

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:
PARTNERSHIPS FOR SOLUTIONS*

**“Reduce Aviation Accidents and Incidents
Caused by Fatigue: It’s Time to Act! ”**

MR. ROBERT SUMWALT

*Vice Chairman
National Transportation Safety Board*



June 17, 2008: Keynote Session

MR. ROBERT SUMWALT: Thank you. And thank you for that nice introduction. It really is an honor for the NTSB to be invited at this venue, and I'd like to congratulate the FAA for pulling this together. I think that this is such an important topic, and we definitely appreciate your commitment to making it happen.

And, also, as I've come to realize, you can have a wonderful symposium, but if people don't come then you don't have much of a symposium at all. So I'd like to look out into the audience, and it really warms my heart to see that we have 300 people from around the industry who have gathered, gathered to learn more about fatigue, to look for common solutions. And as the title of this symposium is, to form a partnership for solutions. So congratulations to all of you for being here.

I put a fair amount of thought into the title of the discussion this morning. What should I title this? The first part of it, "Reduce Aviation Accidents and Incidents Caused by Fatigue," that's right off of the Safety Board's most wanted list. That is the verbiage right here on this list. We've been saying that for a long time. But the second part of the title, "It's Time to Act," that's what I came up with because it is time to act.



We have been dealing with trying to resolve fatigue in aviation for a long time, and what we do at the Safety Board is we put a red mark on our most wanted list next to this recommendation, which means that the recipient of the recommendation is moving at an unacceptable pace. And the recipient happens to be the FAA. But you know what? The FAA really is in sort of a bind. And it's not my position to try and apologize for other federal agencies, but the fact is, by the Administrative Procedure Act of 1946, federal agencies are bound to go through a rule-making process. They have to publish a notice of proposed rule-making. They have to solicit public comment.

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:
PARTNERSHIPS FOR SOLUTIONS*

The FAA formed an advisory rule-making advisory committee on fatigue in 1995, and it didn't appear that there was going to be an industry consensus on fatigue. And so that sort of puts the recipient of our recommendation in a bind because, by law, they have to do something, they have to solicit the input. They're trying to achieve consensus. But if the industry can't achieve consensus, then the regulator can't put forth the regulations.

So what I'd like to do is challenge everybody to come together for a partnership for solutions. Let's spend the next three days looking for solutions. Let's put the past behind us, and let's move forward.

I'd like to start by talking about my stamp collection. I have sort of a strange stamp collection. I started collecting stamps as a child and, over the years, my stamp collection has gotten a little more strange. But I collect airmail that never made it to where it was going from the 1920's and the 1930's because the airmail was in a plane crash.

So let's look at a few of my stamps. Here's one here from 1926, and, ironically, this was on the inaugural service of airmail between Chicago and the Twin Cities. And what happened? The plane crashed. And it's hard to see that green stamp that is right there, but it says, "Mail delayed by accident in Mendota, Minnesota in which pilot Elmer Lee Partridge was killed."

And here's another one and another one and another one. Here's one from 1930. And yet another. And I've got several more, but I just wanted to show you some of my stamp collection.

But of all of the crash stamps that I've collected over the years, this is one that I don't have, and this is one that I would absolutely love to have. There's only one of these known to exist. You see, this one is from 1926. It was on a flight between St. Louis and Chicago. The pilot bailed

out at 14,000 feet. I think he had iced up and bailed out. Obviously, the plane crashed. The pilot went over to the wrecked plane and recovered as much of the mail as he could possibly get. He got about 60 pounds of mail and then went and got on a train and took it to Chicago. Remember the mail must get through. But this is the only remaining one of those that exists, and there's a stamp on there that says "arrived in damaged condition," and then the pilot wrote "due to airplane crash," and he signed it. He signed it with an "L," and that "L" was Charles Augustus Lindbergh.



