing suggestions into what may have caused the crash of the Bombardier Dash 8–Q400 airplane.

First, I was very troubled by reports that the Colgan pilots of the Dash 8 were not adequately trained in the operation of a "stick-pusher"—the instrument installed in aircraft like the Dash 8 that prevents an aircraft from stalling. The stick-pusher is not demonstrated in pilot training flight simulators, and experts believe that pilots are missing out on important hands-on training. I wrote to Secretary Ray LaHood and asked that he reevaluate FAA's approval of airline training curricula, and I am so pleased that he, along with Administrator Babbitt, announced that they will immediately inspect regional airlines' training programs. It is unacceptable that any training program leave pilots unprepared to deal with crisis conditions, and the FAA is doing exactly the right thing by examining their training procedures with a fine tooth comb and closing any holes that may help avoid another terrible tragedy.

It has also been reported that the pilots of Flight 3407 were not properly rested before their flights, and they the young co-pilot was making just $16,000 a year. It is clear that we must examine the ways in which the regional airline industry treats its pilots. Industry is evolving and we're beginning to see more of these smaller regional airlines, but FAA's regulations are not keeping up. FAA must crackdown on issues of pilot rest, compensation, and training, especially with these young airlines that seem to be prioritizing issues of saving money, and not issues of safety.

For the last 8 years FAA has had ineffective leadership with one goal: to cut costs. That is unacceptable operation for an agency that needs to put safety above all else. So, in an effort to ensure that safety is prioritized over all other industry concerns, I introduced legislation—S. 1163—to add a member to the FAA Administrator's Management Advisory Council. The Council is the executive advisory board to the Administrator, acts as a sounding board on FAA management, policy, spending, and regulatory issues. The Council is currently made up of CEOs, presidents and representatives of the aviation industry, a scenario which has the potential to lead to a greater focus on what is best for the airline industry versus what is safest for the passengers.

My legislation would add an additional member who would specifically represent the aviation safety sector. It is critical that safety expertise be represented in every decision that FAA makes about the airline industry.

The initial investigation of Flight 3407's crash also suggested that icing conditions may have affected the aircraft. While I understand that icing is no longer the main focus, a bright light was still shed on the fact that NTSB and FAA have differing recommendations as to how a pilot should handle an icing condition, and that NTSB first asked FAA to adopt *NTSB's* recommendation 12 years ago, to no avail. For this reason I, along with Senators Rockefeller and Dorgan, called for an official GAO investigation into what specific roles NTSB and FAA should be playing in aircraft icing prevention, and why a lag exists between the time NTSB makes a recommendation and FAA formally adopts it.

I asked Administrator Babbitt to review NTSB's outstanding safety recommendations, or as NTSB calls it, the "Most Wanted List." He ensured me that he will give each suggestion its due diligence, and I hope that moving forward FAA will give all of NTSB's future recommendations better consideration.

FAA WHISTLEBLOWERS ALLIANCE
June 3, 2009

U.S. Senate Committee on Commerce, Science, and Transportation
Hon. JOHN D. ROCKEFELLER IV,
Committee Chairman,
Washington, DC.
Hon. KAY BAILEY HUTCHISON,
Committee Ranking Member,
Washington, DC.
Hon. BYRON L. DORGAN,
Subcommittee Chairman,
Washington, DC.
Hon. JIM DEMINT,
Subcommittee Ranking Member,
Washington, DC.

RE: WHISTLEBLOWERS WARNED OF LAX FAA OVERSIGHT THAT LED TO PREVENTABLE TRAGEDIES

Dear Chairpersons Rockefeller, Dorgan, Hutchison and DeMint:

The FAA Whistleblowers Alliance commends you on your examination of the FAA's oversight role and specifically the safety issues surrounding the crash of Colgan Flight 3407. Our Alliance is comprised of a cross section of professionals from the major FAA disciplines: Air Traffic, Flight Standards, Security and Aircraft Certification. We are current and former FAA employees that have extensive experience and have served in several different FAA regions and Headquarters.

This unique mixture of members and experiences give us an insider's perspective of serious failures within the FAA. This collective perspective inescapably leads us to conclude these failures are systemic; they run deep in the organization. Our perspective, plus the available evidence, reveals a directly resulting, clear and present danger to the public.

Your Committee's call for a hearing on June 10 to further investigate the causal factors of the Colgan Flight 3407 fatal crash and your May 18 letter to the DOT Inspector General requesting review of a number of safety areas are critically important. You have already identified "the FAA's oversight of industry compliance with relevant safety regulations" as a major area to be examined.

CAUSES: A TRADITION OF COLLUSION

The evidence of FAA oversight failure has been a constant and troubling concern in fatal air carrier accidents over the past several years. In fact, "lack of FAA oversight" has been determined by the NTSB to be a contributing factor in a number of fatal air carrier accidents.

