UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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IN THE MATTER OF THE INVESTIGATION OF * AMERICAN AIRLINES, INC., FLIGHT 1420, * Docket Number McDONNELL DOUGLAS MD-82, N215AA * SA-519 LITTLE ROCK, ARKANSAS, JUNE 1, 1999 *

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Arkansas Excelsior Hotel
Bill Clinton Ballroom
Three Statehouse Plaza
Little Rock, Arkansas 72201

Wednesday, January 26, 2000
9:00 a.m.

Board of Inquiry

HONORABLE JIM HALL, Chairman
Board of Inquiry

THOMAS HAUETER, Deputy Director
Office of Aviation Safety

JOHN CLARK, Deputy Director
Office of Research and Engineering

BARRY SWEEDLER, Director
Office of Safety Recommendations and
Accomplishments

BEN BERMAN, Hearing Officer
Office of Aviation Safety

Technical Panel

GREGORY SALOTTOLO
GREGORY FEITH
EVAN BYRNE
MARK GEORGE
CHARLES PEREIRA
LAWRENCE ROMAN
DAVID TEW
DONALD EICK

Public Information Officer

PAUL SCHLAMM
Office of Public Affairs
Washington, D.C.

Parties to the Hearing

LYLE STREETER, Air Safety Investigator
Accident Investigation Division, AAI-100
Federal Aviation Administration

RONALD J. HINDERBERGER, Director
Airplane Safety
Boeing Commercial Airplane Group

ROBERT W. BAKER, Vice Chairman
American Airlines, Inc.

CAPTAIN CHRIS D. ZWINGLE
Special Assistant to Chairman
National Safety and Training Committee
Allied Pilots Association

KATHY LORD-JONES
National Safety Coordinator
Association of Professional Flight Attendants

ROBERT KUESSNER
National Weather Service

DEBORAH H. SCHWARTZ, A.A.E.
Airport Manager
Little Rock National Airport

J.T. CANTRELL, Training Chief
Little Rock Fire Department

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PROCEEDINGS

9:30 a.m.

CHAIRMAN HALL: We will convene this public hearing of the National Transportation Safety Board. It's being held in connection with the Investigation of Aircraft Accident Involving American Airlines Flight 1420, a McDonnell Douglas MD-82, Registration N215AA. The accident occurred in Little Rock, Arkansas, on June 1st, 1999.

Good morning and welcome. I am Jim Hall, Chairman of the National Transportation Safety Board and Chairman of this Board of Inquiry.

Today, we are opening a public hearing concerning the accident that occurred on June 1st, 1999, at Little Rock, Arkansas, involving American Airlines Flight 1420.

This hearing is being held for the purpose of supplementing the facts, conditions and circumstances discovered during the on-scene investigation. This process will assist the Safety Board in determining the probable cause of the accident and in making recommendations to prevent similar accidents in the future.

Public hearings, such as this one, are exercises in accountability, accountability on the part of the Safety Board, that it is conducting thorough and fair investigations, accountability on the part of the Federal Aviation Administration, that it is adequately regulating the industry, accountability on the part of the airline, that it is operating safely, accountability on the part of manufacturers as to the design and performance of their products, and accountability on the part of the

workforce, pilots and machinists and flight attendants, that they are performing up to the standards of professionalism expected of them.

These proceedings tend to become highly technical affairs, but they are essential in seeking to reassure the public that everything is being done to ensure the safety of the airline industry and the safety of flight.

This inquiry is not being held to determine the rights or liability of private parties, and matters dealing with such rights or liability will be excluded from these proceedings.

The Safety Board has collected a substantial amount of information over the past seven months, and during the course of this hearing, we will collect additional information that will assist the Board in its examination of safety issues arising from this accident.

Specifically, we will concentrate on the following issues: flight crew decision-making, availability and dissemination of weather data, aircraft performance, passenger safety and emergency response, runway overrun protection, American Airlines' operational practices and procedures, and American Airlines' internal and FAA oversight.

Let me emphasize that these issues are important and have serious implications for the safety of air travel. Eleven lives were lost in this accident, and a 134 passengers and crew members survived, their lives forever impacted by this tragedy.

The Safety Board has had the unfortunate task of investigating several of the world's fatal commercial aviation accidents where fatigue was an issue. In two such accidents, an American

International Airways DC-8, on August 18th, 1993, Guantanamo Bay, Cuba, and, most recently, the Korean Air Boeing 747-300 in Guam, fatigue was determined to have been a significant factor in the cause of the accident.

Fatigue and its effects on flight crew performance has been and continue to be a growing concern for the aviation community worldwide.

Although the Safety Board has expressed -- has addressed the issue of flight crew duty time regulations in previous accident investigations, we must also look beyond the scheduling issues of our pilots and also consider the issue of fatigue as it relates to duty time of flight attendants as well, and, so, while we continue to investigate the specific causes of the American Airlines Flight 1420 tragedy, it is my intention in this hearing to look at the larger picture and explore more precisely the dimensions of the fatigue problem, possible anomalies with the low-level wind shear alert system, various efforts underway to correct these issues, other important safety items, and what is being done to prevent future occurrences.

The Safety Board has investigated several accidents involving American Airlines in recent years. During this hearing, I intend to thoroughly explore the possibility of systematic problems within the airline, the efforts American has made to examine its own systems and procedures, and, perhaps most important, what the airline is doing about its problems.

Further, the other issues that will be discussed in this

hearing all have been identified at one time or another as significant factors in aviation incidents or accidents.

Thus, because these issues continue to be identified, it is apparent that the actions that have been taken to eliminate or reduce or prevent the recurrence have not been as successful as we had hoped.

Every accident also can teach us something new about these pre-existing safety concerns. If we can learn more about safety issues, if we can draw attention to the serious problems that for whatever reason are lingering in the aviation industry, and if we can get someone to take action, then this hearing will have been worthwhile.

Now, at this point, let me welcome the news media, but let me explain to the news media that this hearing is a professional hearing, and interviews with individuals need to take place outside this board room. So, I'd like to be sure that our press officers are sure that this is not used as a set, that the proceedings -- this room is for the hearings and proceedings. Any interviews that need to be conducted need to be moved outside, but we very much appreciate your attendance.

Thank you.

At this point, I would like to introduce the other members of the Board of Inquiry. To my -- joining us, to my left at this time, is Mr. Greg Feith, who is our Investigator-in-Charge.

Mr. Feith is occupying a seat on the Board of Inquiry and replacing Mr. Thomas Haueter, who is the Deputy Director of the Office of Aviation Safety. We hope Mr. Haueter will be able to join us later today, and when he does, he will be seated to my left.

To my right is Mr. John Clark, who is the Deputy Director of the Office of Research and Engineering. To his right is Mr. Barry Sweedler, the Director of the Office of Safety Recommendations and Accomplishments.

The other member of the Board of Inquiry to my far left is Mr. Ben Berman, the Chief of the Major Investigation Division, the Office of Aviation Safety, who also serves as the hearing officer for these proceedings.

The Board of Inquiry will be assisted by a technical panel, consisting of Mr. Greg Feith, who is the Investigator-in-Charge, Mr. David Tew, who is the Operational Factors Investigator, Mr. Dennis Fink, the Meteorology Investigator, Mr. Evan Byrne, the Human Performance Investigator, Mr. Charlie Pereira, the Aircraft Performance Investigator, Mr. Larry Roman, the Airport Crash-Fire-Rescue Investigators, and Mr. Mark George, the Survival Factors Investigator.

All of those individuals are still not here, but the individuals that are important to this morning's panel are in place, and I'm hoping the others will be joining us from Washington this afternoon.

In addition, I'd like to acknowledge the presence of Board Members John Hammerschmidt, John Golia, and George Black, who are present for these proceedings, and the former Chairman of the National Transportation Safety Board, who is from Arkansas, Jim Burnette.

Mr. Pat Caraseo and Mr. Paul Schlamm from the Safety Board's Public Affairs Office are here to assist members of the news media. I've only got about half of my news media operation here in place.

The media does a good job, but if you have any problems with the media, let me or let them know. They're here to -- to report on these proceedings, and I expect them, as we expect all of our observers, to do so in a responsible fashion.

In addition, we have the Mayor of Little Rock that is with us this morning, Mayor Daley, and Donna Madison representing Senator Lincoln, and Barrett Allman, representing Congressman Snyder.

My principal assistant, Deb Smith, is on her way from Washington. Behind me is Jamie Perecola, who is my traveling assistant, who will be assisting me in her absence until -- Deb Smith's absence. Excuse me.

Lee Jones here is here from our Office of Government Affairs. Sharon Bryson, Eric Grossauf and Brian Fifick, about half of them are here from our Office of Family Affairs, are here to assist the families. I hope to have a full complement later today.

Carolyn Dargan and Candy Bing who are over to my left are the individuals who have been responsible for setting up all these proceedings. We had a hearing last week in New Orleans on a serious bus accident down there, and I appreciate their efforts in getting both of these hearings set up.

You may certainly contact either of them for assistance regarding copies of exhibits or other matters.

Also observing today's proceedings are representatives from independent safety boards representing Canada, Finland, Sweden and the Netherlands.

Let me continue. Neither I nor any Safety Board personnel will attempt during this hearing to analyze the testimony received nor will any attempt be made at this time to determine the probable cause of this accident.

Such analyses and cause determinations will be made by the full Safety Board after consideration of all the evidence gathered during our investigation.

The final report on the accident involving Flight 1420, which will reflect the Safety Board's analysis and probable cause determinations, will be considered for adoption by the full Board at a public meeting at the Safety Board's headquarters in Washington, D.C., to be held at a later date.

The Safety Board's rules provide for the designation of parties to a public hearing. In accordance with these rules, those persons, governmental agencies, companies and associations whose participation in the hearing is deemed necessary in the public interest and whose special knowledge will contribute to the development of pertinent evidence, are designated as parties.

The parties assisting the Safety Board in this hearing have been designated in accordance with these rules. The parties are seated at tables right in front of the dais, and as I call the name of the party, I would like to ask the designated spokesperson to please give his or her name, title and affiliation for the record, and I would appreciate it if you could briefly recognize the other individuals that are seated at your table.

We wil begin with the Federal Aviation Administration.

MR. STREETER: Mr. Chairman, my name is Lyle Streeter. I am the Manager of the Accident Investigation Division at the Federal Aviation Administration's Office of Accident Investigation.

With me here is Mr. Tony James, the FAA's Investigator-in-Charge for our purposes on this accident, Mr. Mark Bray len from our counsel's office, Mr. Corky Valentine, who will be a witness here later on and is the Principal Operations Inspector for American Airlines, and Mr. Wayne Williams, the Manager of the American Airlines Certificate Management Office.

CHAIRMAN HALL: Thank you, and welcome.

The Boeing Commercial Airplane Group?

MR. HINDERBERGER: Thank you, Mr. Chairman. My name is Ron Hinderberger. I'm the Director of Airplane Safety for Boeing, and with me today, I have William Steelhammer, who's our Lead Investigator and Party Coordinator for this investigation, Captain Tom Melody, our Chief Pilot of Flight Operations, Derrick Troy and D. Turner, Aerodynamics Engineers, and Mr. Scott Seabloom, our outside counsel.

CHAIRMAN HALL: Okay. Thank you.

American Airlines, Incorporated?

MR. BAKER: Good morning, Mr. Chairman. My name is Robert W. Baker. I am Vice Chairman of AMR Corporation and American Airlines and the company spokesman.

Seated to my right is Mr. Bob Kraft from the firm of Holland and Knight. Next to Mr. Kraft, Ms. Krista Hinkley from our Risk Management Group. Next in counter-clockwise fashion around the table,

Mr. Kurt Lewis, a manager in our Flight Safety Organization. Next, Captain Eric Lewis, the Fleet Manager of the MD-80 Operations at American Airlines. Bill Brown is next from the firm of Holland and Knight, and Mr. Tommy McFall, our Managing Director of Safety.

Thank you.

CHAIRMAN HALL: Thank you, and welcome.

The Allied Pilots Association?

CAPTAIN ZWINGLE: Good morning, Mr. Chairman, and Members of the Board. My name is Captain Chris Zwingle. I am the party spokesman and party coordinator.

At the table with me, to my right, Captain John Vanderventer, Check Airman on the MD-80, First Officer Gary Chestnut from the DFDR Group, Captain John Jeffries from the CVR Group, First Officer Don Pitts, Chairman of the National Safety Committee, and Mr. Ray Duke, counsel.

Seated also at the APFA table, members of the Association, Captain Kevin Elmore from the National Safety Committee, First Officer Tim Minor of the Meteorology Committee.

CHAIRMAN HALL: Thank you, and welcome.

The Association of Professional Flight Attendants?

MS. LORD-JONES: Good morning, Mr. Chairman, Members of the Board. My name is Kathy Lord-Jones. I'm the National Safety Coordinator for the Association of Professional Flight Attendants.

CHAIRMAN HALL: Kathy, if you could still just pull that over a little bit? Thank you very much.

MS. LORD-JONES: Seated at the table with me is Mr. Lonnie Glover, Qualified Flight Attendant and Member of the Accident Investigation Team, Debbie Rowland and Emily Carter.

CHAIRMAN HALL: Okay. The National Weather Service?

MR. KUESSNER: Good morning, sir. My name is Robert Kuessner. I am the spokesman for the National Weather Service. My title is Forensic Services Manager, Office of Meteorology, Weather Service Headquarters.

Sitting with me at the table, starting across from me and running clockwise, Mr. Reinhard Dombrowsky, who is Chief, Surface Observations Branch. Next to him is Mr. Judson Badd, who is Program Manager of our Southern Region. Next to him, Mr. George Wilka, who is the Science Operations Officer at the Weather Forecast Office at Little Rock, and next to him is Mr. Pat Slattery, who is our Public Affairs Officer, Central Region.

Thank you.

CHAIRMAN HALL: Thank you, and welcome.

The Little Rock National or International Airport?

MS. SCHWARTZ: National, Mr. Chairman.

CHAIRMAN HALL: Just like Chattanooga.

MS. SCHWARTZ: Mr. Chairman, my name is Deborah Schwartz. I'm Airport Manager and spokesperson for Little Rock National Airport.

To my right is Bill Flowers, Deputy Airport Manager at Little Rock National Airport, and behind me is Little Rock Municipal Airport

Commission counsel Mark Stodala.

CHAIRMAN HALL: Thank you, and welcome.

And the Little Rock Fire Department?