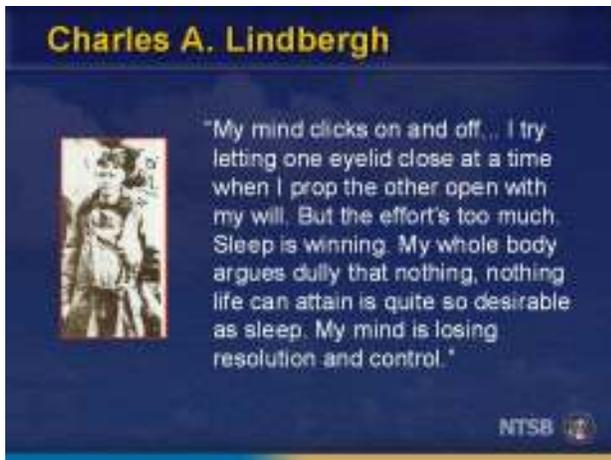
What I think is just as interesting, it was only five or six months later, it was May of the next year, that Lindbergh made his famous flight across the Atlantic as a solo pilot.



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PARTNERSHIPS FOR SOLUTIONS*

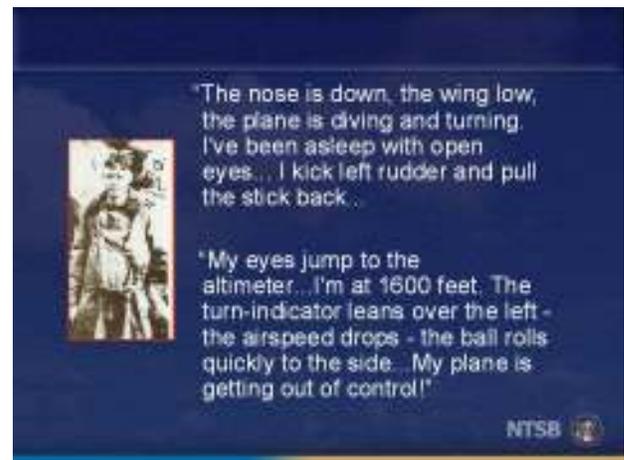
And I don't know how many of you have ever read the book "The Spirit of St. Louis." How many of you have read that book? A fair number. All throughout the book, Lindbergh punctuates the book with quotations talking about how tired, how fatigued he was. For example, "My mind clicks on and off. I try letting one eyelid close at a time when I prop the other open with my will. But the effort is too much. Sleep is winning. My whole body argues dully that nothing, nothing life can attain is quite so desirable as sleep. My mind is losing resolution and control."

There's three points I'd like to make this morning. The first is fatigue is real and it does affect safety.



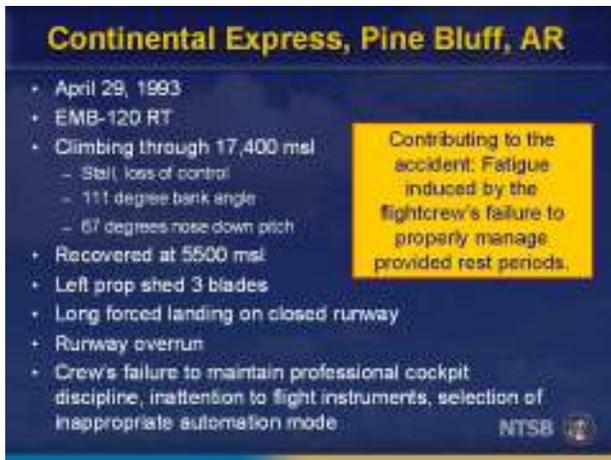
Let's look at a few examples. Well, let's go back to Charles Lindbergh. "The nose is down, the wing is low, the plane is diving and turning. I've been asleep with open eyes. I kick the left rudder and pull the stick back. My eye has jumped to the altimeter. I'm at 1600 feet. The turn indicator leans over to the left. The air speed drops, the ball rolls quickly to the side. My plane is getting out of control."

This isn't just something that went away with Charles Lindbergh. This is something that we've experienced for the last 80 years of aviation. In fact, let's look at the paper from a week ago, from this time last week. Pilots falling asleep.



When I read this, I'm reminded of an accident the Safety Board investigated a number of years ago. This airplane was a Continental Express in Pine Bluff, Arkansas back in 1993.