A misguided and dangerous culture resides all the way to the top. There have also been numerous disclosures made by Air Traffic Controllers that revealed a pervasive danger to the public that have been investigated by the DOT Inspector General. These investigations have validated controllers safety concerns despite FAA denials. "Pubic Image" at all costs. Indeed.

The FAA has fostered an internal culture of non-accountability that continues to endanger the public. The consequence has been loss of life, as well as malicious attacks on its own employees after reporting safety violations that are discovered in the course of their duties. Overstatement? We respectfully ask you to please consider the following three examples exposed by Alliance members having first hand knowledge.

CONSEQUENCES: HUNDREDS OF NEEDLESS DEATHS

In addition to the recent Colgan tragedy (50 fatalities), members of our Alliance have made safety disclosures about a chain of "lack of FAA oversight" fatal accidents that includes the 2005, Chalk's Ocean Airways Flight 101 (20 fatalities), and the 2000, Alaska Airlines Flight 261 (88 fatalities). Regrettably, for 158 families directly related, the pre-accident safety disclosures revealed by Aviation Safety Inspectors were ignored. Many, too many, such disclosures were suppressed by the FAA.

The recent crash of Colgan Airlines Flt. 3407, which is the current subject of investigation, the 2005 crash of Chalk's Flt. 101 and the 2000 crash of Alaska Airlines Flt. 261 are all examples of likely preventable tragedies where members of our Alliance made safety disclosures well before these accidents occurred. In fact, safety dis-

closures about deficiencies in Colgan's pilot training, and flight operations conducted by fatigued pilots exhibiting failure to maintain a sterile cockpit were reported by one of our members to the Office of Special Counsel months before the Buffalo, NY crash.

All three of these tragic examples exhibit an apparent "lack of FAA oversight" as a common denominator and strongly suggest a chronic FAA non-accountability.

ONGOING VULNERABILITY: LACK OF ACCOUNTABILITY FOR BUSINESS AS USUAL

The search for probable cause and regulatory compliance pertaining to the Colgan tragedy will be of limited effectiveness and of questionable validity if deeply imbedded, root-cause deficiencies within the FAA are not fully exposed and immediately and forcefully corrected by those with direct oversight responsibility.

Congress and the public that it serves were afforded a rare glimpse into the FAA toxic culture during last April's House and Senate hearings on Southwest Airlines maintenance difficulties and the FAA's deficient oversight. Again, because of the safety disclosures of one of our members, the House Committee on Transportation and Infrastructure caught and cited three high ranking FAA officials, Nicholas Sabatini, James Ballough and Thomas Stuckey for giving "misleading testimony" when they were questioned about FAA internal actions.

This arrogant display before Congress and the reported subsequent derision of Congress within the FAA inner sanctum at 800 Independence Avenue, are the epitome of an agency intent on preserving its self-serving power structure at the expense of public safety.

The fact that Sabatini has been allowed to retire, and Ballough and Stuckey have reportedly been allowed to go into taxpayer funded "organizational hiding" should not be construed as evidence that the problems are solved. As you know, Congress has had to include language in the FAA Reauthorization of 2009, H.R. 915, § 332, to modify the FAA "Customer Service Initiative" that was implemented by Sabatini in 2003. This 2003 initiative was used to sidestep Congressional intent to provide the highest level of safety oversight for the public. It is requiring Congressional action to correct this FAA induced safety deficiency since the FAA has refused to do so voluntarily. The FAA power structure in place now continues Sabatini's disservice to the public and the easily identified benefactors have merely played organizational musical chairs.

As you search for answers to the Colgan tragedy, keep in mind the FAA institutional attitudes. The deficiencies identified in training programs and the lack of effective FAA oversight of these programs are the easy causal factors to identify. If your search stops there nothing of any consequence will be fixed. Your challenge is to dig deep and address the root cause of accountability deficiencies. Who is accountable for maintaining an environment that has created a danger to the public? You will have to look behind the FAA logo and identify those that have violated the public trust. They have no place in a safety agency. This systemic violation of the public trust is why the FAA Whistleblower Alliance exists today.

POTENTIAL: NEW DIRECTIONS

A new FAA Administrator has been confirmed. Mr. Babbitt is an extremely well qualified aviation expert. Those who want to have the public trust restored will have the opportunity to observe his expertise. However, those in the FAA who want to maintain the status quo will most assuredly meet Mr. Babbitt's efforts with vigorous resistance.

We remain available to support your efforts in any way your committee deems appropriate. We can provide critically relevant testimony to your inquiry or provide a briefing before the forum. We are requesting that you include this letter in the

Congressional Record. Please contact Gabe Bruno of the FAA Whistleblowers Alliance at 407–977–1505, or *GBruno3@cfl.rr.com,* if we can be of any help.