MR. CANTRELL: Good morning, Mr. Chairman. My name is J.T. Cantrell. I'm Training Division Chief for Little Rock Fire Department.

Clockwise from my left, Mr. Bill Mann, one of our city attorneys, Mayor James Daley. On the opposite side of the table, Chief W.A. Davis, who was Acting Fire Chief the night of the incident, District Chief Larry Tyner, who was the Operations Officer and Site Commander at the incident.

CHAIRMAN HALL: Thank you very much. That completes the introductions.

I want to thank all of the parties, both that participated in the on-scene portion of this investigation and those who are participating in this hearing, for your assistance and cooperation. The parties are an integral part of our investigation, and we appreciate very much your participation.

On January 11th, 2000, the Board of Inquiry held a pre-hearing conference in Washington, D.C. It was attended by the Safety Board's Technical Panel and representatives of the parties to this hearing.

During the conference, the areas of inquiry and the scope of issues to be explored at this hearing were delineated, and the selection of the witnesses to testify on those issues was finalized.

We plan to call 21 witnesses during the course of this hearing. Let me note that some of the parties to the investigation recently asked the Board to call the air traffic controller who was on duty in the Little Rock Control Tower as a witness.

Serious consideration was given to this request. However, we were informed that the controller is under medical care, and it was his doctor's judgment that he should not testify. Therefore, through the end of this hearing, I will entertain written suggestions from the parties for questions to be asked of the controller.

Based on these suggestions, the Safety Board's Air Traffic Control Group chairman or this Board of Inquiry may conduct an additional interview of the controller, if necessary.

Copies of the witness list developed at the pre-hearing conference are available at the Media Table. There are numerous exhibits that will be used in this proceeding. Copies of the exhibits are available at the Media Table for review.

The Safety Board has provided a complete set of exhibits to Kinko's at 1121 South Spring Street, Little Rock, Arkansas. That telephone number is area code 501 372-0775. Copies of the exhibits can be obtained on request and at the individual's own expense.

Please see MrsDargan or MrsBing or any member of the Board if you need additional information or that address.

Also, the hearing exhibits may be found on the National Transportation Safety Board's Web Page. That is found at www.ntsb.gov. I repeatwww.ntsb.gov.

The first witness this morning will be the Investigator-in-Charge of the accident investigation, who will summarize certain facts about the accident and the investigative activities that have taken place to date.

The remaining witnesses will be questioned first by the Board's Technical Panel, then by the designated spokesperson for each party to the hearing, followed by questions from the Board of Inquiry.

As Chairman of the Board of Inquiry, I will be responsible for the conduct of this hearing. I will make all rulings on the admissibility of evidence, and all such rulings will be final.

The record of the investigation, including the transcript of the hearing and all exhibits entered into the record, will become part of the Safety Board's public docket on this accident and will be available for inspection at the Board's Washington office.

Anyone willing to purchase the transcript, including parties to the investigation, should contact the court reporter directly.

In closing, let me say that as I observed in my opening statement, this is an important hearing. I met this morning prior to this hearing with the individuals who are here representing -- the families representing the victims of this crash and the survivors and their families. They are all observers of these proceedings, and we welcome them.

I would like and respect to them and to this investigation that this room, the decorum in this room at all times be appropriate to this hearing. If there are private conversations or other business that needs to be tended to, please take that outside this room. This room will be for

the purpose of this hearing.

We have a large audience. This will be a very long hearing. We intend to be sure, and it may take us into Saturday, but we're going to be sure that we hear from all of these witnesses, that everyone that has a question has the opportunity from these parties, our Technical Panel, the Board of Inquiry, has the appropriate time to ask questions. That may require these proceedings to run late some evenings.

I will try to get, you know, the feel of the various party tables and others in terms of our hours and breaks as we go along, but I just want to again stress if at any time on the break, any of you all have questions about how the National Transportation Safety Board conducts its business or any questions about these proceedings, myself and all the Board representatives are paid for by your tax dollars, and we will be glad to try to respond to you any questions about these proceedings and what is being done because the bottom line of this investigation, it's a function by your American Government to try to find out the facts of this tragedy, working together with the various parties, to take whatever steps are necessary to prevent a similar tragedy such as this from occurring again.

Mr. Berman, have all the exhibits been entered in the public docket?

MR. BERMAN: Yes, Mr. Chairman.

CHAIRMAN HALL: Then, Mr. Berman, please proceed to call the first witness.

MR. BERMAN: I call Mr. Gregory Feith, Senior Air Safety Investigator, National Transportation Safety Board, and please proceed,

Mr. Feith.

MR. FEITH: Good morning. Good morning, ladies and gentlemen. Thank you, Mr. Chairman, for your introductory remarks.

On June 1, 1999, at 2350 Central Daylight Time, a McDonnell Douglas MD-82, operated by American Airlines, Incorporated, as American Airlines Flight 1420, a regularly-scheduled passenger flight from Dallas, Texas, overran the runway, Runway 4 Right, and collided with a localizer antenna and approach light stanchion at the Little Rock National Airport in Little Rock, Arkansas.

The Safety Board was notified of the accident on June 2, about 1:15 Eastern Daylight Time. I was assigned as the investigator-in-charge of this accident.

At 0430, the go team assembled at Ronald Reagan National Airport in Washington, D.C., and departed via the Federal Aviation Administration's Gulfstream 4 Jet for Little Rock.

The team arrived on scene at approximately 7:00 that morning. The Board member on duty at the time of the accident was George Black, and he accompanied the team to Little Rock.

The investigative team consisted of nine specialists from the Safety Board's headquarters. The specialty areas were: Aircraft Operations, Human Performance, Aircraft Structures, Aircraft Systems, Power Plants, Survival Factors, Air Traffic Control, Meteorology, Airport Search-Fire-Rescue, Aircraft Performance.

Specialists were also assigned to conduct the read-out of the digital flight data recorder and transcribe the cockpit voice recorder in

the Safety Board's laboratories in Washington, D.C.

The following organizations were given party status for the on-scene portion of the investigation and provided technical assistance to the Safety Board: the FAA, American Airlines, Boeing Commercial Aircraft Group, Airplane Group, Pratt and Whitney Engines, the Allied Pilots Association, the Association of Professional Flight Attendants, the National Air Traffic Controllers Association, the National Weather Service, the Little Rock National Airport, and the Little Rock Fire Department.

For a history of flight. The accident occurred on the first day of a scheduled three-day sequence for this crew. According to company records, the captain reported for the initial segment at 10:38 Central Time, and the first officer reported at 10:18.

The flight segments commenced at 11:43 from Chicago's O'Hare International Airport and proceeded to Salt Lake City International Airport and then on to Dallas-Fort Worth Airport. The final flight segment of the day was the flight to Little Rock.

Flight 1420 was scheduled to depart DFW at 8:28 p.m. However, the airplane that was planned for the flight to Little Rock was delayed in-bound to DFW because of adverse weather in the area.

According to the American Airlines dispatcher of Flight 1420, using that original airplane, had it been -- that was originally scheduled for the flight, would have caused the flight crew to exceed the contractual crew duty day limit of 14 hours.

As a result, the accident airplane, November 215 Alpha Alpha, was substituted so that Flight 1420 could be conducted.

Prior to departure from DFW, the flight crew received paperwork for the flight that included weather information advising the crew of a line of thunderstorms along the planned route of flight.

At 2240, and these are in 24-hour clock times which would be 10:40, Flight 1420 departed DFW after two hours and 12 minutes of delay. About 14 minutes after departure, the dispatcher sent an ACARS message to the flight crew advising them of both the in-route weather and the weather in the Little Rock area.

The dispatcher's message indicated that the deteriorating weather conditions may be a factor during the arrival at Little Rock, and that "I suggest expediting your arrival in order to beat the thunderstorms to Little Rock, if possible". The flight crew acknowledged receipt of the message.

At 2334:09, the CVR recorded the controller informing the crew of Flight 1420, "We have a thunderstorm just northwest of the airport moving through the area now ... wind is two eight zero at two eight gusts four four ..." The first officer responded, "Yeah. We can see the lightening ..."

At 2334:41, the controller notified the crew to expect an instrument landing systems approach to Runway 2-2 Left, and four minutes later, the controller issued a clearance to descend to an altitude of 3,000 feet and asked the crew, "How is the final for 2-2 left looking?"

The first officer responded, "Okay. We can see the airport from here ... we can barely make it out, but we should be able to make 2-2 ... that storm is moving this way like your radar says it is -- but a little

farther off than you thought."

At 2339:44, the controller notified the flight crew of a wind shear alert at the airport and stated, "The center field wind is three four zero at one zero, the north boundary wind is three zero at two five, the northwest boundary wind is zero one zero at one five."

Shortly after receiving this information, the first officer asked to land on Runway 4, and the controller provided a vector for that runway.

Between 2341:56 and 23425, the flight crew attempted to visually identify the airport. At 2342:26, the controller transmitted to the crew, "... it appears we have a second part of this storm moving through, the winds now three four zero at one six, gusts three four." The first officer acknowledged this transmission.

At 2342:39, the CVR recorded the first officer asking the captain, "Youwanna accept a short approach ... want to keep it tight?" The captain responded, "Yeah. If you see the runway ... 'cause I don't quite see it."

Shortly thereafter, the CVR recorded the crew continuing to discuss the location of the airport, and at 2344:19, the captain said, "... see we're losing it, I don't think we can maintain visual."

At 2344:33, the first officer told the controller, "... there's a cloud between us and the airport ... we just lost the field ..." The controller responded and provided vectors to the ILS approach course.

At 2346:39, the controller notified the crew of Flight 1420 that they were "... three miles from the outer marker ... cleared for the ILS Runway 4 approach right." The first officer acknowledged that clearance.

Approximately 13 seconds later, the controller reported that there was heavy rain falling on the airport, the visibility was less than one mile, and the runway visual range or RVR for Runway 4 Right was 3,000 feet. The first officer acknowledged that transmission.

At 2347:08, the controller cleared Flight 1420 to land and reported the wind as "three five zero at three zero with gusts to four five." This was followed less than a minute later with a second wind shear alert from the controller reporting the winds as "... center field wind three five zero at three two, gusts four five, the north boundary wind three one zero at twoniner, and northeast boundary wind at three two zero at three two."

At 2348:12, the controller reported the Runway 4 Right RVR was 1,600 feet. The first officer acknowledged this transmission. This was the last communication between the controller and Flight 1420.

The captain continued the approach to Runway 4 Right, and at 2349:57, the CVR recorded an unidentified crew member saying, "we're off course". Four seconds later, the first officer said, "we're way off." This was followed one second later by the captain who said, "I can't see it", followed at 2350:06 by the captain saying, "Yeah. I got it."

At 2350:21, the CVR recorded the sound of the airplane touching down on the runway followed by the first officer saying, "we're down." Two seconds later, the first officer said, "we're sliding".

The first recorded sound of the airplane striking the localizer antenna occurred about 22 seconds after the aircraft landed.

Mr. Chairman, I would like to show a video animation that depicts the motions of the flight of 1420 during the last minute of flight.

The airplane motion is based on the data from the DVDR and has select CVR comments annotated in the upper left-hand corner.

So, I would defer to you, if you would like to announce this video, please.

CHAIRMAN HALL: We're going to show an animation that will simulate the final seconds of this flight. If there are any family members or victims or survivors of this event that would prefer not to observe this, I would take a moment for them to exit the room.

(Pause)

MR. FEITH: What you are going to see in this video is the last minute of flight as the airplane is approaching Runway 4 Right. There is a lot of text in the CVR transcript which is not in this video because of the clutter that it would cause, but there are select comments.

I will talk through this video, just pointing out some of the highlights. This video has been used by the investigators as a tool for the purpose of accident investigation but should give you some sense of what the airplane motion was during its last minute of flight.

So, if you could please roll that tape.

(Video shown)

MR. FEITH: And so that there is no mis-understanding, this video does not show any weather, given the fact that it was night conditions. So, the animation does not represent any of the environmental conditions that occurred. Its sole purpose is to show the motion of the airplane.

We have various control positions. You see the control

wheel moving. We also have the spoiler position. We have thrust reverser position as well as engine pressure ratio or EPR, and we also have rudder position.

What this is demonstrating is that the airplane as it approached, touched down, and when the aircraft touched down, it had 5,200 feet of a 7,200-foot runway remaining. The aircraft touched down right of the center line with a significant right drift. There was an over-correct to the left, and as the correction took place, the airplane then exited the left side of the runway.

From the flight data recorder, we understand that there was no braking action until 11 seconds after touch down when there was approximately 3,000 feet of runway remaining.

We also note that the ground spoilers that typically deploy at touch down did not in this case deploy.

Thank you.

The following are a brief synoptic of some of the facts revealed thus far. The captain was a graduate of the Air Force Academy and Michigan State University. He served seven years as a member of the United States Air Force. He was hired with American Airlines in July 1979, but after one year was furloughed for three and a half years. After recall by American Airlines, he flew all three positions in a Boeing 727 and later became a captain on and a check airman on the MD-80 aircraft.

According to American Airlines' employment records, he had accumulated over 10,000 hours as a pilot-in-command and over 5,500 hours as pilot-in-command on the MD-80 aircraft. The captain was

promoted to the position of chief pilot in the Chicago base on January 1st, 1999.

The first officer, who will be testifying in these hearings today, was a graduate of the University of Southern California and entered the United States Navy in 1988. In 1991, he was released from the Navy due to a reduction-in-force and flew corporate aircraft.

In addition to his flying duties, he had been the chief pilot for one company and the Director of Operations for a charter service.

The first officer was hired by American Airlines January 4th, 1999. According to American Airlines' employment records, he had accumulated 4,292 hours of total flight time, of which, over 2,800 hours of that time was as pilot-in-command.

Since his employment with American, the first officer had accumulated a 182 hours in the MD-80 aircraft, of which, 65 were in the last 30 days prior to the accident.

The weather conditions at the airport shortly before the accident were reported as the wind being from 180 degrees at nine knots with a visibility of seven miles, thunderstorms, few clouds at 7,000 feet in cumulonimbus clouds. The ceiling was broken at 10,000 feet. Temperature was 77 degrees Fahrenheit. Dew point was 73.

There was an AWOS, which is an Automatic Weather Observation System, report that there was a thunderstorm that began at 23 minutes after the hour. There was frequent lightening in clouds and cloud-to-cloud located from the west through the northwest. Thunderstorms west through northwest, moving northeast.