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It was an EMB-120. The pilots were climbing through 17,000 feet. They had allowed the speed to decay. The airplane had picked up some ice as they had climbed through the clouds. And with the decayed speed, the airplane stalled at a speed that they didn't expect it to. They were talking to the flight attendant. They were doing other things. They weren't adequately monitoring the airplane. The airplane got away from them. But the amazing thing is that they stalled, they lost control, they got it into a 111-degree bank angle, 67 degrees, nose down, and they finally recovered at 5,500 feet. Imagine what the dry cleaning bill would have been after that ride.

The left prop shed three blades during the process, and the crew made a forced landing on a closed runway. They ran off the runway. And the Safety Board found that the crew's failure to maintain professional cockpit discipline and inattention to the flight instruments and selection of inappropriate automation mode were certainly the causal factors in the accident. But the Safety Board also found that contributing to the accident was fatigue induced by the flight crew's failure to properly manage provided rest periods.

You see, it was day three of a trip. They had had short layovers on the first night of the trip. But on the second day of the trip, the crew got in at 11:30 in the morning. They didn't have to report to duty until about 5:00 or 5:30 the next morning. Now, granted, that is early, but they

had, according to the Safety Board, ample layover opportunities, but the crew did not take advantage of their layover rest. You see, they stayed up until 11 or 12 watching TV, reading, whatever, and they had to get up at 4:00 in the morning.

So we did find that fatigue was a contributing factor, and this accident occurred at a time of day that is normally associated with fatigue. And so that was a contributing factor, and it underscores a couple of things: that there's not a lot of difference between Charles Lindbergh's plane going out of control and this one here; and that fatigue is a problem and it is something that we need to do something about.

But it also makes a point that I believe it was Bobby made--that there is a personal responsibility. You can have the best flight and duty time limitations in the world, but if people don't exercise that professional responsibility it's not very good. Let's move on.

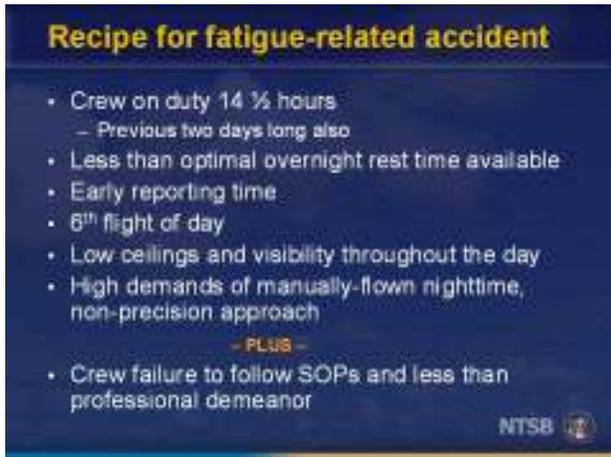
This airplane was an accident, a fatal accident, 13 fatal.



There was a jet stream operated by Corporate Airlines, doing business as American Connection, back in 2004. The crew was conducting a nighttime non-precision approach into Kirksville, and they hit the ground. If you ask me, when we go back and look at the factors involved in this accident, this was a recipe for a

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fatigue-related accident. Let's look at a few of the ingredients.

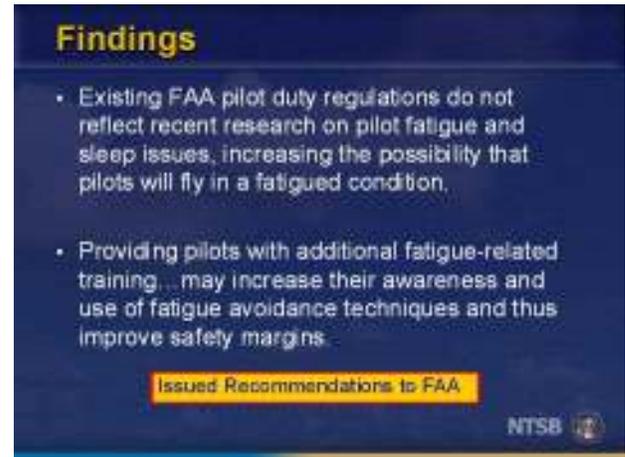


First, the crew had been on duty for 14 1/2 hours, and their two previous days had also been very long. They had less than optimal overnight rest time the night before the trip. They had to wake up early. The captain got up at 4:00, and the first officer got up at 4:30. It was the sixth flight of the day. They had been doing approaches and low ceilings and low visibility all throughout the day, and this would have been their final landing. It was now late at night. And just think about this: the high demands associated of manually flying a dive-and-drive non-precision approach when you're tired.