Sincerely,*

BOBBY BOUTRIS, *Flight Standards Inspector*
GABE BRUNO, *retired Manager, Flight Standards Service*
RICKY CHITWOOD, *Flight Standards Inspector*
MARY ROSE DIEFENDERFER, *former Flight Standards Inspector*
BOGDAN DZAKOVIC, *former Special Agent/Air Marshal Service,* now TSA
KIM FARRINGTON, *former Flight Standards Inspector*
CHERYL HENDERSON, *Flight Standards Inspector*
ED JESZKA, *retired Flight Standards Inspector*
SHAWN MALEKPOUR, *Program Manager, Aircraft Certification*
CHRIS MONTELEON, *Flight Standards Inspector*
GEOFF WEISS, *Air Traffic Controller*
ANNE WHITEMAN, *Supervisor, Air Traffic Control*
RICHARD WYEROSKI, *former Flight Standards Inspector*

U.S. SENATE
Washington, DC, June 10, 2009

Hon. BYRON DORGAN,
Chairman,
Subcommittee on Aviation Operations, Safety, and Security,
Senate Committee on Commerce, Science, and Transportation,

Dear Chairman Dorgan,

I want to thank you for holding a hearing on the issue of the Federal Aviation Administration and its role in the oversight of commercial air carriers. This issue has become a very personal one for me.

In meeting with the families, who lost loved ones, I heard tremendous concerns about fundamental failures in our aviation system. These families have raised questions about a variety of issues, from uniformity of training requirements to relations between the regulators and the airlines they regulate.

Although not a Member of your Subcommittee, I want to ensure that the questions of the family members of Flight 3407 do not go unanswered. To that end, 1 have asked family members to submit questions to my office, and I ask that their questions, in turn, be submitted for the record.

It is my hope, and the hope of those who lost love ones on that flight, that the answers will lead to changes in the way that the Federal Aviation Administration operates and interacts with the airline industry.

I thank you for your attention to this request, and ask that you contact me with any questions.

Sincerely,

KIRSTEN E. GILLIBRAND
United States Senator

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BYRON L. DORGAN TO HON. RANDOLPH BABBITT ON BEHALF OF HON. KIRSTEN E. GILLIBRAND FOR THE FAMILIES OF FLIGHT 3407

Question 1. Families of Flight 3407 have been repeatedly told that Colgan Air met all FAA standards, but they have serious questions about the 'minimum' standards that are used when it comes to experience requirements for being hired or upgraded, hands-on (*i.e.,* simulator time) training for stall identification and recovery, operating in icing conditions, and the amount of time spent training on crew resource management, particularly sterile cockpit procedures. How does the FAA arrive at these 'minimums', and how often, if ever, are they re-evaluated?

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* Some of our members wish to keep their names confidential, due to fear of continued retaliation, therefore have not signed this letter.[Any listed affiliation with the FAA or any other Federal agency is listed only for identification purposes. We are speaking in our capacity as citizens and as part of the FAA Whistleblowers Alliance, and not on behalf of the FAA or any Federal agency.]

Answer. The standards are designed to provide an acceptable level of safety based on demonstrated performance. The FAA revises and updates pilot certification requirements as circumstances warrant. Although the basic requirement to earn a commercial certificate is a minimum of 250 hours of eligible flight time, the pilot also has to successfully complete a written test on aeronautical knowledge and a practical test of aeronautical skill, which evaluate the pilot's actual performance, not just how many hours he has completed. These tests are regularly reviewed and revised to ensure that pilots receive up-to-date aviation education and training.

Commercial pilots who fly for part 121 and 135 operations have to meet additional requirements. To act as pilot in command (captain) for these operations, the pilot must have an airline transport pilot (ATP) certificate, which requires a minimum of 1,500 hours. The holder of a commercial pilot certificate is limited to serving as a first officer on an air carrier operation.

FAA currently requires training on crew resource management (CRM), and various flight conditions, including stall identification, upset recovery, and icing. We are continually evaluating operator training programs to ensure they meet the standards and account for any airline specific operations. Based on these evaluations and our experience with scenario based training programs, the FAA has issued a notice of proposed rulemaking (NPRM) which would require enhancements to the existing training programs.

Question 2. Another major issue raised by the families of Flight 3407 is whether an FAA Principal Operations Inspector (POI) [is] enabled to correct deficiencies in an airline's day-to-day operating procedures. According to the families of Flight 3407, when asked about numerous delays in Colgan's publication of a Company Flight Manual (CFM) for the Q–400 and whether he had imposed deadlines on Colgan to speed things up, Colgan's POI Douglas Lundgren stated that the only way he could influence things were through 'diplomatic persuasion and arm-twisting'. Are the POIs keeping the airlines in check, or in reality, is it the other way around? What actions can be taken to give more 'teeth' to the authority of POIs to ensure airline compliance to safety procedures and operations?

Answer. The FAA's central mission is to ensure the safety of the flying public. FAA Principal Operations Inspectors (POIs) currently have the authority to ensure compliance with all FAA standards and they monitor their operators to confirm continued compliance with the regulations. When suspected regulatory noncompliance is found during the performance of normal surveillance, the inspector must change emphasis from compliance to enforcement. "Enforcement" means legal or administrative action, such as a suspension of a certificate, a monetary fine or a letter of warning or correction.