Examination by our Meteorological Group chairman and his group members revealed that from the weather data, the Doppler radar images and surveillance video that we received from the airport, as well as witness statements, indicated that there was intense rainfall on the airport at the time Flight 1420 landed.

The intensity of bothhte rainfall and the gusting wind conditions are factors and may have affected the performance of the airplane during the landing roll and will be discussed by several witnesses during this hearing.

The Operations Group examined the flight crew procedures employed during the accident flight in relation to those set forth by American Airlines.

In addition to the flight crew's decision -- in addition, the flight crew's decision to land in the severe weather conditions, the non-deployment of the ground spoilers after touch down, the crew's non-use of auto brakes for the landing on a wet runway, and the use of a higher-than-recommended engine pressure ratio or EPR during reverse thrust operation, which may have affected the direction of control of the airplane on the ground, are all being examined and will be discussed by various witnesses in this hearing.

The Safety Board also found in the investigation that the post-accident emergency response to the crash site was delayed several minutes because the air traffic controller was not immediately aware that Flight 1420 had crashed.

The emergency response was further delayed because the

fire equipment initially traveled to the approach end of Runway 4 Right before realizing that the accident site was at the departure end.

Additionally, the Safety Board is concerned about the non-frangibility of the approach light stanchions struck by the airplane and how this may have contributed to the survivability of the occupants. Several witnesses will testify regarding these issues later in this public hearing.

Some of the post-accident activities that took place. When we were finished on scene on June 10th, there was system and component testing that had taken place over the past six months. Some of these activities, including the component testing, involved the analysis of data that we gathered during the on-scene portion of the investigation.

Further, the issues that were cited by the Chairman as well as those described briefly in this statement will be addressed by witnesses in this hearing that were selected based on their expertise, experience and extensive knowledge of the relevant subjects or issues.

The team will use the additional information to either clarify factual data that we already have that was previously collected during this investigation or pursue additional issue areas, if so needed.

This information will provide the Board a complete factual record from which to make its determination of probable cause and further recommendations.

Before I conclude, Mr. Chairman, I would just like to take a moment to publicly thank the parties and their team representatives for their continued cooperation. It's been seven months of investigative work,

and we've, I think, worked well as a team.

I'd also like to thank the City of Little Rock and the National Airport staff. They've been very accommodating for the investigative team as well as the local hotel people and actually the citizens of Little Rock who accommodated us during our on-scene investigation back in June.

Also, I want to thank the Red Cross and their volunteers who supported our activities under very difficult and stressful conditions. We were out on scene for several days, and the weather, it was very hot. So, they provided a lot of relief to the investigative staff.

Mr. Chairman, this concludes my remarks.

CHAIRMAN HALL: We will get the table changed out for our first witness, and we'll call the first witness. Mr. Meith, if you'll come back and join us.

MR. BERMAN: I call Mr. Michael H.Origel, First Officer on Flight 1420.

Whereupon,

MICHAEL H. ORIGEL

having been first duly affirmed, was called as a witness herein and was examined and testified as follows:

CHAIRMAN HALL: Welcome, Mr. Origel. We appreciate your attendance this morning. I'll turn it over to the Board of Inquiry -- I'm sorry -- the Technical Panel.

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Mr. Origel, would you please state your full name and

business address?

A MichaelOrigel, and I'm based currently in Dallas Flight Academy, Dallas, DFW Airport at the American Airlines.

Q By whom are you presently employed?

A American Airlines.

Q What's your present position?

A Actually in physical therapy, rehabilitation on my leg.

Q And do you -- are you assigned also as a first officer?

A Not at this time.

Q Not at this time. Would you please briefly describe your duties and responsibilities as a first officer at American Airlines as you held it?

A I was a first officer at American Airlines, flying the DC-9. My responsibilities were to assist the captain and to be able to assume command in case the captain was not able to.

Q And would you please briefly describe your education and training and experience that you obtained to qualify you for the position as first officer at American Airlines?

A I graduated from the University of Southern California, entered the Naval Service, U.S. Navy Reserves, released in '91, reduction-in-forces.

I flew privately, flew for a private company, King Aire E-90, and then I started a charter operation and flew charter from 1994 to I was hired at American in January 1999.

Q Thank you. And, finally, what FAA certificates do you hold?

A I have an airline transport pilot certificate with a Learjet type rating and Boeing 737 type rating.

Q And your flight experience?

A 4,000 hours of flight time.

Q Thank you very much.

A You're welcome.

MR. BERMAN: Please proceed, Mr. Tew.

INTERVIEW BY TECHNICAL PANEL

BY MR. TEW:

Q Good morning, Mr. Origel.

A Good morning.

Q I know we've talked several times before, and I, too, appreciate your taking the time to talk with us today.

I'd like to ask you some questions to provide us with a brief overview of the accident.

I understand that this was the first time that you had flown with Captain Bushman. Were you aware of the fact that he was the chief pilot of the Chicago base when you first checked in with him?

A Yes, sir. I had met with Captain Bushman on a prior occasion. As a new hire, we have monthly checks they were supposed to provide on our progress with each of the chief pilots. So, I met with Captain Bushman approximately one month earlier.

Q Okay. Did the fact that he was the chief pilot affect your relationship and interaction with him in any way?

A I don't believe so.

Q Would you have been more comfortable interacting with a regular line check -- airline captain?

A I saw Captain Bushman ran a smooth cockpit, very professional and very informal.

Q Could you tell us what briefing you received from Captain Bushman prior to the first flight?

A In Chicago, after I met with Captain Bushman in the office, I went to the aircraft. When I was performing my pre-flight, he came into the cockpit and gave me a captain's brief on what he expected out of his first officers and what he would like to do in certain cases, in certain procedures.

It was a standard American Airlines captain's brief.

Q Okay. The day of the accident, could you tell us what legs you flew from Chicago to Dallas?

A I flew one leg that day from Salt Lake to Dallas.

Q And the captain?

A Flew from Chicago to Salt Lake and from Dallas to Little Rock.

Q At the time of the departure from Dallas, the flight had been delayed approximately two hours in Dallas. How long had you been on duty at that time?

A I believe I checked in at 10:00 that morning in Chicago.

Q Were you fatigued or tired at the time of the departure from Dallas?

A I would say I was tired but alert.

Q Did Captain Bushman mention that he was tired or fatigued at any time?

A I didn't speak with Captain Bushman very much on the ground. We checked the weather occasionally together, but I didn't really speak to him very much, and, so, no.

Q You have no knowledge of that?

A No, sir.

Q Okay. Did you receive in-route and Little Rock weather prior to leaving Dallas-Fort Worth?

A Yes, sir. As I mentioned, on the ground at Dallas, because the aircraft was delayed, we had time to check the weather and operations. So, we checked it several times.

Q Okay. When you got this weather, was there any concern, and was there any discussion between you and the captain concerning this weather?

A We did see the weather off to the west, moving to the east, but Little Rock was in VFR conditions, and it looked to be able to remain that way.

Q Was there any kind of a briefing concerning the weather at all?

A Well, yes, sir. Captain Bushman -- that's basically what we were talking about, the weather. We saw the adverse weather conditions to the west, moving to the east, but it looked like Little Rock was in visual conditions and was supposed to remain that way.

The forecast that we saw from the terminal area forecast

was that it would remain in VFR conditions.

Q Were you aware of the forecast for convective activity at Little Rock at the estimated time of arrival, and the current in-flight weather advisories which were included in the convective segment and severe weather forecasts?

A Yes, sir. We -- I saw the terminal area forecast, and it remained -- the forecast did call for shower activities and thunderstorms, but the terminal forecast for Little Rock was VFR.

Q So, you weren't -- do -- do you recall the convective segment and the severe weather forecast? There was a severe weather forecast at the time?

A Yes, I remember seeing that, yes.

Q Okay. Was that discussed?

A Yes, sir. On the ground in Dallas.

Q While en route to Little Rock, an ACARS message was sent concerning weather to the cockpit. Could you tell us who sent this message, and what did it mean to you?

A There was a couple --

CHAIRMAN HALL: Excuse me. Mr. Tew, you might explain to -- for the benefit of the audience what an ACARS message is.

MR. TEW: Okay. I was afraid you were going to ask that. I think it's an Air Crew or an Aircraft, I'm not exactly sure which, Aviation Response. It's a -- it's a radio signal that's sent from the company to the -- the aircraft.

BY MR. TEW:

Q Is that correct, MrOrigel?

A It's -- basically, what it is is a printer, and the dispatcher is able to type or dispatch weather or free-text messages to us via a printer on board the aircraft. It's an airborne communication system.

Q Okay. This message you received, --

CHAIRMAN HALL: And this comes from the dispatcher?

THE WITNESS: It comes from the dispatcher. It comes from -- we get ATIS from it. We can get our departures from it. We can get several forms of communication from it.

CHAIRMAN HALL: Okay.

MR. TEW: Yeah. It can provide a number of things.

BY MR. TEW:

Q I'm particularly interested in the one message that was sent about the in-route weather. I believe you know which one I'm talking about.

A The bowling alley message, sir?

Q And that was sent by the dispatcher, I believe?

A Yes. There was two messages actually. There was a segment before that which is a National Weather Service type of message that gives us data on -- it gives us the rough information sent from the MWS.

But the dispatcher was able to very distinctly and descriptively give us an idea of what was going on with the bowling alley message, and it basically described weather to the left and to the right of course, but from our position to the airport was clear from the message.

Q Okay. Did you and the captain discuss this message between you?

A Yes. I received the -- the ACARS machine's off to my right. So, I received the message, read it and gave it to the captain, and we discussed it, and we concurred. We had the radar on the entire time, and what we saw visually and what we saw from our radar picture was that Little Rock was still clear of weather.

Q When the dispatcher sent in this message and suggested expediting your arrival into Little Rock, what did that mean to you and the captain?

A Do not expect any delay -- do not accept any delays, basically don't necessarily let ATC vector us any further than we had to to get to Little Rock. Because of the weather that day, a lot of activity, there were a lot of aircraft being vectored around that night. So, I'm assuming that he wanted us to go directly to Little Rock, and that's what we took it as to mean.

Q Okay. Was that discussed with the captain, that particular statement?

A Yes, sir.

Q What did you do to expedite your arrival into Little Rock?

A Well, it turns out we didn't have to. We were on a direct course for Little Rock at that point, and we just continued straight ahead from -- to the airport.

So, there was no other vectors given that night. There was no delays given, and we were already at our planned mach speed at that

point.

Q Could you tell us what training on the operation and interpretation of airborne weather radar you have received at American Airlines?

A There was classroom discussion on the operation of the radar unit, the basically knobs and switches associated with the radar unit, and then in the aircraft, on initial operating experience, the check airman gave us interpretation of the radar. So, there was two actual -- one classroom and one operational side instruction.

Q Okay. So, you get the -- the actual hands-on in the airplane then?

A Yes, sir.

Q When you received your hands-on, do you recall if you had weather during the flight?

A No, sir. I believe both instances was VFR --

Q Okay.

A -- conditions.

Q What -- how did you discuss it with or how did the check captain discuss it with you then at that point?

A The check man, he can simulate the tilt by tilting the radar down and getting ground clutter and explaining what the cells will look like and how to interpret that information. So, he substituted what he had available at the time.

Q Were you using the airborne weather radar while you were en route?

A In the flight to Little Rock?

Q Yes.

A Yes, sir.

Q Could you tell us what -- what did you see on the radar screen while you were en route?

A We concurred with the dispatch messages about the weather to the left, and we could see the weather moving off to the east, and we didn't depict any colored areas, other than green, which indicated cells but light cells.

Q Was this airborne weather radar being used during the descent --

A We had -- we had the radar on the entire time.

Q Okay. Who was operating it?

A Both the captain and I were operating the radar.

Q Could you tell us, what did you see on the radar during the descent into Little Rock?

A The descent, I remember seeing the activity on the radar, and on the descent, we actually were able to see the city lights of Little Rock. So, it's fair to say the radar was working, but our route from where we were at that point to the airport still looked like we were able to continue the approach without maneuvering or hit -- or going -- we were able to avoid weather at that point.

Q Okay. Was there weather depicted on the radar during the descent?

A Yes, sir.

Q Did you discuss it among yourselves, the two of you?

A I don't believe -- I believe we -- we were looking at the radar. We were both manipulating it. I don't remember exactly what we said, but there were several conversations, and after reviewing the cockpit voice recorder, I know we were talking about avoiding weather and making reference to the weather out there in front of us.

Q Would you describe what you saw on this airborne weather radar while you were on the approach?

A The final approach segment?

Q Yes.

A I believe my focus from the time we turned final to touch down, I picked up the airport, and my focus was basically on the visual conditions, that I was able to see the airport on the final in-bound, and I don't really recall what the radar was showing at that point.

Q Did you receive the ATIS for Little Rock?

A Yes, sir.

Q When the controller on the ATC transcript -- Page 1, if you need to look. I don't think you need to, but it's there if you wish.

When the controller mentioned a thunderstorm moving through the area and later said, "It appears we have the second part of the storm moving through", what did you visually observe of the weather at this time?

A We could see the activity, if you will, lightening, off in the distance, and we still had the city lights, but I didn't know what the relative position was, and the radar concurred with our visual picture that we were

able to see the field, and the approach still looked -- we were able to make it without -- with being able to avoid the weather.

Q So, you were able to see the weather on the radar then?

A I believe so, yes.

Q Could you describe what that weather looked like? Do you recall?

A I believe -- no, I -- I -- in all honesty, I -- all I remember seeing is the weather on the approach. What segment are we talking about specifically? Because there are several segments here.

Q This is -- this is when you were in the descent.

A Okay. On the descent, the weather was to the left and moved off to the right, and the field from our position looked clear.

Q The controller gave two reports of wind shear during the descent and the approach.

A Yes, sir.

Q What concern was there by you or the captain of the possibility of wind shear during the final approach or during landing?

A It gave us a heightened awareness of the possibility of receiving a wind shear warning, but at that point, that was a wind shear alert, and the captain made the adjustment on his final landing speed by increasing the speed to 20 knots, which is procedure.

Q Okay. So, then you increased to 20 knots. That's kind of planning for it.

Did you brief this at all, the increased awareness or anything like that?

A Well, the captain mentioned gear up plus 20, and I concurred.

Q What training did you receive at American concerning wind shear and operations into areas of suspected wind shear?

A We had classroom discussion and in the simulator on our landings and take-off sessions. We saw the phenomenon of what it can do to our -- the landing and the approach and the fluctuation in air speed and vertical speed. So, there was classroom instruction and simulator instruction.