And these were the ingredients. And now we come in and we add in something else, something that I hate to talk about, but it happened; and that is the crew's failure to follow SOPs and their less-than-professional demeanor. When we tie all of those together, we get the perfect storm. We've got a recipe for a fatigue-related accident, and, unfortunately, we had 13 fatalities, two serious injuries.

The Safety Board found that the existing FAA flight and duty time limitations don't reflect the recent research on pilot fatigue and sleep issues, which, of course, increases the possibility that pilots will fly while they're fatigued. And we also said that providing pilots, providing crew members, with fatigue-related training may

increase their awareness and therefore, help pilots to avoid flying when they're fatigued.



We came out, and we made recommendations on each of these findings. Dr. Jana Price will speak on the NTSB panel later this morning and talk specifically about our recommendations.

Another flight that the Safety Board deliberated just in mid-April, this accident occurred in February of '07, an Embraer 170 at Cleveland, runway overrun, no fatalities fortunately.



But what we found, what our investigators found, is that the captain had slept only one out of the past 32 hours, and he did not advise Shuttle America of his fatigued state, nor did he attempt to take himself off of the trip because he had been notified by his company that he had used an excessive number of sick calls and that if

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:
PARTNERSHIPS FOR SOLUTIONS*

he used more he could be subjected to discipline, including termination.

Shuttle America

- Captain had slept only 1 out of the past 32 hours.
 - Did not advise Shuttle America of his fatigue or remove himself from duty because he thought he would be terminated.
- Captain stated that his lack of sleep:
 - affected his ability to concentrate and process information to make decisions
 - he was not "at the best of [his] game."

NTSB

And the captain said that his lack of sleep affected his ability to concentrate and to process information and to make decisions and that he was not at the best of his game.

The probable cause was something along the lines of the captain's faulty decision to continue this approach. But contributing to the probable cause was the captain's fatigue, which affected his ability to effectively plan for and monitor the approach and landing, and also the company, Shuttle America's failure to administer an attendance policy that permitted crew members to call in as fatigued without fear of reprisals.

Shuttle America

Contributing to the Probable Cause:

"the captains' fatigue, which affected his ability to effectively plan for and monitor the approach and landing, and

"Shuttle America's failure to administer an attendance policy that permitted flight crewmembers to call in as fatigued without fear of reprisals."

Issued Recommendations to FAA

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Once again, we made recommendations to address each of these areas, and Dr. Price will be discussing those in her presentation.

Let's just look, without even getting into them, let's just look at a few other fatigue-related accidents. Here's one that the Board deliberated a week ago today.

Pinnacle Airlines flight 4712

- April 12, 2007
- Bombardier/Canadair RJ CL600-2B19
- Traverse City, Michigan
- Runway Overrun
- No fatalities

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And here's another one.

FedEx at Tallahassee, Florida

- July 26, 2002
- FedEx Boeing 727-200
- CFIT, approach and landing accident
- 3 serious injuries
- Aircraft destroyed

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And another one, five fatal on a Part 91 repositioning flight on a Learjet.

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PARTNERSHIPS FOR SOLUTIONS*

Med Flight Air Ambulance, Inc

- Oct. 24, 2004
- Learjet 35A
- San Diego, CA (departing Brown Field)
- Nighttime repositioning for an EMS
- CFIT, mountainous terrain
- 5 Fatalities



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And another one, 11 fatalities, 45 serious injuries.

American International Airways

- August 18, 1993
- DC-8 freighter
- Guantanamo Bay Naval Air Station, Cuba
- Stall and loss of control on final approach
- 3 Serious injuries



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And there are more.

The point I want to make is that fatigue is serious and it has serious implications. In fact, as Dr. Brenner from the Safety Board will say in his part of their panel, in the last 15 years fatigue has been associated with over 250 fatalities in air carrier accidents investigated by the Safety Board. 250 fatalities. There are countless other general aviation accidents, but the numbers are just countless.