Question 3. When it comes to the mechanical side of the planes itself, the FAA can issue Airworthiness Directives (ADs) that require manufacturers and/or airlines to take certain steps to address deficiencies. During testimony at the NTSB hearings, it was explained that, short of making a rule, the strongest recourse available to the FAA is a Safety Alert for Operators (SAFOs), which is merely a recommendation rather than a requirement for airlines to follow. Furthermore, the FAA has no mechanism in place to even get feedback on the percentage of Part 121 airlines that are complying with the SAFOs. What can we do to strengthen the FAA's authority when it comes to ensuring that much-needed improvements in these operational or procedural areas are actually implemented by these Part 121 carriers?

Answer. ADs, which require manufacturers and/or airlines to take certain steps to address deficiencies, are issued only when the FAA has determined that an unsafe condition exists. In those instances where existing operating procedures are found to lead to an unsafe condition, such as operations in icing, the FAA has issued ADs which require a change to the flight manual to reflect the appropriate procedure, or impose a flight limitation. For other issues which do not rise to the level of an unsafe condition, the FAA may issue a SAFO. Although not mandatory, the SAFOs contain important safety information that is communicated to both operators and inspectors.

Question 4. Following the tragedy, Continental is now offering Colgan pilots Continental's two-day Crew Resource Management/Threat Error Management (CRM/TEM) program. As more and more major carrier flights are being operated by regional airlines, the major carriers should make advanced training programs available to regional partners. Given that the regional partners have smaller training budgets, yet must train pilots who are less experienced, what steps can be taken to provide the appropriate level of training—the same level offered by major carriers?

Answer. Regulations establish the standard that every air carrier, regardless of size, and every crewmember must comply with and train to. Voluntary programs

such as FOQA and LOSA provide a means for evaluating whether training and other programs are effective. The voluntary nature of these programs is key to their effectiveness. Because air carriers and their employees design these programs to ensure that data are used to enhance safety and training, and not to penalize employees for inadvertent mistakes, they produce information that would not otherwise be available. Although we have strongly encouraged all air carriers to establish these types of programs, there are other ways carriers can evaluate the effectiveness of their training and safety programs.

Question 4a. Additionally, according to the family members I have spoken with, the NTSB hearings emphasized that Colgan was deficient in implementing industry-wide best practice safety initiatives, such as FOQA (Flight Operation Quality Assurance program) and LOSA (Line Observation Safety Audits). These programs are only recommended, but never required. How can we make sure that these regional airlines offer their passengers the same level of safety as the major carriers?

Answer. All air carriers must operate to a common standard that has produced the safest air travel system in the world. To further enhance training standards, FAA has proposed changes that are now out for comment. FAA's proposal includes improvements that have already been adopted by some operators. Completion of this rulemaking will enhance training standards for all operators.

Question 5. Following the crash that took the life of Senator Paul Wellstone in 2003, the NTSB recommended that the FAA study the feasibility of installing an aural, non-startling low airspeed alert that would give pilots more time to react to an impending stall and avoid reaching a speed where the stick shaker would activate. To date, the FAA has not implemented this recommendation, which means that existing planes do not have to be retrofitted for it, and new planes do not have to be equipped with it either. A device like this could have prevented many of the recent accidents and incidents such as Flight 3407, where loss of airspeed was a factor.

Please explain the calculations that go into determining why technology like this does not get implemented; what something like this would cost per airplane, versus the number of passengers carried on that plane and its rate of having an incident or accident?

Answer. Introducing a technology solution for low speed alerting across a broad range of aircraft, including existing fleets, would require a new rule to change requirements in applicable sections of 14 CFR. As part of the rulemaking process, the FAA first identifies potential solutions and then studies these solutions using a rigorous economic analysis to weigh the cost of implementation against the economic benefit of avoiding future accidents.

The FAA shares the NTSB's concern regarding flightcrew awareness of low airspeed situations. After studying the accidents upon which the NTSB based its 2003 recommendations, an internal FAA team noted that many of these accidents occurred immediately prior to touchdown and were reflective of poor pilot technique. The team determined that low speed warning indications during the landing would not be effective in avoiding future incidents of this type. In the interim, the FAA published guidance on Electronic Flight Deck Displays including guidance on incorporating low airspeed alerting cues. Transport airplane manufacturers have voluntarily used low speed protection features on all recent new designs.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. CLAIRE MCCASKILL TO HON. RANDOLPH BABBITT

Question 1. Describe any progress the FAA has made in implementing recommendations made by the Inspector General for the Department of Transportation with respect to oversight of the safety and security of foreign repair stations.