Q Referencing the CVR transcript again, there were two statements in there. One was, "We've got to get over there quick", and there was a second one where the captain said, "I don't like that. That's lightening."

What message was trying to be conveyed in the cockpit at this time?

A When the captain made the comment about "that's lightening", no pilot likes lightening, and it was off to the distance, and we could see the weather, and it just went to our mindset that we're going to have to land as soon as practical, and if we had a delay or other vectors, we wouldn't be able to continue the approach.

Q There was no concern about flying into --

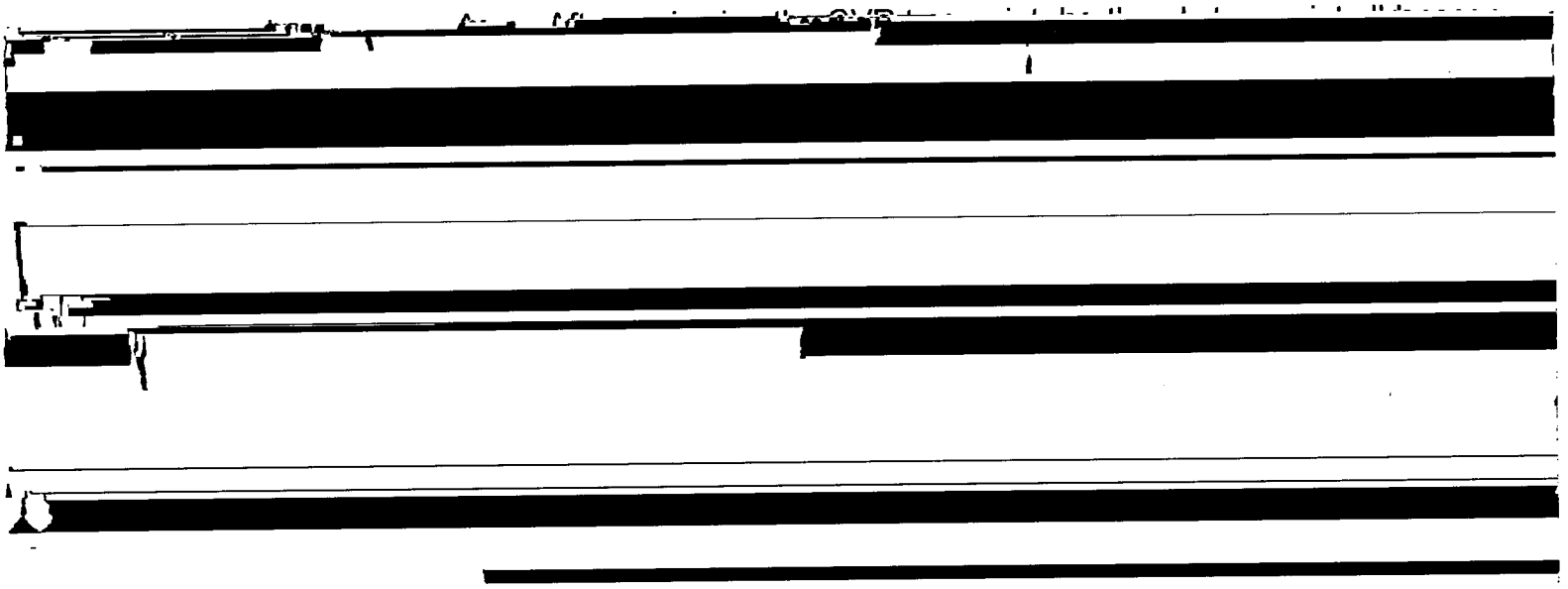
A Excuse me?

Q There was no concern about flying into the lightening and the weather there?

A We never flew into lightening. We would never fly into a

thunderstorm.

Q Reference the CVR transcript again, do you feel that the captain had the airport in sight well enough to perform a visual approach?



like to make here. The first one is after the incident, what I recall is I had the field from the time we turned base to final and all the way down the runway, and I realize now that the captain may have lost the airport in sight, but I don't remember those comments.

Q You were initially planning for an approach to Runway 2-2 Left?

A Correct.

Q What was the reason for the change to 4 Right?

A The wind shifted, and the winds were favoring 4 Right.

Q Okay. When you were descending into Little Rock, they gave you the winds, and -- and the tower reported the high crosswinds relative to the runway which is why you changed runways, you said.

A Correct.

Q How did you or the captain ensure that you conformed to the crosswind limitations in the manuals?

A Well, we know what the crosswind limits are, and we used basically a crosswind reference tool that is very close in proximity to the

A Well, the crosswind training at American Airlines is via the performance manual.

Q Did you reference your manual or did the captain reference his manual or did he ask you to or --

A Not at this point, no, sir.

Q Did you brief or plan for the crosswinds, either one of you?

A Yes, we did. Once we heard the runway conditions, that restricted our crosswind limit to 20 knots, and we reduced the crosswind limit at that point for us to 20 knots.

Q Was there any concern among you in the cockpit concerning these high crosswinds?

A I would say we were -- I was alert and concerned, but these are conditions I've encountered before, and I'm sure Captain Bushman has as well.

Q Did you voice your concern to the captain?

A I don't recall exactly what I said.

Q Do you recall what his response was?

A No, sir, I don't.

Q Regarding the wet runway crosswind limitations and the restricted visibility crosswind limitations, how were they discussed or briefed?

A The crosswind limitations for reduced visibility was not discussed, and we were in visual conditions, and I think this might be a prudent point for me to make, a point that I truly recall, and after reading the transcripts and after looking at the data, I realized that it may not

seem plausible, but I really recall from the time I took off from Dallas, we took off from Dallas, to the time we were on final, I don't remember ever penetrating a thunderstorm or a cloud or weather.

We were in visual -- VMC conditions, not that we had VFR cloud clearances, but we were in visual conditions, and, so, the reduced visibility limits weren't discussed. We could see the runway, and the RVR reports that we received didn't concur with what we were seeing.

Q So, what you're saying is that you saw the airport?

A Yes, sir, and they didn't apply.

Q Because, as you know off the CVR, there were several statements where the captain apparently didn't.

What training on these crosswind limits did you receive at American?

A There's classroom instruction and then the simulator on landings and takeoffs again when we go over the crosswind limits.

Q During this approach to 4 Right, what was the crosswind limit for the landing on -- on the runway?

A I believe we were using the 20-knot crosswind limit.

Q I'm sorry. I didn't hear you.

A The 20-knot crosswind limit.

Q Would the 1800 RVR have come into effect?

A No, sir. We didn't -- we -- I had -- we had visual or I thought we had visual.

Q The controller gave you 1600 RVR. Does that -- does that come into effect as far the decision as far as the landing limits with

American?

A Which limits are you referring to?

Q The reduced visibility crosswind limits.

A As I mentioned, the data that we were seeing didn't concur with what the controller was giving us, and I don't remember discussing it with the captain, but I don't remember using that -- that limit.

Q Okay. He didn't -- did he discuss it with you at all?

A No, sir.

Q Okay. Was there any other discussion in the cockpit concerning the winds after that first initial time when you added 20 knots?

A I don't recall.

Q Could you describe the weather conditions as they appeared when you were initially approaching the airport, during the decision to change from Runway 2-2 Left to 4 Right, and while on final approach for us?

A The weather conditions?

Q Yes.

A Rick had mentioned -- Captain Bushman had mentioned that he had the -- the field in sight, I believe, on his side, and we were given the winds, and we decided to request Runway 4 Right. The controller gave us a turn to the downwind for 4 Right, to the right.

At that point, we were heading south, and I believe there was weather in front of us, and I mentioned that on -- to the captain, and I think the captain makes reference to it, and there was weather, and it was on the ATC transcript as well, the weather between the airport and us,

and we lost visual conditions with the airport at that point.

Q Right around the airport, was there any weather that you could see or was it further off or could you describe what you saw there?

A We were heading south at this point on the downwind, and we could visually see and the radar concurred with weather in front of us and off to the west, approaching the airport. We -- we weren't pointed in that direction. We couldn't really see anything at that point to the -- to the west.

Q How about when you turned back on final, back towards the airport? What were you seeing there?

A The -- I had the cloud off to my right or the weather off to my right that I -- that I reported to ATC, and he vectored us right around it. So, we remained in the -- we remained clear of clouds at that point, and then I focused in on the airport as I picked it up, completing the base to final turn.

Q Is an approach briefing required for all approaches?

A The captain's required to -- the pilot flying is required to give an approach briefing, yes.

Q If you wish to reference Exhibit 2K --

A Excuse me.

Q -- or 2 Kilo maybe.

A Yes, thank you.

Q Could you tell us --

A What page, sir?

Q I'm sorry?

A Okay. I've got it. Yes, sir.

Q Could you tell us what the required items on the approach briefing for visual approach would be?

A For a visual approach or an ILS,believe at that point, we briefed the same procedures. We -- we still brought out our approach plate, and we still -- I briefed the applicable points that we would use and need on the approach. So, the briefing is still valid for a visual.

Q Okay. In this case, what would that be the required procedure off this list for the approach you were doing?

A Well, 4 Right, the facility, the frequency and the final approach course, the airport elevation, the decision missed approach chart -- missed approach procedure.

Q Who is responsible for the approach briefing, and when is it done?

A Prior to the approach, and the pilot flying is responsible.

Q Did Captain Bushman do a briefing for this runway?

A He -- no, sir. He -- prior to starting the descent, Captain Bushman and I, we both thought we were landing on Runway 2-2. So, he briefed Runway 2-2.

On the descent, when we learned of the headwinds for 4 Right and changed -- requested that runway, we -- I -- excuse me. I briefed 4 Right after I got it out to assist the captain because he was flying the aircraft at that time.

Q I understand that Captain Bushman was the flying pilot, and you say he briefed you for Runway 2-2 which you were initially going to, is

that correct?

A Yes, sir.

Q Did he provide a full briefing for that runway or --

A I believe so. I can't remember entirely at that point -- this point. Excuse me.

Q Were any additional items covered in the approach briefing at Little Rock, other than the required items?

A When he made the bef at 2-2? Is that your reference?

Q For 4 Right. I'm sorry.

A For 4 -- I did the briefing for 4 Right, and I briefed the pertinent points, and Captain Bushman talked about the 20 knots, and he did increase thevero speed to 20 knots. So, I would say he did include those two items.

Q Do you feel that your preparation for the approach to Runway 4 Right was adequate?

A Given the information that we had at the time, I believe so.

Q Was the preparation for the approach in accordance with American Airlines' procedures?

A I believe so.

Q Who's responsible for calling for checklists?

A The pilot not flying will perform the -- what checklist are you referring to, first?

Q The descent before landing.

A The descent before landing, the pilot not flying will ensure that both items -- both checklists will be called out.

Q Were the descent before landing checklists called for and accomplished?

A The descent checklist was accomplished, and the before landing checklist was accomplished, but I don't believe we heard it on the CVR tape, and I can't recall specifically when the completion of the before landing checklist was complete, around the time before you do flaps, and that's what I recall of the last item being checked.

Other than the enunciator light, which is a light on the panel, that checklist was being performed in a compressed time, and it was very compacted at that point, and I don't recall making -- I don't recall the statement. I don't remember at that point, but I do remember making the 40 flap call, and that is one of the last items.

Q Okay. The CVR recorded you stating "we're getting pretty close to this storm, we'll keep it tight, if we have to", and the captain stating, "we're going right into this".

Could you tell us what you were seeing at that point, and what you were doing reference these statements?

A Was this on downwind? I believe.

Q Yes.

A On down -- as I mentioned, there was weather on downwind to the south, and it was -- and if we continued at our -- this approach, on downwind, we would go into the weather at that point.

So, we made the comment on Rick made the comment to keep it tight -- I believe he made the comment to call for a base or I made the comment, and we talked to the control tower at that point for a tight

turn.

Q When the controller advised you that the RVR was not 1600, where were you in relation to the localizer and the outer marker?

A When we made that turn, I believe we just passed the marker, and I made the comment "1600", and Rick makes the comment "we're inside the marker". I said, "Good point", and we continued.

Q Were you established on the approach?

A I believe so.

Q What is American's definition of being established on the approach?

A I would list the stabilizer approach at a thousand feet, landing configuration, in an on position, to make a landing.

Q On the localizer on board with the glide slope?

A Yes, sir. On an ILS, yes, sir.

Q Was there any discussion in the cockpit about possibly diverting to another airport?

A I -- at this point, I don't recall. Prior to departing, we talked about the alternates.

Q Was there any discussion in the cockpit about possibly delaying the landing?

A At this point, I don't recall. I just remember there was alternates discussed, and we talked about the weather at that point.

Q What training or guidance did you receive at American concerning a decision to abandon an approach?

A I believe it revolves around the stabilizer approach theory,

that on an ILS or VFR visual approach, in the landing configuration, your stabilized sink rate is somewhere between 650 and 800 feet per minute sink rate. You're in the normal position to continue the approach, and if you -- and you're on speed.

If your speed fluctuates, if your sink rate is excessive, if your deviation's left or right of course, move you out of a stabilizer approach parameters, then you don't meet the stabilizer approach definition. Therefore, you should go around.

Q Who can call for abandoning the approach?

A Either pilot.

Q Did you call for a go-around at any time?

A Yes, sir, I did.

Q Did the captain respond to this?

A He responded -- I don't remember what he said verbally. Apparently from -- after reviewing the CVR, after I made that comment, it sounds like after reviewing the tape, you can definitely hear the go and the around. It seems like he talked at the same time I did, and I looked over at him, and he was -- he brought the airplane back on course, back on center line.

Q So, he didn't respond to you verbally?

A Not verbally, but by him bringing the airplane back on course, I believed he -- he heard and responded that way.

Q During a previous interview, you stated that both you and the captain knew the runway was wet. What discussion was there between you and the captain concerning the fact that the runway was

wet?

A Well, that goes back to the time-out limitation on crosswinds, and when the controller made the comment, there's rain on the field, we reduced the -- we had a discussion between ourselves in the cockpit about reducing the crosswind limit from 30 to 20 knots.

I actually was confused at one point. I -- I asked -- said 25 because I know on a Cap-2 and Cap-3 approaches, there's different limitations, and Rick was confident it was 20, and that's what it --

Q Did you get the book out?

A I -- I did get the book out, but Rick signaled me to put it away. He knew what it was, I believe. That's what I took it to mean.

Q Did he get his book out?

A No, sir, he did not.