American Airlines flight 1420

- June 1, 1999
- MD-82
- Little Rock, AR
- Runway overrun
- 11 Fatalities
- 45 Serious



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So that's my first point. Fatigue is real, and it does have serious safety consequences.

Here's one, 228 fatalities, 26 serious injuries.

Fatigue in aviation kills!

- During the last 15 years, fatigue has been associated with over 250 fatalities in air carrier accidents investigated by NTSB
- Countless GA fatalities



NTSB

Korean Airlines flight 801

- August 6, 1997
- B-747-300
- Nimitz Hill, Guam
- CFIT
- 228 Fatalities
- 26 Serious



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The second point is that the Safety Board has had a longstanding concern about fatigue.

And yet another one.

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We've issued, since 1972, 117 fatigue-related safety recommendations in all modes of transportation.



Thirty-four of those are related to aviation, and they apply to the flight crew, mechanics, air traffic controllers; and they've been issued to a number of organizations and governmental entities.

Fatigue has been on the Safety Board's most wanted list since the very inception of this list in 1990, and today's most wanted list has seven, seven aviation fatigue-related recommendations that concern air traffic control, maintenance, and flight crew.



We believe in a comprehensive approach to addressing fatigue.



Yes, we think that we do need flight duty time limitations that are based on fatigue research, circadian rhythms, and sleep and rest requirements. And we've been saying that now since the Kirksville accident.

But we also say, and we just came out with this recommendation last week, we approved this recommendation last week. The Board also believes in fatigue management systems or, as it is called also and you'll hear a lot of discussion about that later during this symposium, these fatigue risk management systems. What are they?

We'll let the panel after lunch discuss it. But, basically, it's a comprehensive tailored approach

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PARTNERSHIPS FOR SOLUTIONS*

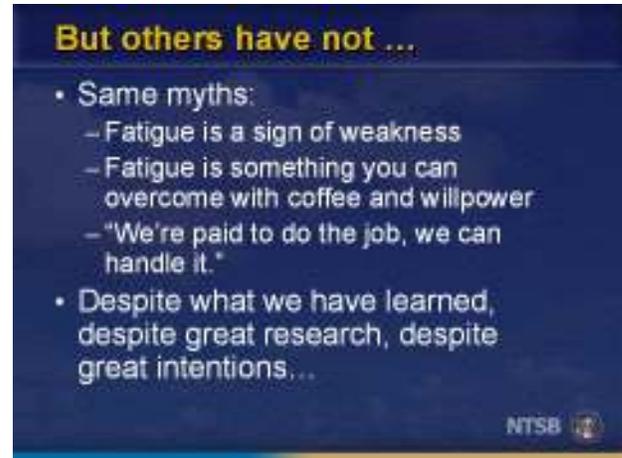
to address fatigue in the workplace. The Safety Board believes that both of these are needed to fully address the issue of fatigue in aviation.

I want to make the point that just because we might have a fatigue management system, it does not mean that we don't need good flight and duty time limitations. We need to have both. We need good structure in place by good flight and duty time limitations. And then the fatigue risk management, or the FRMS, is just another part of that. But the fatigue management system should not be looked at to replace the flight and duty limitations.

You know, I did have a great career flying for the airline. And as I look back, I see that some things have changed. I think really it's amazing how the airplanes have changed over the years. Some things have changed, but then others have not.



The same myths exist today that existed when I entered that airline cockpit in 1981, like fatigue is a sign of weakness. Fatigue is something that you can overcome with coffee, a shower, and some willpower. Or how about this one? We're paid to do the job, and we can handle it.



When I left the airline in 2004, I went to run a Fortune 500 flight department. When I got there, there was no flight operations manual at all. And this was the company that I went to work for. We changed that, but no flight operations manual meant that there were no flight duty time, no duty restrictions because the chief pilot had the attitude that we are paid to do the job and we will do it. It was a can-do attitude that, if we can't do the job, the company will find somebody that can. They'll sell the airplanes, they'll start chartering, they'll go to fractional ownership, whatever; so we need to be able to do the job for our company.