Answer. The Inspector General for the Department of Transportation made 16 recommendations in two reports. The FAA accepted all 16 recommendations. We have completed eight recommendations, and are working on the other eight. to date, we have implemented procedures to improve information sharing through FAA's integrated Safety Performance Analysis System by requiring inspectors to document the repair stations reviewed in the Air Transportation Oversight System (ATOS) database and to include in the Program Tracking and Reporting System (PTRS) the areas inspected, the results, and corrective actions taken. We developed a standardized approach to repair station surveillance and we modified existing inspection documentation requirements with foreign aviation authorities so FAA receives sufficient documentation to ensure FAA-certified repair stations meet FAA standards. We developed a process to capture results from: (a) foreign aviation authority inspections and (b) FAA sample inspections of foreign repair stations in FAA's PTRS.

FAA also developed procedures to verify that foreign aviation authorities place adequate emphasis on FAA regulations when conducting reviews at FAA-certified facilities, and FAA clarified requirements with foreign aviation authorities to ensure that changes to FAA-certified foreign repair stations' operations that directly impact FAA requirements are sent to FAA for approval. Finally, we modified procedures for conducting sample inspections to permit FAA inspectors to conduct the number of inspections necessary to gain assurance that foreign aviation authority inspections meet FAA standards.

FAA has made continual improvements to its oversight system for the safety of all U.S. and foreign repair stations. The FAA now uses the Repair Station Assessment Tool, which is an enhanced risk-based surveillance system for repair stations. The tools currently in place include a Safety Performance Analysis System (SPAS) and the Outsource Oversight Prioritization Tool (OPT). Aviation safety inspectors use these tools as a part of the enhanced repair station and air carrier oversight system. These tools assist FAA in the application of system safety and risk management concepts, assuring that all repair stations and air carriers meet their responsibility to accomplish maintenance or use maintenance providers in accordance with standards established by the regulations. This risk-based system improves FAA's ability to analyze data, and it allows the agency to target resources toward areas of identified risk.

Question 2. Describe any progress the FAA has made in improving oversight over contract maintenance providers who perform work for air carriers.

Answer. To improve the oversight of maintenance providers, the FAA revised several definitions to better enable air carriers and FAA offices to consistently apply the definitions and related policies. We changed the term "air carrier maintenance provider" to mean anyone who does work on an air carrier airplane and, the term "essential maintenance" is now used in place of the term, "substantial maintenance." The FAA has revised air carrier operations specifications to reflect the air carrier's role in oversight of essential maintenance providers. FAA has revised the policy and guidance documents, as well as inspector training, related to "essential maintenance" and maintenance providers.

FAA has also created the Oversight Prioritization Tool (OPT), which is a database and oversight planning tool for inspectors. This database assists inspectors in performing surveillance. In conjunction with the Repair Station Assessment Tool (RSAT), the OPT provides a risk-based oversight system.

Question 3. I understand that the FAA is in the process of reviewing its system to track contract maintenance providers used by air carriers. Improvements to the program are to be announced by August 2009. Will the improvements to the FAA's program ensure that the FAA will be able to track all contract maintenance providers and determine which are certified repair stations and which facilities are not certified?

Answer. Current regulations require the air carrier to identify and audit its maintenance providers and vendors. Starting in September 2009, new guidance will require the air carrier to identify all of its essential maintenance providers, and to list them in its manual. FAA inspectors must complete an inspection of each essential maintenance provider on the list. After the initial inspection, FAA will conduct subsequent inspections based on risk.

Question 4. In 2007, my office requested information from the FAA about the amount it spent to inspect part 145 certificated repair stations located abroad and how much it collected in fees from those repair stations. Analysis of the numbers provided to my office indicated that those inspections cost the FAA several million dollars more than it collected in fees from those repair stations between 2004 to 2006. Since then, the FAA has updated its fee schedule twice. Please provide the Committee with figures on how much the FAA spent to inspect part 145 stations abroad and how much it collected in fees from those stations since it updated its fee schedule in 2008?

Answer. In FY07, FAA spent approximately $9 million on certification and surveillance of foreign repair stations, and collected approximately $5.8 million in fees. In FY08, FAA spent approximately $10.5 million on certification and surveillance of foreign repair stations, and collected $6.9 million in fees. We expect to spend $10.3 million for this purpose in FY09, and collect $7 million in fees.

Question 4a. How much does the FAA expect to collect under the new fee schedule that went into effect on June 1, 2009?

Answer. Under the new fee schedule, FAA expects to collect $7 million in FY10 and $7.3 million in FY11.

Question 4b. Does the FAA expect those fees to cover costs?

Answer. FAA does not expect these fees to fully cover the cost of certification and surveillance activities. Current law does not contemplate reimbursement for some of the safety-critical activities that FAA performs on behalf of foreign governments and carriers. Also, there is a fixed scale for fees, but certain jobs are more complex and more expensive than others.

Question 5. Several air ambulance pilots and their representatives have testified before Congress and Federal agencies that they feel an economic pressure to fly that conflicts with considerations of safety. Some pilots have also stated that economic conditions are, in the words of a representative of a pilots union, "leading to a degradation of the equipment they utilize." Two large air ambulance operators have said they will not invest in IFR for their helicopters, even though the FAA has said it would like to incentivize the adoption of IFR. In light of these comments, do you believe that an unregulated market air ambulance is capable of assuring the safest possible air operations?