Q What special procedures for landing with the wet runway does American have and train on?

A Again, on landings, takeoffs and landings, we practice wet runway procedures, and we use a maximum reverse EPR of 1.3, unless the number's in the situation.

Q Were the wet runway procedures covered in the landing briefing?

A No, sir.

Q Does American's procedures require wet runway procedures to be included in to a wet -- to a briefing, approach briefing?

A I don't recall. They -- I believe it's up to the captain -- the -- it does say on the approach briefing that we can brief additional items.

So.

Q Had you ever covered -- covered that or seen that covered in a briefing in the short time you were with American?

A No, sir. I don't remember. I don't recall.

Q Okay. Reference Exhibit 2M and 2N, 2 Mike and 2 November, --

A Yes, sir.

Q -- how is the before landing checklist accomplished, and by who?

A The before landing checklist is a pilot not flying challenge and response and moving the mechanical checklist toggle associated with that item. The pilot not flying will assure that item has been accomplished, will challenge or respond on its accomplishment and move the toggle.

Q So, the pilot not flying does the checklist?

A The pilot not flying reads the checklist. Yes, sir.

Q Okay. Which items on there would be -- does he respond to the items, too?

A The pilot not flying -- no, sir. The pilot not flying will basically challenge and respond himself.

Q Are there any items responded to by both pilots?

A During the descent checklist, both pilots will concur and confirm the landing altimeters, but they are reset and cross-checked.

Q How about the before landing checklist?

A I don't believe so. No, sir.

Q There's no items on the before landing checklist that are accomplished by -- that are responded to by both pilots? You've got -- I think you have it there in the before landing checklist.

A No, sir.

Q But the gear?

A Excuse me?

Q What about the gear?

A Well, the captain --

Q Okay. What are American's procedures for the selection of brakes, manual versus auto brakes?

A It's the captain's discretion.

Q Is there any guidance given by American to help you in your choice?

A There is quite a bit of talk on the techniques in the environmental section of the manual, but I believe it's -- it's really up to the captain's discretion on which he chooses. I've interpreted it that way, after reading the manuals.

Q According to American's procedures, who is supposed to pull the spoiler lever upward arming the spoilers?

A Prior to touch down?

Q After the gear is down, you arm the spoilers. Who is supposed to pull the spoiler lever upward arming the spoilers?

A What I recall, I believe either pilot can arm the spoilers.

Q Is this how you were trained when you went through American?

A In all fairness, sir, I've been out of training for one year, and I don't -- I mean it -- I'd been on the line for three months at that point, and I don't recall exactly all the training issues.

But I have read, I have tried to recall a lot of this material and training that I received, and I believe in training, the pilot not flying would actually do it, but I'm not a hundred percent certain.

Q How's it normally done on the line? Do you recall?

A Well, on the line, the captains almost always arm the spoilers because of the proximity of where they are to the captain's seat.

Q On the before landing checklist, is spoilers an item that requires a confirmation by two pilots or just --

A No confirmation was required.

Q Just -- just the non-flying pilot confirms it himself?

A Correct.

Q Who armed the spoilers on the accident flight?

A I believe after the gear was down, Captain Bushman armed the spoilers.

Q Did you call-out that the spoiler lever was armed?

A I don't believe so, sir.

Q What do you know about the effects of the spoilers not extending on landing?

A It does increase your landing roll-out.

Q Were these effects discussed or trained at American?

A Yes, sir.

Q On final approach, were the flaps set at the final flap setting

prior to a thousand feet?

A I don't believe so. I believe what I -- at that point in time, we were turning base to final. Rick had armed the spoilers. I looked down to confirm the checklist and make sure we were getting everything. I noticed the flaps were at 28, and my thousand-foot call-out, it was -- it all happened at the same time, and I asked Rick if he wanted 40 flaps.

Q What's the American's normal procedures for when they should be set?

A Established on an IFR or an ILS by a thousand feet.

Q Describe any instruction or training at American concerning the definition of a stabilized approach.

A Well, I was discussing that earlier, about the concept of final approach segment, landing configuration, sink rate 650 to 800 feet per minute, descent, on speed, and in a normal position to continue the approach to make a landing.

Q What were you trying to do when the approach was no longer stabilized?

A I can't remember -- can't recall any specific discussions, but on an unstabilized approach, you have to go around.

Q Did you feel like the approach was stabilized at all times?

A The only time that I felt uncomfortable was when I made the go-around statement, and Captain Bushman brought the aircraft back.

Q Was the aircraft continuously on the glide slope and on the localizer?

A I believe the glide slope, but not the localizer. We were

drifting, and that's where I had one indication that we were drifting off to -- I said we're off, and then I said we're way off, and I made the go-around.

Q What did the flight instruments indicate at that time?

A That we were drifting to the right.

Q About how far? Do you recall?

A No, sir.

Q Did you inform the captain when you noticed you were drifting to the right or did you say anything to him?

A I said, "We're off".

Q Reference the CVR transcript, at about 30 seconds before touch down, someone said, "We're off course", and then you said, "We are way off."

Describe to us what these statements meant to you.

A We were on the final approach segment. We were -- I made -- I believe I made my -- my call-outs. I was monitoring the instruments. I was looking inside and outside. I saw the aircraft drifting right, and as it continued to drift right, I believe one third of the dot's a call-out. If it's -- goes beyond that, I called out "We're off", and we continued, and then I said, "We're way off".

Q What were you seeing out the window at that time?

A I believe I saw the -- we're on final. The right-hand side runway lights was drifting to my left.

Q Can you -- is this the point where you said you said "go around"?

A Yes, sir.

Q Did you feel any reluctance to speak up during this flight due to the fact you were a new hire who was flying with a chief pilot?

A No. I felt pretty comfortable with Captain Bushman at this point, and I was more concerned about the flight, and, so, I basically spoke my mind at that point.

Q After touch down, according to American's procedures, what call-outs are made concerning the spoilers and reversers?

A There is no call-out regarding the spoilers, and the reversers is -- we're confirming that the thrust reversers are actually working normally. So, we're calling out the blue lights and the amber lights, confirming that the spoiler buckets are unlocked and operating.

Q Okay. You said there's no call-out for spoilers.

A No, sir.

Q How about if they don't extend?

A No, sir. No call-out.

Q What is -- what's American's procedures to do if the spoilers don't extend?

A The captain will manually deploy the spoilers.

Q Did you look at the spoiler lever to see if the spoilers had extended automatically?

A I -- I've had a lot of time to think about this issue, and, unfortunately, I can't remember exactly what position they were, but in all fairness, when we touched down, and I made that comment "We're sliding", it felt like we were hydroplaning, and I was not in a comfortable position in my seat as I'm sitting here, and I was being thrown around a

little bit.

So, when I was being tossed around, I did look out the thrust reverser handle and the quadrant. I could see Rick going to reverse thrust, but I don't remember the position of the spoiler handle.

Q According to American's procedures, what is the engine pressure ratio or EPR power setting during reverse procedures on the dry runway?

A On a dry runway, it's 1.6 with an overshoot to 1.8 back to 1.6, and I -- I kind of misspoke. There is a call-out on the landing roll-out. When you decelerate under a hundred knots, then you call out 80 knots and stow thereversers by 60 knots. So, that is a call-out on landing roll-out. But we never got to that point.

Q Thank you. According to American's procedures, what is the engine pressure ratio oEPRs again power setting for a landing on a wet runway?

A 1.3.

Q Describe your training on this procedure, the wet runway procedure, at American Airlines.

A It was again in the simulator, landings and takeoffs. We saw the effect of going in the reverse thrust and the possible -- I believe it was the rudder-braking issue came up a few times, and that's what we really discussed, and why the reason of the 1.3 is. But beyond that, I don't remember specifically.

Q Okay. I'm going to get into the rudder braking in a second, too.

After touch down, what were the EPR indications when the captain first went into reverse?

A I remember looking at the indications and call -- I don't know if I made a call-out, but I remember a 1.8 and a 1.6, respectively.

Q And you don't remember making a call-out then?

A I don't remember making a call-out.

Q Is that a required call-out?

A No, sir. It's just a habit, what you're looking for.

Q How about if it -- it would be a call-out if it exceeds the normal setting?

A Excuse me. I don't -- I don't know if it's a call-out.

Q Okay. Reference Exhibit 2KK, 2 Kilo, --

A Excuse me. Thank you. I have it.

Q Okay. Do you recall information in the manual that stated that as reverse thrust continues above 1.3 EPR, rudder effectiveness decreases until the rudder provides no control at about 1.6 EPR and 90 knots?

A That was discussed in the classroom.

Q Did you receive any training on this?

A I -- I can't remember receiving any training.

Q After the touch down, on the CVR, you said, "We're sliding".

A Yes, sir.

Q Could you describe to us what you saw and did from the time you started sliding?

A We touched down firm and flat, and I remember the nose

being cocked off to the left of center line when we touched down, and the sliding comment just refers to what I believed, we were hydroplaning. We didn't have control of the aircraft, directional control of the aircraft, and Captain Bushman went into reverse at that point.

Shortly after that, we -- I felt the sensation of being tossed around, if you will, from right to left, and I don't remember exactly the sensations of -- of the G forces and what was actually going on inside the cockpit.

I just remember not being able to sit in my seat, and I was shifting. Rick went into thrust reverse, and then, shortly after that, he came out, and for a little bit, I mentioned earlier that I thought he may be thinking about going around to get out of there, but after that, he went back in the thrust reverse, and he was, what I would describe as, manipulating the thrustreversers.

Around that time, in earlier interviews, I described this sensation of being controlled from the tail or a tail slap sensation. We continued sliding, and it felt like we went off the left side of the runway or to the left side of the runway, and at about that time, Captain Bushman got control of the airplane or felt he was getting control of the airplane, and then we ran out of runway.

Q Did you feel yourself slowing down at all?

A No, sir.

Q You just mentioned that the captain came out of reverse. Could you describe the captain's actions, including that from the time the airplane began to slide until it went off?

A I can't remember it specifically. I just remember distinctly him coming up, going into reverse, coming out of reverse, and I don't think it was simultaneous, and I don't remember exactly, but I just remember the manipulation of the thrust reversers, and then at one point, after this manipulation, he went back into reverse consistently, and then it happened very quickly. It went off the end of the runway at that point.

Q Okay. You just said manipulation of the reverse. Are you meaning -- what are you meaning by that?

A Well, I -- I just saw his hands around the throttle quadrant, the reverse throttle quadrant, and I don't remember exactly what the motions were, but it wasn't one smooth continuous reverse thrust all the way down the runway.

Q What have you been taught at American concerning hydroplaning or skidding, and did you receive any training on this?

A I can't remember the training we really received, but I remember discussion about hydroplaning, stay on the antilock brakes, don't pump the brakes, stay on the brakes.

Q Now, one question just given to me. Did you feel you were on a visual approach?

A At the point that we turned base to final, I thought we had -- I had the airport in sight, and I thought Captain Bushman had it in sight, but we never called for a visual, and we had our instruments tuned. So, it's something that I -- I -- I had visual at the airport.

Q Did you use the windshield wipers?

A Yes. Captain Bushman called for the wipers, and the rain

stopped, and I turned them off.

Q What setting did you turn the wipers on?

A I -- I don't remember. In fact, I think I turned mine on first, and then I realized he needed his. So, I went to turn his on, and then the rain stopped, and I turned it off.

Q Okay. Well, I appreciate your coming here and answering these questions. I know it's a very traumatic event.

Thank you, Mr. Origel.

MR. TEW: Mr. Chairman, I have no more questions.

CHAIRMAN HALL: Thank you. Before we pursue with the parties, we will take a break of about 15 minutes, and, Mr. Origel, we will continue with the questions from the parties and then this panel as soon as we return, and be sure Mr. Origel can get off the side there where he can take a break as well.

THE WITNESS: Thank you.

CHAIRMAN HALL: We'll stand in adjournment for 15 minutes.

(Whereupon, a recess was taken.)

CHAIRMAN HALL: We will reconvene this hearing of the National Transportation Safety Board. We will continue with the questions from the Technical Panel.

Let me note that Mr. Haueter has now arrived from Washington, D.C., and taken his position on the Board of Inquiry, and welcome him, and some of our other staff have arrived as well, and Mr. Feith is now back where he appropriately belongs at the Technical table,

and I would ask the Technical Panel if there are additional questions of this witness.

MR. FEITH: Yes, sir. I have a few follow-up, and I know that Mr. Eick does, too.

CHAIRMAN HALL: Okay. Well, please proceed.

INTERVIEW BY TECHNICAL PANEL

BY MR. FEITH:

Q Thank you, Mr. Origel, for -- for being here today. We appreciate it. I know that this is a difficult situation, and the questioning is sometimes a little bit intense, and recall is difficult.

I just have a few follow-up questions to some of the answers that you gave Mr. Tew.

In regards to the dispatch message that you received on ACARS referring to the bowling alley, is this a common term or a phrase that -- that is used between flight crews and -- and that of the dispatchers at American?

A No, but -- excuse me. What the dispatcher was doing was describing free-text the weather conditions on the prior message, which was the SIGMEC, and the SIGMEC is rather long, and you have to look at way points and VORs to figure out the thunderstorm area, the box, if you will, and through a free-text message, he was able to articulate very clearly what the message prior meant.

I wouldn't call it a normal or proper phraseology message, but it's a descriptive message that dispatchers sometimes use as a tool to get their message across to flight crews.

Q And just following up on that, that other part, where there was a bit of a sense of urgency to try and expedite your arrival, as far as that's concerned, is it typical of the dispatchers to provide such information to get you on the ground or is that still a decision that's left in the cockpit, I mean, as far as influencing your decision or the captain's decision to continue the -- the approach in this case, given the weather conditions?

A The captain has final authority of the aircraft, and any information that's given the captain is for his judgment to use how he wishes, and I believe that the dispatcher was just trying to convey a sense that there was weather off to the west, and as I mentioned, Rick and I believed the message tried to convey do not accept any vectors or unnecessary delays.

But it was the captain's decision to continue and to disseminate the information as he -- as he chose.

Q But as far as influencing you as a crew, because it's two of you there making a decision to continue the approach, given your status as the first officer, and you said that you were comfortable with the captain, did you feel comfortable given the fact that you were looking out the window, you had acknowledged between the two of you that there was thunderstorms moving across the airport that was reiterated by the controller that the storm had moved over the top of the airport?

All of these things, when you look at it with that type of message and the decision to continue, I mean what was it that may have influenced or put you over the edge to continue that approach versus

abandoning the approach, given the level of information you had?