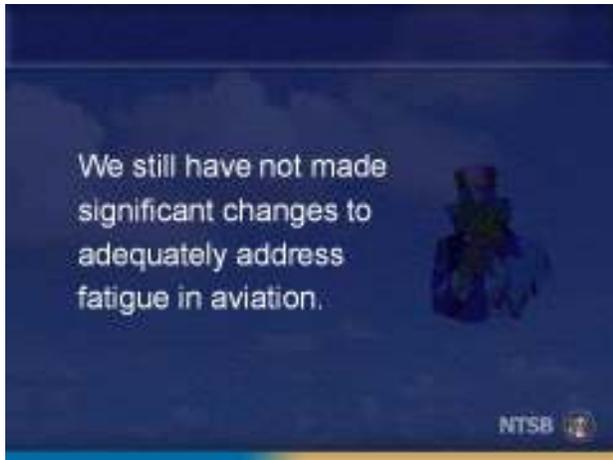
Well, within a few months, we had a flight operations manual, and we did have flight and duty time limitations. And, occasionally, it would irk some member of senior management that the new manager would call up -- by the way, the chief pilot left shortly after I got there -- it would irk some in senior management that this new guy would call them up and say, "Look, we can't fly the trip as scheduled. You can leave later, you can come back earlier, but we will not exceed our duty day." They didn't like that.

But, unfortunately, it sort of all came home to me after I joined the Safety Board. I had been at the Board about five months when somebody called me early on a Friday morning to tell me that the former chief pilot had been killed in a plane crash. He was pushing limits trying to get back

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into the home airport under very low IFR, and he was at the end of a 16-hour duty day.

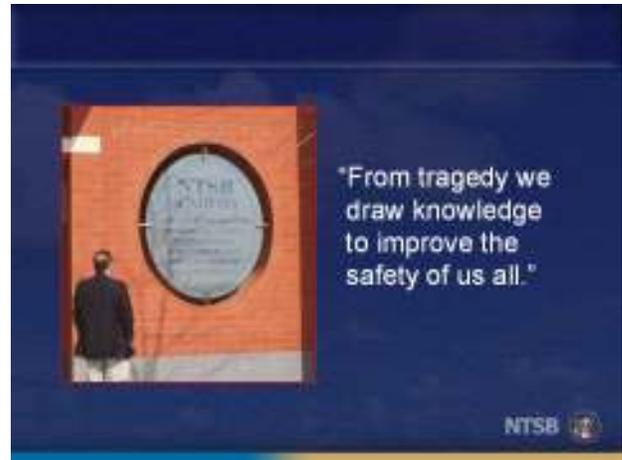
So despite what we've learned, despite great research, despite great intentions, we still have not made significant changes to adequately address fatigue in aviation, which leads to my third and final point.



It is time to implement workable solutions.

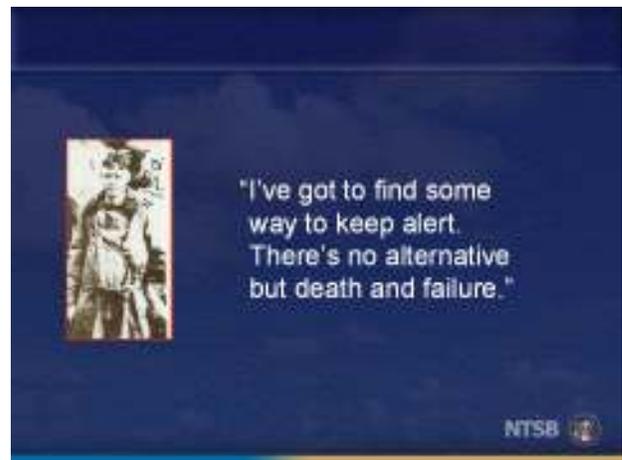


Outside of the NTSB's training center, we have a plaque, and I usually like to pause and read that plaque before I walk into the building. It says, "From tragedy, we draw knowledge to improve the safety of us all."



And that is what we do at the NTSB. We take tragedy; we try to learn from it to improve the safety of us all. But we can't change it. We don't have the congressional authority to go out and change rules. All we can do is make recommendations and try to urge people to come together to, as the title of this symposium is, to form a partnership for solutions. If it's going to happen, it's going to happen within the four walls of this room.