Answer. The FAA's role with respect to helicopter emergency medical services is focused on safety. It is the Office of the Secretary (OST) within the Department of Transportation that exercises authority over aviation economic regulation. Air ambulances remain subject to FAA safety regulations governing operations, and in OST's experience, competition is not inconsistent with safety. Moreover, OST supports the authority of States to issue FAA-compliant regulations on patient care that would affect air ambulance operations. However, we take the issues raised by the industry and those in pending legislation very seriously. For that reason, we support a study in this area to determine whether there is merit to the argument that economic conditions are adversely affecting the safety of HEMS operations.

Question 6. Representatives from the FAA have testified that they are concerned that, if they make any exception to the Airline Deregulation Act to allow states to regulate air medical services, it will open the door for state regulation of other industries, such as air tour providers. Is there a distinction to be made between tour and passenger service and critically ill and injured patients for whom, because of the nature of their injuries and critical importance of timely transport, there is no choice of carriers?

Answer. The FAA's role with respect to helicopter emergency medical services is focused on safety. It is the Office of the Secretary within the Department of Transportation that exercises authority over aviation economic regulation. As a result, under current law, air ambulances are air carriers subject to the Airline Deregulation Act of 1978 (ADA). As such, States are prohibited from enforcing regulations related to air carrier prices, routes, and services. That said, the ADA has no bearing on a State's ability to regulate the medical aspects of air ambulances, including patient medical care. It has long been the Department's view that the provision of medical services is not "aviation" services and thus, not preempted by the ADA.

We recognize the interest States have in ensuring that medical professionals on board air ambulances are properly qualified and that air ambulances arrive properly equipped with the medical and communications equipment necessary to care for patients and communicate with emergency medical services (EMS) personnel on the ground. Although State medical regulations that would affect air ambulances must always be compliant with FAA requirements, we believe that there is a wide range of medically-related interests that States can and currently do regulate without encroaching on the Department of Transportation's economic authority under the ADA.

DOT believes that before considering legislation that could create a "slippery slope" for the federally regulated aviation industry should Congress set a precedent in the area of air ambulances, there should be a determination on whether a systemic problem exists and, if so, any proposed legislation should narrowly address the defined problem.

Question 7. The joint FAA/DOT testimony at the House hearing on Helicopter Medical Services (HMS) indicated that FAA/DOT fully support the critically important work of state EMS authorities in providing medical oversight of air ambulances, but further noted they were concerned that 50 separate state regimes addressing economic regulation of air ambulances. The State EMS directors testified that DOT guidance to states has had a chilling effect on their ability to assure public accountability of the EMS system. What are the best ways, in your view, to reconcile these two different views regarding oversight of air ambulance services?

Answer. We recognize and support the interest States have in ensuring that medical professionals on board air ambulances are properly qualified and that air ambulances are properly equipped with the medical and communications equipment necessary to care for patients and communicate with emergency medical services (EMS) personnel on the ground. State officials interested in determining whether the ADA

preempts a particular State requirement may contact DOT's Office of General Counsel, which stands ready to assist States in reviewing proposed or existing requirements for consistency with the ADA. Federal and State case law, as well as DOT's opinion letters, also provide guidance in this area.

Question 8. The State EMS directors at the House HMS hearing noted the explosive growth from 350 to 850 air ambulance helicopters in the past 5 years and that more helicopters does not guarantee more access if they are right on top of each other in highly competitive markets. I have been told that in some competitive markets some ambulances have taken dangerous risks such as flying below weather minimums to gain volume, flight-stacking, and refusing to communicate with other helicopters in the air to avoid mid-air collisions. Since neither the DOT nor the FAA regulate competition, do you believe that these concerns can be addressed if states lack the ability to regulate competition? What are some ways that we can address these risks and concerns, in your view?

Answer. The Department has received distinctly different descriptions of the state of the industry from proponents and opponents of the pending legislation, including on the issue of whether any problem exists in this area. Proponents of the pending bills state that subtle economic pressures result in unnecessary use of air ambulances inconsistent with medical protocols, whereas opponents of the bills strongly disagree with the assertion that the dispatch of air ambulances is taking place in disregard of those protocols. DOT believes that before considering legislation that could adversely affect the air ambulance industry, there should be a study similar to that which is proposed in H.R. 915, the House FAA Reauthorization bill, focusing on whether a systemic problem exists and, if so, any proposed legislation should narrowly address the defined problem.

Question 9. S. 848, legislation I have introduced, seeks to incorporate the suggested recommendations made by FAA with regard to H.R. 978, which was previously introduced in the House. Please share your views on S. 848 and whether the FAA has any concerns with how the legislation has been drafted.

Answer. The Department believes that the industry would benefit from a thorough study and analysis of the issues that have been raised both at Congressional hearings and in the proposed legislation. H.R. 915, the FAA Reauthorization bill, contains a proposal for such a study.