A Well, that's what's -- it's a good question that we've been thinking about, and it really revolves around the information that we had didn't concur with what we were seeing.

In other words, the free-text message, the bowling alley message specifically, described what we were seeing, and the radar was showing the line to the west and to the east, and the airport from our position was clear of thunderstorm activity.

The tower made a note in a transmission that weather moving from the airport north to northwest, I believe, and I -- after reviewing the transcripts, but the information we had and the level of activity we were seeing didn't necessarily concur, and as I mentioned in one of the transmissions, the weather seemed to be farther off than what the tower had thought.

So, given our past experience, I've been in weather situations that are similar, and I thought it was a situation that was -- needed our attention, to be alert and to be cautious, but I believed it was at that point acceptable to continue the approach.

Q What kind of radar do you use in the airplane? Is it color weather radar?

A Yes, sir.

Q Do you recall what you saw on that radar as far as color bands in determining that the thunderstorm was in the proximity of the airport?

A We had -- well, to go back, and basically from right after the

accident to this point, I never remember seeing red or high-intensity weather, other than green cells, and none of them over the airport.

Q Does American have a policy regarding flight in and around areas ofconvective activity?

A I don't recallthe exact policy, but no crew member would ever -- is supposed to go through thunderstorms or microburst activity. You just avoid those. You just avoid that kind of activity.

Q But American doesn't have a policy that says if you know that convective activity exists, that you want to stay three-five-10 miles away from that activity?

A I don't recall, butconvective activity is a rather broad -- we have convective activity quite a bit in the United States, and it's a warning to pilots to be alert, but I don't recall a specific policy describing a parameter to avoid.

Q How far would you say you were away from the cell that you saw the lightening in?

A I -- I don't want to guess and be inaccurate, but I just remember from our position at the time we saw the weather, I believe Captain Bushman made a PA to the passengers at that point. That's what made -- prompted me to give the tower a call about the lightening, and it was off in the distance, and I'd be very -- I'd just be taking a guess, but I knew it was moving in our direction.

Q And I know that you've had the opportunity to talk to Mew on several occasions with the group, and, so, pardon my -- my redundance if some of this may come up. I'm just trying to establish.

We're talking about convective activity. We got a report from the air traffic controller now that there's a heavy rain shower moving across or thunderstorm moving across the airport.

A Yes, sir.

Q Is that considered convective activity for you?

A I would say it's convective activity in the sense that it's -- it's weather. It's -- it's raining, but there's no procedure to -- to leave the -- I mean I don't recall receiving a convective weather report at that point. He said heavy rain on the field, but I don't really recall a procedure or parameters to use in those cases.

Q One of the things that I noticed in the transcript that you had already talked to Mr Tew about this morning, and I think in previous conversations, was the fact that you never lost sight of the air field.

However, there is a comment that you made with regard to sighting of the field and the fact that you "had lost sight of the field" when you were reporting to the air traffic controller -- when you were reporting to the air traffic control that, you know, you had lost sight of the airport.

What -- what was the reference made as far as that was concerned since you've told us that you never lost sight of it?

A Well, there's a couple segments in here, and I believe I mentioned that from the final approach when we turned base to final to touch down, I did not lose sight of the field, of the airport -- of the runway.

But prior to that, on the downwind, when we were actually performing a visual approach to Runway 4 Right, we were continuing, and we were about to make the base turn visually, and a cloud moved

between the field and us. So, I lost sight at that point, and at several points prior to that, Rick -- when we were approaching the air field, Rick had mentioned he had the city lights and had the field, and then we went over the top, and I -- we lost the field, and we had ground references, but in reference to weather reports, the only time I lost the field or -- excuse me -- the only time that weather was influenced or had me -- was -- I wasn't able to see the field at that point was because of that cloud between us and the field. Excuse me.

Q Captain Bushman was flying the ILS on -- on the final approach?

A I -- yes, sir.

Q And your -- your view was inside the cockpit monitoring glide slope and localizer or outside the cockpit?

A I was using -- I was inside and -- and outside. I was cognizant of the weather outside, but I was monitoring inside.

Q And I know that you may have answered this question, but you made the comment, "We're way off". What -- what was the reference to? Was that something you saw out the window or something you saw in the cockpit?

A I -- I believe it was the ILS HSI, horizontal situation indicator, that I was monitoring at that point, and I looked up, and I did see the runway lights at that point. I don't remember at what point in the approach or what point in the deviation that I made those comments, but it was -- in my mind, as I sit here, it was actually two indications that we were moving off course, the HSI and the runway.

Q Did it ever cross your mind at all to intervene when the captain, right after you made that statement, "We're way off", the captain made the statement, "I can't see it"? Were you concerned at any time, and had you thought about intervening?

A I -- I didn't hear that comment, "I can't see it", and -- and when Mr.Tew visited me in the hospital, and now that I read the -- these transcripts, there's a lot of comments from the captain that I don't recall.

Q With regard to the final segment of flight, where the controller had provided a fair amount of wind information, given the fact that there had been some earlier discussion by you and the captain regarding the crosswind component and how much was acceptable, --

CHAIRMAN HALL: Excuse me. Now, I -- gentlemen back in the corner, we're not going to be doing television interviews during this proceeding in this room. So, you take your equipment and move it out, please, while we wait.

I made that announcement. This room is for the purpose of this proceeding. It's not a television studio.

(Pause)

CHAIRMAN HALL: Proceed.

BY MR. FEITH:

Q Let me just go back. You had been provided quite a bit of wind information regarding the changing wind conditions and in fact a couple of wind shear alerts --

A Yes, sir.

Q -- almost all the way down to touchdown by the controller.

A Yes, sir.

Q Given the fact that there had been some earlier discussion about the maximum crosswind limits for this particular operation, and the fact that in the procedures as we see them and the limitations that are in the manual that are basically driven by visibility, did -- did you ever think about pulling the manual out to just validate --

A Well, as I mentioned, --

Q -- the --

A -- on the downwind, when the heavy rain comments was made by the controller, I was concerned, and we actually -- the captain and I did discuss, and I had a conversation with him, and I actually did go to the manual in my kit bag to pull up the information, and when I pulled out the manual, Captain Bushman basically gave me the sign that he was confident.

I assumed he was confident and knew the answer. I don't know, but he had me put it away.

Q I don't want to belabor this, and it's hard because, unfortunately, Captain Bushman isn't -- isn't here to defend that -- that position, but you had enough of a concern to start to pull the manual out.

Given the fact that then the RVR that was reported went below 3,000, did that not change your thinking to -- to the idea that we had a lower crosswind limit?

A As I sit here right now, I can remember that was an issue in my mind, but after concurring with the captain, he had me put the manual away, he seemed confident and comfortable in the position, and we

continued the approach, and -- and as I sit here now, there's a lot of things I would do differently, if the opportunity ever arose again or that situation arose again.

Q Well, we hope it doesn't.

A Well, the weather conditions I'm talking about. I would never --

Q And just a couple of clarifying points. You had talked about that the captain had briefed for originally landing on Runway 22. Can you tell me typically when that briefing would occur, at least what segment of flight that would have occurred?

A It was in the descent -- after the -- we received the ATIS, and we had some idea of what the weather was, what kind of weather the airport was experiencing, we would normally do the brief and the descent.

Q Is that more or less than a hundred miles out?

A I don't -- it's -- in a comfortable position after you receive the weather.

Q And you had answered a question for -- for Mr. Crew about the spoilers and the fact that there isn't really a procedure to monitor whether the spoilers actually deploy or not after touchdown. You're checking thrust reverse unlocked and deployed but not the spoilers.

Yet, if, for some reason, you or the captain had to manually deploy those spoilers for whatever reason, how would you come to knowing that that had to be done?

A American does train that if the spoilers do not deploy automatically, that the crew members and the captain specifically is

supposed to deploy the spoilers, and what it comes down to is just being alert of what's happening in the cockpit. But I don't remember a procedure.

Q Okay. Well, who's -- how would you know that that didn't occur?

A As --

Q The spoilers deploying automatically.

A It's just being aware of what's happening in your aircraft, and I don't remember -- like I said, I don't remember a procedure, and that's one of the things that really does bother me about this flight, that if I missed that, but I -- I can't remember exactly what happened to them.

Q Did you at any time -- I know that the captain was actually on the controls. Did you at any time look over? You said that you saw the captain's hand on the reverse -- the levers themselves and across the pedestal.

Did you happen to notice if the handle had moved to a deployed position?

A I looked over there, and I don't remember seeing them in a stowed position. When he was reversing the engines, the spoiler would be back, and his arm would be in a way that would block my view. So, I -- I couldn't see at that point.

Q Do you know if the captain had -- could you tell from the movement of the aircraft whether the captain was using asymmetrical thrusts? You said that he had pulled the 1.6 and 1.8, respectively, on -- on the reverse thrust operation, if I heard you correctly. Was

that -- do you know if that was intentional or was he just pulling to get both of them into reverse?

A I -- when we landed, I did say "We're sliding" and said it felt like we were hydroplaning, and I'd only be speculating on what he was doing, but I assumed that it was an adverse situation, that he thought it was going into an emergency situation, and he needed more reverse.

Q After the airplane was on the ground, you said "We're down, we're sliding". There is an unidentified person, either you or the captain, we couldn't really discern when we were listening to the -- to the tape, but someone said, "On the brakes", followed by an expletive, and then someone unidentified said, "Other one, other one, other one".

Can you tell us in that sequence what was transpiring, and who may have made those comments?

A I remember the captain making the brake comment, I don't believe I mentioned that to Mr. Lew, but it was a surprise to me to see those comments so clearly and hear them on the -- on the CVR, "the other one, the other one, the other one", because they are clearly there, and I don't remember saying them or hearing them.

Q Did you get on the brakes?

A Yes, sir.

Q Okay. When you got on the brakes, could you tell -- I mean were you standing on the brakes? Could you tell if the rudder pedals were deflected when you got on the brakes?

A Yes. I -- I put all -all the pressure I could on the brakes,

and I don't remember displacement. I don't remember -- I'm not saying they weren't. I just don't remember the displacement.

Q Do you recall having -- feeling any type of fight where you may have been pushing, where your left foot was exerting more force than your right, but you felt that you were pushing against the captain?

A In all fairness, when he said brakes, and I saw the situation, I stood on those brakes as hard as I could.

Q Okay. Going back real quick, what time did you get up that morning? Do you recall?

A I -- I don't really recall. I've been asked that question, and I believe it was around 7 or 8, which would have been normal for Chicago.

Q Okay. Thank you, Mr. Origel. Appreciate it.

A You're welcome.

CHAIRMAN HALL: Mr. Eick, I believe you have a couple of questions?

MR. EICK: Yes, I do. Yes, I do, Mr. Chairman.

BY MR. EICK:

Q Mr. Origel, I'd like to ask you some questions in regards to your pre-flight planning and briefing in Dallas-Fort Worth before the departure.

Can you tell me what type of products and what briefing you and the captain participated in before departure?

A Yes, sir. We had a two-hour delay in Dallas. So, after checking our gate, we realized the delay. We went to the Operations area, and American provides computer banks for the flight crews to check

weather and other information pertinent to flight.

There's also a WSI, it's a pictorial and gives us a graphic illustration of the weather, and we checked both systems. We checked it right after we got down to Operations, and then as it became closer to flight time, we checked it again.

As far as the pre-flight's concerned, when I went upstairs, the aircraft had arrived or they had switched an aircraft for us. I did an exterior pre-flight, did the -- I was in the middle of doing the cockpit pre-flight.

Captain Bushman walked in with the required paperwork and the pictorial for us to look at.

Q Did the WSI radar depict the severe thunderstorm watch or convective SIGMEC?

A I don't remember a severe watch, a box, if you will, depicted on the WSI, but it did indicate the cells, and I could see the weather to the west and to the east of Little Rock.

Q Do you remember the movement of the cells or the line of activity that was depicted?

A I believe it was an extensive line north to south, to the west, but I don't remember the exact dimensions.

Q In reference to the weather document or flight departure papers the captain brought into the cockpit, are those the same that are in Exhibit 2E?

A May I look?

Q Yes, and specifically on -- starting on Page 24, Exhibit 2E,

Page 24, where we have the weather document, beginning at the Little Rock Terminal Forecast. Page 24?

A Yes, sir. I'm looking at the documentation. There's several pages, and -- I believe so.

Q Can you -- can you read me the terminal forecast for Little Rock, beginning at -- from 4Z?

A For Little Rock from 4Z? "June 1st, 2330 Zulu, 02" --

Q You can start on the line from 4Z, if you'd like to, to get right to the time of the estimated time of arrival.

A The copy isn't very clear, but --

CHAIRMAN HALL: Yes, Inspector? Let's get your microphone on, Mr. Baker.

Yes, Mr. Baker, American Airlines is recognized.

MR. BAKER: Thank you, Mr. Chairman. I'd like to point out for the record that this particular exhibit was not specified for this witness, and he has not been prepared on it.

CHAIRMAN HALL: Is that correct, Mr. Freith? Mr. Berman?

MR. BERMAN: Our information is that he was advised to prepare for the entire two series of -- of exhibits which would include this one.

MR. BAKER: That's not so indicated on our latest witness list, dated 1/18.

MR. EICK: Well, the question basically revolves around the forecast that he recalls --

CHAIRMAN HALL: Well, wait a minute. I want to find out

whether it's on the list or not. It's on the 1/25 list. Did you not receive the 1/25 list?

MR. BAKER: Well, we have a 1/18 that says 2 Series. Is that the entire --

MR. BERMAN: Yes. I apologize if that wasn't clear to -- to American Airlines. The 2 Series indicates all -- all of the ones beginning with 2 up through the whole alphabet and triple alphabet.

MR. BAKER: Thank you.

CHAIRMAN HALL: Okay. And I'll point out that this information for this hearing is in volumes. So, there's a considerable amount of material in the 2 Series that might be referred to.

Please proceed, Mr. Eick.

BY MR. EICK:

Q So, on the 4Z, what was the forecast for Little Rock Airport?

A As I mentioned, the copy's very unclear. You can take a look at this. From -- I see Little Rock Airport, and 2-3-0-Z, 0-2-0-2-4, wind 1-8-0 gusts 15, up to 25 knots, six statute miles, scattered 3,000, broken 8,000, temporary, and that's basically all I can read. It's not very clear.

CHAIRMAN HALL: Mr. Eick, if you have it, and you -- there are things you want read, you read them.