Back to Lindbergh--we'll close on a quote from Lindbergh. Lindbergh says, "I've got to find some way to keep alert. There's no alternative but death and failure."



And with respect to Mr. Lindbergh, I'm going to propose that death is certainly not an alternative. We've had over 250 deaths due to fatigue in air carrier operations of accidents investigated by

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the Safety Board over the past 15 years. Death is not an alternative, and I dare say that anyone in this room wants to accept failure as an alternative.

I challenge you to take the knowledge from this symposium, come together and form workable solutions, and let's solve this thing once and for all. Thank you very much.



Biography

Robert L. Sumwalt was sworn as the 37th Member of the National Transportation Safety Board on August 21, 2006. His term of office will run until December 31, 2011. President Bush has also designated him as Vice Chairman of the Board for a two-year term.

Prior to coming to the Board, Mr. Sumwalt was Manager of Aviation for the SCANA Corporation, a Fortune 500 energy-based company.

Mr. Sumwalt was a pilot for 24 years with Piedmont Airlines and then US Airways, logging over 14,000 flight hours and earning type ratings in five aircraft before retiring from the airline in 2005. He has extensive experience as an airline captain, airline check airman, instructor pilot and air safety representative.

Mr. Sumwalt worked on special assignment to the US Airways Flight Safety Department from

1997 to 2004, where he was involved in the development of numerous airline safety programs, including an enhanced crew awareness program and a windshear training program. From 2002 to 2004, he served on the US Airways Flight Operations Quality Assurance (FOQA) Monitoring Team.

Mr. Sumwalt served as a member of Air Line Pilots Association's (ALPA) Accident Investigation Board from 2002 to 2004, and also worked with ALPA's Aviation Weather Committee on improving the quality of weather products available to pilots. He has chaired ALPA's Human Factors and Training Group and was a co-founder of that organization's Critical Incident Response Program, which provides guidance to airline personnel involved in traumatic events such as accidents.

A trained accident investigator, Mr. Sumwalt participated in several NTSB investigations including the crash of USAir flight 427 in 1994 near Aliquippa PA, and USAir flight 861 near Birmingham Alabama in 1998. He also participated in the Transportation Safety Board of Canada's investigation of the accident involving Swissair flight 111 off the coast of Nova Scotia in 1998.

From 1991 to 1999, Mr. Sumwalt conducted aviation safety research as a consultant to NASA's Aviation Safety Reporting System, studying various issues including flight crew performance and air carrier de-icing and anti-icing problems.

Mr. Sumwalt has co-authored a book on aircraft accidents and he has written extensively on aviation safety matters, having published over 85 articles and papers in aviation trade publications and he has broad experience in writing aircraft operations manuals and airline and corporate aviation policy and procedure guidelines. He has been a regular contributor to Professional Pilot magazine.

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:
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In 2003, Mr. Sumwalt joined the faculty of the University of Southern California's Aviation Safety and Security Program, where he was the primary human factors instructor.

In recognition of his contributions to the aviation industry, Mr. Sumwalt received the Flight Safety Foundation's Laura Taber Barbour Award in 2003 and ALPA's Air Safety Award in 2004.

Since joining the Board, the Vice Chairman has served as the Member on-scene for the November 30, 2007 collision between an Amtrak passenger train and a standing Norfolk Southern freight train in Chicago, Illinois. He was also on-scene Member for the November 1, 2007 liquid propane pipeline rupture and explosion in Carmichael, Mississippi. Additionally, he launched with the Go Team to Sanford, Florida to the scene of an accident that occurred on July 10, 2007, in which a twin-engine Cessna 310R airplane impacted homes in a residential area. He was also the on-scene Member for the October 20, 2006 derailment of a Norfolk Southern train in New Brighton, Pennsylvania, Vice Chairman Sumwalt also accompanied the NTSB Go-Team to Lexington, Kentucky for the on-site investigation of the August 27, 2006 crash of Comair flight 5191.

Mr. Sumwalt is a graduate of the University of South Carolina.