Question 10. Are there ways to ensure that air medical service providers have access to unserved areas, especially rural areas, within a framework of state regulation of competition in the air medical service industry?

Answer. It is unclear to DOT whether, or to what degree, rural areas may be unable to attract air ambulance service providers. It is also unclear whether a state regulatory scheme could be successful in filling such gaps in coverage even if we were to assume that there are a significant number of underserved areas. For these reasons, DOT supports a study that would encompass these issues and allow any potential legislative remedies to be based on a more comprehensive understanding of the facts.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHNNY ISAKSON TO HON. RANDOLPH BABBITT

Question 1. The FAA sets mandatory criteria and minimums for the various levels of pilot certification. Although the minimums to obtain a commercial license for example is seemingly very low (250 hours), the airlines have seemingly in the past always had higher time requirements then what the FAA minimums were.

In the past they also hired almost, but not always, former military pilots. My understanding is that this was because a military pilot offered a "known quantity" of sorts regarding prior training and experience. As the industry evolved, regional airlines took on flying that major airlines used to do, and for a variety of reasons the pool of potential pilot hires changed.

Relating to the Colgan 3407 crash, at the time of the crash the Captain had approximately 3,300 hours of flight time and the first officer had 2,300 hours. The Captain, according to a statement by him in a conversation recorded on the cockpit voice recorder, had 625 hours total time when he was hired at Colgan. The First Officer had 1,600 hours at her date of hire but, according to reports I have seen, that was in mostly warm clear weather flying in mostly single-engine piston airplanes. By her own admission on the cockpit tapes she had never seen icing. So what we are seeing here is that while the quantity of training time may be high, the quality of that training time may not be that great. For example, 1,600 hours in a single engine piston in fair weather is not equivalent to 1,600 hours of military

flying, or previous airline flying. When were the current FAA mandatory criteria and minimums for the various levels of pilot certification set?

Answer. Experience levels for commercial pilots were originally established in the 1940s. They have been revised and updated over the years. Today, the basic requirements for commercial certification can be found in part 61 of the Federal Aviation Regulations (FAR). Commercial pilots who fly for part 121 and 135 operations must meet additional requirements. For example, the holder of a commercial pilot's license can only be, at most, a first officer on an air carrier operation. To be a captain, a pilot must have an air transport pilot certificate, which requires a minimum of 1,500 hours.

Question 1a. Given the evolution of the industry, do you think it is time for the FAA to update those criteria and minimums not only the quantity of the training, but the quality as well? For example, my understanding is that there is no requirement for training in in-flight icing.

Answer. Currently, FAA has a Notice of Proposed Rulemaking (NPRM) out for comment which updates and increases the requirements for airline pilot training, flight checks, and evaluations. While the pool of potential pilots has changed over time, military pilots sometimes have to undergo significant additional training before they can be an airline pilot. If their entire flying experience was in a supersonic aircraft with centerline thrust (two engines close to the fuselage), they would have to receive training appropriate to the aircraft they will fly as a civilian and obtain experience operating aircraft with asymmetrical thrust (two engines out on the wings).

A requirement to train pilots in various icing situations has existed for some time. This includes classroom education in recognition and evasion for private pilots to classroom and operational experience for airline pilots. For safety purposes the airlines' flight training for in-flight icing is conducted in a simulator. The simulator can accurately reproduce the effects of various forms and intensities of icing. Airline pilots receive this training after their initial hire training and in recurrent training. When they transition from one aircraft to another, they receive training in in-flight icing for that specific aircraft.

Regarding the Colgan crash, it appears that the first officer's comments as reported in the media may have been taken out of context. However, while the FAA is examining the facts that have come to light so far, since the NTSB has not issued findings, it would not be appropriate to speak to any potential findings at this time.

Question 2. During your confirmation hearing I asked you if you thought FAA regulations needed to be changed to require hand flying of aircraft in icing conditions. There have been 15 recorded accidents or incidents where a turboprop aircraft, being flown by the autopilot, departed controlled flight while operating in icing conditions. The NTSB has recommended turboprop aircraft be hand-flown in icing conditions. You replied that based on your experience as a pilot, hand flying the airplane for awareness of any effects of icing on the airplane must be balanced against the potential detrimental effects of increased crew workload but, with that in mind, you supported continuing to assess the feasibility, benefits, and risks associated with hand-flying turboprop aircraft in icing conditions. Can you tell me if any such effort has begun at FAA to bring in stakeholders to start such an assessment?

Answer. This issue is one of my priorities and is being examined by the appropriate engineers and flight test personnel on a continual basis. As stated during my testimony, I want to again emphasize that we must balance hand-flying the aircraft against the workload mitigation the autopilot provides. Not using the autopilot in some emergency situations could add risk to an otherwise manageable event.

The Aircraft Certification and Flight Standards Services have begun to work with manufacturers and operators on this issue. Our Aircraft Certification Office and Aircraft Evaluation Group are looking at autopilot use during icing conditions, with emphasis on factors such as pilot workload, aircraft characteristics, and the aircraft manufacturer's recommendations. This internal team is assessing feasibility, benefits and risks associated with mandatory hand-flying during icing conditions in consideration of different manufacturers design and operating philosophies.