MR. EICK: All right.

BY MR. EICK:

Q The forecast from 04Z, "winds 230 degrees at 12, gusting to 20 knots, visibility better than six miles, scattered clouds at 15, overcast at 3,500, temporarily between 04 and 08Z, winds variable at 25 knots,

gusting to 40 knots, three statute miles and thunderstorm, light rain, mist, ceiling broken at 1,500 feet, in cumulonimbus clouds".

Is that the forecast that you were basing your flight on?

A I don't recall, sir. I don't.

Q Okay.

A I remember looking at the weather, looking at the WSI. We received the airport information, the terminal information. The airport was reporting VFR, I remember that, and we were dispatched.

Q In your pre-flight planning package here, we have the TAF, the convectiveSIGMECs, the weather watch, American Airlines SIGMEC.

Did you discuss this with the captain in the cockpit?

A The captain brought the information. He said he was -- there was a concern about weather. I mentioned it to Mr. We did have two alternates, Nashville, I believe, and back to Dallas, and we did talk about the weather. We did look at the WSI, the pictorial. It was off to the west, and the weather was discussed. But we were still able to dispatch, and we did discuss it.

Q All right. Were you -- did you receive any updated convectiveSIGMECs en route?

A Yes, sir. Via the ACARS, there was a SIGMEC that was issued by the controller, and then shortly after that, we received the -- the free-text message.

Q Do you remember what that convective SIGMEC referred to --

A It referred to --

Q -- or what it discussed?

A It referred to a box of weather activity off to the west of Arkansas, and -- and I don't remember more than that at this point.

Q Okay. You mentioned earlier that you had received some training in meteorology with American Airlines. Do you remember how many hours? One? Three? 10 hours?

A I don't recall. Ground school was, I believe, a mixture of three weeks of ground school and simulator training.

Q Not three weeks of pure meteorology?

A No, sir. But it was definitely a topic, and I don't remember exactly how many hours.

Q Did any of that training include any discussion on thunderstorms and thunderstorm dynamics, gust fronts, lines of severe thunderstorms, etc.?

A As I sit here today, I -- I can't remember specifically, but I'm sure it did.

Q Did the training discussed with your airborne radar about beam width, wave length -- do you know what the airborne weather radar wave length and beam width are --

A No, sir.

Q -- on the airplane?

A Do not.

Q And do you -- you don't recall if that was in any of the training?

A I don't recall.

Q En route, you mentioned that the lightening and referring to it off the side of the airplane. Do you remember the frequency or type of lightening? Was it in cloud? Cloud-to-cloud?

A It was -- it was cloud-to-cloud, and we did see the lightening, and we -- Captain Bushman made the PA to the passengers, and we did discuss it.

Q He made the comment to the passengers why? Because of the frequency or the amount of illumination?

A I think he just wanted to calm the passengers down, that he was aware of -- of the weather, and -- and what was going on outside on the left-hand side of the aircraft.

Q With regards to the -- what you saw on your radar, you said that you only saw green returns?

A Yes, sir.

Q Did that match what you had seen in the WSI weather briefing or in reference to weather watches, the convective SIGMEC of a line of severe thunderstorms?

A The WSI and the radar picture matched to the extent that they both showed the line of weather off to the west and to the east. The WSI is a black and white print-out, and it doesn't -- it's hard to see the intensity, if you will, without the color. But there are ways that you can read the WSI and extract the -- the information.

As far as the correlation between the information we received at that point, we were more concerned with the weather activity we were seeing and instead of the information that we already gathered.

Q One last question for you. As you were in the terminal area, and you were being provided the low-level wind shear alerts, you -- you made a comment about you disregarded them because they were alerts and not warnings?

A It's not a disregard of the -- of the wind shear, but procedurally, a wind shear alert gives a crew that there's a possibility of encountering a wind shear on final, and the crew is -- Captain Bushman did, from what I understand -- that's why I interpreted it, when he used VERAP+20, he had that extra margin of safety on the final approach.

But I don't remember or recall any procedure saying that a wind shear warning or alert is a discontinuation of an approach criteria.

Q Did you have any discussion with the captain about initially we were planning on this southerly wind, landing to the south, and now thunderstorms are being reported in the vicinity, and now we have a northwest wind? Did you discuss what was causing that change in the wind?

A The actual discussion of cause, no.

Q Did it come to your attention or did you start to think of anything related to a gust front impacting the airport?

A No, sir.

Q All right. That's all the questions I have. Thank you very much.

CHAIRMAN HALL: Very well. We'll move now to the tables for questioning. Per the Board's procedures, American Airlines will be given the opportunity to question last. We will begin with the Federal

Aviation Administration and move across the tables from my right to the left, and then we will stagger after that who begins, so everyone has an opportunity to question first or in various sequence.

If you'd please identify yourself, the Federal Aviation Administration table is recognized for questioning.

MR. STREETER: Yes, Mr. Chairman. Lyle Streeter from the FAA.

INTERVIEW BY PARTIES TO THE HEARING

BY MR. STREETER:

Q Mr. Origel, could you please go to the cockpit voice recorder exhibit, which I believe is 12, the transcript? And if you would, sir, go to Page 40, and that's the page numbers marked down in the lower right corner.

Now, it states elsewhere in here that you did get to listen to the CVR, is that correct?

A Yes, sir.

Q Okay. You talked earlier about the go-around statement.

A Yes.

Q Okay. There is an entry at 1149:58 which is unclear.

A Correct.

Q Is -- is that where the go-around statement occurred?

A Yes, sir. Upon my review with Captain Mashel and -- and another captain that was in the review with us, we both concurred that we can hear the "go" very clearly, and the rest of the go-around statement, it seems like there was communication from both Rick and I at

the same time.

Q Okay. I want to -- I want to ask one further question on that but it'll require a change of page. While we're still on this page, if you'd look down to -- two lines down there, 1150:02, where it attributes to the captain the "I can't see it" statement, and I believe you stated you did not recall hearing that statement, is that correct?

A No, sir, I do not.

Q Okay. After that, it attributes to you a statement of "got it".

A Correct.

Q Did you make that statement?

A Yes, sir.

Q Do you recall what it was you saw or heard that -- and what did you intend by the "got it" statement?

A Does he have control of the aircraft? Does he -- when -- when I'm looking over at him, after I make the go-around statement, and there's no go-around being executed, I looked over at him, and he's bringing the airplane back on course, and I just made the statement "you got it".

Q Okay, sir. Now, in the same document, up to, I believe it is, Page 3, and this is the page, I think, that has the information that -- that you provided after your review of the tape.

A Yes, sir.

Q Going again to the go-around statement, where it only attributes -- you stated very clearly you heard the word "go". Do you have the page there now?

A Yes, sir.

Q Okay. There are two asterisks there. Do you recall -- does that indicate that there were two words that you think were stated after "go"?

A It seems like, as I mentioned, I made -- I clearly remember, and I remember talking to Captain Davew about this in the hospital, before anybody had heard the CVR, that I did make a go-around statement. So, I remember that very clearly.

Upon listening to the CVR, it seems as though there's a statement that's talked over by the captain at that point. So, -- and it's unintelligible. You can't understand what is being said.

Q Okay. Understood. Thank you, sir.

Now, going back to the bowling alley message on ACARS, --

A Yes, sir.

Q -- did you perceive that message as anybody pressuring you to -- to rush the trip or do anything unusual?

A No, sir. I just looked at it as being very informative, of being able to concisely give us a pictorial of what the previous message was indicating.

Q Okay. Did the -- did the captain say or do anything to indicate to you in any way that he perceived that as applying pressure to --

A I don't recall that being discussed. No, sir.

Q I believe you had mentioned that at -- somebody asked you earlier about your -- whether you were tired or not at DFW. Let's go a

little further.

On the DFW-Little Rock leg, did you feel tired or fatigued in any way?

A I don't recall. It was -- it was a short but busy flight, and the first officer's position in the DC-9 is busy. So, I remember being busy with the work, if you will, but I don't remember actually talking about being tired or -- or being distracted.

Q Okay. During -- during that leg of the flight, do you recall the captain making any statement or taking any action or doing anything that led you to believe he was fatigued or tired?

A During the flight, no, but during -- upon review of the CVR, I can hear a few things that indicate that. A yawn at one point, I believe.

Q Okay. A yawn. Any actions or anything that caused you concern about whether he was fatigued?

A At the time, I didn't remember that yawn or any comments.

Q Okay. How about upon review? I think you mentioned you heard the yawn on review of the CVR. Is there anything else on the CVR that might have caused you concern about the captain being fatigued?

A No, because after that point, things started happening pretty quickly, and we seemed to be both working pretty well and pretty alert.

Q That's all the questions I have, sir. Thank you.

CHAIRMAN HALL: The Boeing Commercial Airplane Group is recognized.

MR. HINDERBERGER: Mr. Chairman, Rob Hinderberger from Boeing. Boeing has no questions.

CHAIRMAN HALL: Thank you. The Allied Pilots Association is recognized.

MR. ZWINGLE: Mr. Chairman, First Officer Grigel is represented by the APA, Allied Pilots Association. With the concurrence of American Airlines, we request that we question the witness last.

MR. BAKER: We concur.

CHAIRMAN HALL: That's fine. The Association of Professional Flight Attendants?

MS. LORD-JONES: Kathy Lord-Jones, Association of Professional Flight Attendants, and we have no questions.

CHAIRMAN HALL: The National Weather Service?

MR. KUESSNER: Yes. Bob Kuessner, National Weather Service. I do have several questions.

BY MR. KUESSNER:

Q I'd like you to -- to refer you back to Exhibit Number 2E, specifically Page 28, and I'm hoping, based on our experience with the TAF, that this will be more legible.

Right across the top where it says "Convective SIGMEC, 11C", --

A Yes, sir.

Q -- I believe you -- you had indicated receiving that convective SIGMEC earlier in your testimony.

Is this the one that you recall before you departed?

A As I mentioned, it was part of our dispatch release. There was quite a bit of information, and I don't remember specifically, as I sit

here today, looking at this, if it was in the dispatch release.

Q Now, in -- in the -- in the line there, where it starts, "From", can you read that, "From 20 east northeast"?

A Yes.

Q So forth.

A Yes.

Q Just looking at that line, those are VORs, are they not, --

A Correct.

Q -- that bound the area of the convective SIGMEC?

A Yes, sir.

Q And based on that, would you say that it included Little Rock and a substantial portion of Arkansas to the north-northwest and west?

A Without the VORs in front of me right now and sitting here, I -- I remember that that was one of our concerns in looking at the WSI that showed that convective activity to the northwest. So, I remember the pictorial more than I do the text.

Q Okay. Now, on the second line, where it starts out with "area", what does S-E-V-T-S mean to you?

A Severe thunderstorms.

Q And it would be moving then from 300 at 20 knots?

A Correct. Tops of 4-5-0.

Q So, assuming that Little Rock was already in this area with time, this is saying that with time, the area would be moving towards the southeast, and Little Rock would be further embedded in the area?

A Yes, sir.

Q Is there any reference to hail and wind gusts in that forecast?

A Yes, sir. Hail of two inch, wind gusts to 70 knots possible.

Q And you said that you received an update to this SIGMEC while you were in flight?

A Correct, sir.

Q Thank you very much. That's all I have.

CHAIRMAN HALL: The Little Rock National Airport?

MS. SCHWARTZ: Little Rock National Airport has no questions, Mr. Chairman.

CHAIRMAN HALL: The Little Rock Fire Department?

MR. CANTRELL: Little Rock Fire Department has no questions. Thank you, Mr. Chairman.

CHAIRMAN HALL: Okay. We'll return then to the Allied Pilots Association. The agreement would be that you want to go last. We'll have American Airlines next then.

MR. BAKER: Thank you, Mr. Chairman.

BY MR. BAKER:

Q Good morning, MrOrigel.

A Good morning.

Q When one thinks of a bowling alley, one gets a picture of a long, narrow affair. Either from the ACARS message or your radar displays, can you give us some sense of -- of the size of this bowling alley affair?

A From the --

Q From your point of view.

A From the flight deck, the weather that we were depicting and seeing visually at that point in the flight, as I mentioned, it was clear in front of us, and I -- I took it to mean that the bowling alley was a very large lane. So, it was a wide area.

I don't know exactly the mileage. I think Mr. Mott would be better than I.

Q Thank you. Did the tower controller ever give you a report on the runway conditions in terms of contamination or braking action?

A I don't recall, sir, no.

Q And, finally, did the tower controller ever withdraw the clearance to land?

A No, sir.

Q Thank you. We have no other questions.

CHAIRMAN HALL: Allied Pilots Association?

MR. ZWINGLE: With our deepest appreciation to the witness, we have no questions.

CHAIRMAN HALL: Very well. We'll move to the Board of Inquiry and Mr. Sweedler.

MR. SWEEDLER: Thank you, Mr. Chairman.

INTERVIEW BY BOARD OF INQUIRY

BY MR. SWEEDLER:

Q Good aftenoon, Mr. Origel. I just have a couple of questions.

CHAIRMAN HALL: Is your microphone on, Mr. Sweedler?

If it is, I'm not hearing it.

MR. SWEEDLER: Yes.

INTERVIEW BY BOARD OF INQUIRY

BY MR. SWEEDLER:

Q I just have a couple of questions. I was curious as to the decision when you decided to switch runways to 4 R, I believe. The length of 4 R is 7,200 feet, and I was wondering if any consideration was given to using 4 Left which was an extra thousand plus feet.

A Yes, sir. But it was NOTAM'd closed.

Q Oh, okay. Thank you. One area that hasn't been discussed that I'd like to cover with you a little bit is could you just give us an idea of what occurred after the aircraft came to a stop?

A As we hit -- let me back up. As we went off the end of the runway, I could see the runway lights coming up, and I knew we were going off the end of the runway, and I thought that -- I couldn't see anything in front of us, and all I thought was the gear would collapse, and we would continue to slide, and it's got to be okay, and then all of a sudden, I felt the impact, a left -- to my left side.

I put my hands up because I saw Captain Bushman put his hands up off my -- in my peripheral vision, and all I remember is the explosion, if you will, of glass and debris from the left side.

The airplane came to rest. Captain Bushman's seat was cocked to the left, and there was a hole in the left-hand side of the

aircraft, and I couldn't see Captain Bushman. I called for him a couple times and -- and got no response.

As the -- as I'm sitting in my seat, still strapped in, I felt this odd sensation, this odd pain, and it started to become excruciating, and as I sat there, I knew I had to get out. I couldn't see anything. It was completely dark in the cockpit.