Question 3. During your confirmation hearing, I asked if you thought that the FAA should install crash-protected image recorders in cockpits to give investigators more information to solve complex accidents. You responded that accident investigators need all the tools science can provide them, but you were aware of the controversy surrounding the use of image recorders and their effect on privacy, as well as how the images could be used. You also stated that if confirmed, you would focus on this issue in your tenure. Can you tell me what progress has been made on this issue?

Answer. I am still committed to addressing this issue during my tenure. FAA has already participated in numerous industry activities regarding image recorders, crash-protected lightweight recording systems, and the emerging technology of multi-use flight recording systems. This work has included both domestic and international efforts.

From an accident investigator's perspective, an image recorder may not be the best vehicle for providing the information, for equipment and privacy reasons. Current technological developments in flight recording systems allow flexibility in capturing flight data directly from the aircraft avionics systems. The current, performance-based requirement, which stipulates the particular flight data that must be captured on a cockpit voice recorder (CVR) and digital flight data recorder (DFDR), may therefore be more appropriate. I commit, again, to consider all options for gathering as much information as possible for not only investigative purposes but also for safety analysis.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHNNY ISAKSON TO HON. MARK V. ROSENKER

Question 1. I understand that the FAA has no regulation regarding using the autopilot in icing conditions for turboprop aircraft, and that one of the NTSB's "6 most wanted safety improvements for aviation" is to require pilots to hand-fly turboprop aircraft in icing conditions. Colgan's fleet, to my knowledge, is comprised of two types of turboprop aircraft: the Saab 340, and the Bombardier Dash 8–Q400. In your investigation into the Colgan 3407 accident, was there any indication as to whether Colgan had a policy that its pilots must hand-fly its Saab and Bombardier aircraft in icing conditions? Did Bombardier the maker of the airplane had any limitations or restrictions on the use of the autopilot in icing conditions?

Answer. Colgan's policy was consistent with the Bombardier policy that required the autopilot to be disconnected in severe icing conditions. The NTSB's recommendation addressed disconnecting the autopilot while operating in icing conditions, including those not characterized as severe.

Question 2. This is a question that may be more technical in nature, but one of the recommendations that the NTSB has on its "Most Wanted" aviation safety improvements is to require that airplanes with pneumatic deice boots activate boots as soon as the airplane enters icing conditions. My understanding of how these boots work is that the pilot looks for an accumulation of a certain amount of ice on the leading-edge of the airframe surface before activating the deice boots. I am told this is because of the threat of "ice bridging", which would occur if the ice forms in a shape around the activated boot and makes the boot ineffective in removing ice at that point. Can you please clarify the NTSB recommendation?

Answer. The NTSB recommendation is for activation of deicing boots as soon as an airplane enters icing conditions. The NTSB was explicit when issuing this recommendation that concerns about ice bridging are not supported. A widely held belief in the aviation community, among both operators and manufacturers, is that the deice boots should not be activated until the ice buildup is estimated to be between 1/4- and 1/2-inch thick and that early activation of the boots may result in ice bridging on the wing. However, in Advisory Circular 25.1419–1A, "Certification of Transport Category Airplanes for Flight in Icing Conditions," the FAA states that, although ice may not be completely shed by one cycle of the boots, the residual ice will usually be removed by subsequent cycles and does not act as a foundation for a bridge of ice to form. Further, information from numerous sources, including a 1997 Airplane Deice Boot Bridging Workshop, icing wind tunnel tests, and flight tests, revealed that ice bridging did not occur on modern airplanes equipped with deice boots that quickly inflate and deflate. The icing wind tunnel tests also revealed that thin (1/4 inch or less), rough ice accumulations on the wing leading edge deice boot surfaces could be as aerodynamically detrimental to an airplane's performance as larger ice accumulations. A search of the NTSB accident database revealed no accidents related to ice bridging; however, the NTSB has investigated many icing accidents in which the airplane stalled and the stall warning system did not activate before the stall because of ice accumulation on the wing leading edges.

Accident investigations, NTSB accident data, and existing icing information clearly show that delaying the activation of the deice boots can create an unsafe condition. The NTSB concludes that ice bridging does not occur on modern airplanes; therefore, it is not a reason for pilots to delay activation of the deice boots.

Question 3. From the transcript that I have seen of the cockpit voice recorder (CVR) in the Colgan 3407 crash, it is clear that the flight crew violated the sterile cockpit rule regulation requiring pilots to refrain from non-essential activities during critical phases of flight and below 10,000 feet. During the course of your investigation into the Colgan 3407 crash what other regulations did you find were violated?

Answer. The NTSB does not determine violations of the FARs; that is a function for the FAA. Additionally, the Colgan 3407 investigation is ongoing, and the NTSB has not reached any conclusions.

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