So, I unbuckled my seat. I stepped up on my right foot, and it was no problem, and I put my hand on the console. As I put my weight on my left foot, I collapsed behind the console, and I couldn't move, and I heard the passengers, and, so, I knew tower had -- was monitoring us, and I felt confident that they would call for the crash crew.

My briefcase was just behind me, and it contained my Flight Manual, Part 1, my cell phone and other things. So, I -- the first thing I did, thinking of my family, I called my wife and just said you might get a call. So, I'm okay.

Then I called the company to make sure that they were well aware of we had a problem, and the company was aware at that point, and then I saw passengers outside the aircraft.

Quite a bt of time elapsed before fire crews arrived on the scene, and I don't have an exact time. I just remember the Little Rock, Arkansas, Fire -- and I do thank the Fire Department. I believe Bob was his name who helped me out and comforted me while -- they couldn't get me out because of the fire in the back of the aircraft, and I heard that.

So, I -- I basically had to sit there until they were able to get the fire under control, and I was in pain, but I was okay, and I just wanted

to make sure everybody was okay, and I could see the passengers, and I had the opportunity to thank the passengers who did help in the evacuation of the aircraft. I'm very appreciative of that.

And the fire crews arrived and got me out, and then I went to the hospital, and that's basically it.

Q Good. Thank you very much. I'm sorry I had to put you through that, but I appreciate that.

Thank you, sir.

A You're welcome.

MR. SWEEDLER: That's all I have, Mr. Chairman.

CHAIRMAN HALL: Mr. Berman?

BY MR. BERMAN:

Q Mr. Origel, thinking back to your -- your flying experience, both at American Airlines and the flying you did before that, have you ever had occasion on a previous flight to challenge a captain to go around?

A From my civilian flying to American Airlines, I -- I was always a captain. When I was an instructor, I got my rating and became a flight instructor, I was hired on by a company to fly a KingAire and manage the department, and they sent me to school, and I was a captain there.

The Learjet, I went right to the left seat in that, and I don't really have much experience as a second-in-command.

Q Okay. Have you ever been challenged to -- to make the go-around?

A In a simulator but not in life.

Q Okay. Please tell me -- thinking back to what your -- what your understanding was at the time of your approach, what -- what was your understanding about the position of the thunderstorm cell that was nearest you, and what was its movement?

A During the approach, we were descending. I remember I had a good picture of the aircraft and the runway. What I mean by that is I kind of had it in my mind, situational awareness, if you will, of where we were and where the aircraft was going and where the runway was, and I knew that the weather was off to the west, but because I could see the runway, I felt confident that we were in the clear.

Q Hm-hmm. Do you recall thinking whether or not that that -- that cell or precipitation area that showed on your radar would have been approaching the Little Rock Airport or would you have thought it was leaving?

A I -- I don't remember at this point. I think at that point, my visual cues was giving me more information than what I would see on my radar.

Q Hm-hmm. What -- what direction do thunderstorms usually move from and to in the Central United States?

A Northeast, I would say.

Q They --

A In my experience.

Q -- move from southwest to northeast?

A Yes. Well, yes, sir.

Q Hm-hmm.

A In all fairness to that question, I -- I've seen thunderstorms move in all different types of directions. Weather doesn't -- weather has a mind of its own.

Q Okay. I know you said that you didn't give explicit thought to the idea of a gust front during this approach, but are you familiar with what a gust front is in relation to a thunderstorm?

A I've heard the term, but I've never experienced it, and I don't -- I've seen visual cue -- I mean classroom instruction on it, and -- but I don't remember ever experiencing it.

Q Did American Airlines train you on -- on the -- the outflow of -- of air out of a thunderstorm, out of a downdraft from a thunderstorm?

A In new hire class, we all monitored videos regarding some of these phenomenon.

Q Was there any reason to believe that a gusty wind that would come up from the northwest could be from another -- a different atmospheric phenomenon?

A I -- I can't answer that question.

Q I guess my -- my bottom line question is in this area. If you're -- if you're concerned as you obviously were in this -- in this approach with -- with the proximity of a thunderstorm to the airport you're -- you're trying to land at, and if you're trying to make the -- the -- the most efficient arrival at the runway that you can possibly get, which I think is also clear from your testimony, if you're making an approach, and you haven't landed yet, and you find that the winds are gusting 44 knots out of

the northwest, have you reached the airport first or has the thunderstorm reached the airport first?

A If I may, let me ask that question like this. I was the first officer on board that flight, and my responsibility at that point was to advise the captain and assist him in flying that aircraft.

At that point in the approach, I don't remember the wind conditions. I advised the captain of a go-around feeling that I had at one point. He brought it back, and we landed the aircraft.

So, I can't speak for what the captain was thinking, but my thoughts were I was concerned with the weather. I expressed my views, and the captain may or may not have disregarded it, but he got the airplane back on course and landed.

Q So, would you describe what you were thinking about in terms of the presence of the thunderstorm on the field?

A I didn't see a thunderstorm on the field.

Q Yes, but you -- you said that you couldn't speak for the captain, but you -- you just expressed some concern about continuing the approach --

A Yes.

Q -- in response to my question about a thunderstorm getting to the field before the airplane.

A Well, my concern was of the captain's deviation more than what was the thunderstorm.

Q I see. Would you consider a gust front or an outflow or -- or the winds from a microburst to be part of a thunderstorm or -- or different

from it?

A I believe it's part of a thunderstorm. It could be part of a -- I believe the terminology is -- a thunderstorm has three stages, a growth, mature and dissipating, and I understand that.

During the growth and mature stages, it's possible to have this phenomenon happen.

Q Hm-hmm. So, a -- a -- downflow within the thunderstorm can occur during the growth and mature stages?

A I believe that mature and dissipating.

Q Okay. I'll go with that. Let me ask you a little bit about American Airlines' checklist requirements.

You mentioned that there was a requirement to -- for the non-flying pilot, you in this case, for the before landing checklist, to complete the checklist and also to -- to call out when it was completed.

Is there a procedural requirement for who's to call for the checklist to begin?

A To begin?

Q Yes. Who calls for -- for doing the checklist?

A I don't believe there is a procedure for starting the checklist.

Q Okay. If -- if -- if there isn't one, with you as the non-flying pilot and a new first officer at that time coming out of training, how -- how do you know when to begin that checklist?

A Well, the captain will prompt you or when you see a certain stage of flight, and you know what needs to be done, you initiate it. If the captain doesn't want you to -- to do the checklist at that point, I'm sure

he'll voice his opinion. He never did at that -- when I started the check -- the descent and before landing checklist.

Q When did you tend to start it on your flights at American Airlines?

A After we received the ATIS for the landing runway and the descent, prior to the descent checklist, and I believe the before landing at approximately the 10,000-foot call was around that point.

Q Hmm. And the before landing checklist includes the landing gear and the spoilers being armed, and those aren't done at 10,000 feet?

A No. Those are down at a lower altitude, but to start, there are other items on the landing -- the before landing checklist that was clearly heard on the mechanical checklist -- on the CVR.

Q So, would you describe the -- the -- the American Airlines procedure or technique for performing this checklist to be that you initiated yourself as the non-flying pilot, and then you just kind of stepped through it, doing the items as they -- as they were accomplished? Checking the items as they're accomplished?

A Even though I'm a first officer or we have first officers, the captains give us some discretion, and if they don't like what we're doing, and they're the captain, they'll tell us to stop. That's my experience.

Q Did you get some advice on the line during your first few months about how to do this checklist from captains?

A Yes, sir.

Q Can you describe that, please?

A It was pretty much in accordance with what we learned in

the ground school, and my check airmen were the most helpful.

Q So, do you remember any specific advice?

A It was standard procedure pretty much, but just small technique items, and I guess there's -- it's safe to say in aviation, there's procedures and technique.

Q And, so, what was this?

A Procedure.

Q I've got one last question. Would you expect an air traffic controller to -- to withdraw a landing clearance based on weather?

A As I sit here today, yes.

Q Has it ever happened to you in all of your flying hours?

A I've never experienced weather like this.

Q Who's in the best position in your opinion to make a decision about whether an airplane should be allowed to land or -- or told to go around regarding weather? Is it the pilot or pilots or air traffic controllers?

A In my opinion, whoever has the best information at the time. If we continue an approach, and the controller knows there's something possibly growing that we don't have the information for or something that we don't have in the cockpit, I would like the information, and I'm -- I have no problem going around or holding.

Q Hm-hmm. What -- what information would you have liked to have had from the controller in this case that you didn't get?

A In all fairness to the controller, as I sit here today, I understand there was Doppler radar available at Little Rock or there was

Doppler radar available in the vicinity, and that's the information I wanted.

Q Okay. You -- you would want specific information about what Doppler radar was showing?

A Sure. I -- I have visual on the field, and the controller was mentioning the winds and the rain, but not -- nothing beyond that, nothing about -- he never mentioned 70-knot winds or 50-knot -- wind velocity beyond that.

Whatever the wind -- I heard -- I read somewhere, and I shouldn't probably be speaking on this issue, but the point I'm trying to make is whoever has information pertinent to flight should get it to the flight crews the best was possible, and if the controller doesn't think it's safe to land, we go around, and we discuss it later.

Q Okay. Thanks very much. No further questions.

CHAIRMAN HALL: Mr. Haueter?

MR. HAUETER: Thank you. Just a few. I'm sorry I was late getting here due to weather.

BY MR. HAUETER:

Q In the event that you had to do a go-around, was there any special paperwork that you had to fill out for American Airlines?

A Not to my knowledge.

Q So, you would describe American as having a no-fault go-around policy?

A Yes, sir.

Q Okay. And there was a lot of discussion of the weather prior to touch down. Could you describe what the weather you experienced

after the touch down till you departed the runway?

A I believe I mentioned in one of my interviews that when I was in the -- when we just landed, and I made the comment "we're sliding", and I was trying to maintain orientation to what was happening, I looked out -- the nose was cocked to the left of the center line or to the left of the runway, and I remember looking out the side window, and I could see down the runway.

I don't remember specific weather phenomenon occurring at that time. Basically, I remember seeing the runway lights, the sliding and the going towards the left and coming back to the right and then going off the end of the runway.

Q Do -- do you remember any rain or hail at the time or --

A No, sir.

Q How about --

A In all -- I did mention the wipers on approach and experiencing some rain, but on landing, I don't remember what was actually occurring at that time.

Q Can you estimate the visibility down the runway?

A I just -- I spoke with Dave Tew about this, that when I looked down the runway, I thought I could see the red lights which would indicate towards the end, but I don't remember exactly the distance or how far.

Q Okay. And I know you -- everybody would like to have more information in their cockpits. Do you think that this controller provided you more weather information, wind information, than normal or this was a normal call-out by him?

A Well, one of the comments was made when we were talking -- we discussed internally was whether he became a distraction at one point, whether we had time to really disseminate the information, and I think that's an area that needs to be addressed.

As I -- and I remember around the time of making that base-to-final turn, how fast and compressed everything seemed to happen at one time, and one of my concerns was making sure I didn't miss anything over the radio frequencies.

So, it definitely needs to be addressed, and at this point, I would like to leave it at that.

Q Well, I guess you mentioned that you thought maybe he was giving you so much information, that it could have been a distraction.

A It could have been.

Q Did that give you any concern that maybe you should go around at that point or reconsider the approach?

A Well, it was always a consideration, and I was thinking about it, and as I mentioned, as we got lower, I did voice my concerns.

Q Finally, at any time during the flight, was there concern about the need to land at Little Rock in terms of your time on duty or having to go to an alternate, what that would do?

A No, sir.

Q Okay. Thank you.

MR. HAUETER: That's all the questions I have.

CHAIRMAN HALL: Mr. Clark?

MR. CLARK: I have no questions.

CHAIRMAN HALL: MrOrigel, again I appreciate you -- we've kept you up here a long time, and I -- I do want to kind of touch on a few things, if I could, and hopefully will not be repetitive.

Where do you reside?

THE WITNESS: Currently, I'm in Los Angeles.

CHAIRMAN HALL: Was that your home at the time that you were working for American on this particular flight?

THE WITNESS: Yes.

CHAIRMAN HALL: And -- but you were based in Chicago?

THE WITNESS: Yes.

CHAIRMAN HALL: Well, now I live in and my job's in Washington, D.C., but my family is in Chattanooga, Tennessee, and I commute back and forth. So, I understand that's not that unusual now in our country, but tell me how that works in terms of you reaching your assignments, and I'm particularly concerned about your -- obviously your rest and fatigue.

Do you -- where doyou stay in Chicago, and -- and how do you address the situation so that when you start out on a flight -- are you normally just coming from the West Coast or how do you plan all that?

THE WITNESS: I may not be the best witness for this question, the commuter question, that is, because in my situation, I have family in Chicago. So, I was really living in Chicago, and I was going home to see my wife and my son, but because of our schedule at American Airlines, I was spending a lot of time on reserve, and, so, I spend more time in Chicago than at home, and I had relatives. I had a

car. I had a house, and in fact, at one point, the relatives actually left, and I had the house to myself.

So, -- and then there was other -- there was cousins in the neighborhood, and, so, I was invited over there, and it was -- as a pilot, I was living in Chicago.

CHAIRMAN HALL: Okay. So, you started out that morning spending the night in Chicago?

THE WITNESS: Yes.

CHAIRMAN HALL: And how many nights had you been i Chicago?

THE WITNESS: I believe it came -- it was Memorial weekend. I believe I came in a day early.

CHAIRMAN HALL: Okay. And -- and I guess you stated that you flew a leg and the captain flew a leg. The captain flew a leg, then you flew a leg, and then the captain was flying this leg to Little Rock.

THE WITNESS: Yes.

CHAIRMAN HALL: And is that normal to -- to rotate like that?

THE WITNESS: Alternate legs is standard procedure, yes.

CHAIRMAN HALL: So, now, in Dallas, when you had the two-hour layover, was the dispatcher aware of how much time you all had been on duty? I think I noticed that some of the conversations, maybe that was -- was discussed as an impact that you might have to -- you know, that you might have to beg off the trip or unless -- if you waited for -- what was the equipment? Maybe you can explain that for me.

THE WITNESS: As we were getting close to our limit, duty-time limit, Captain Bushman made the comment that he was going to get the weather, and I went upstairs and was checking on the status of our aircraft.

So, I called the dispatcher. He said he had just sat down at that point. He -- I mentioned our situation. I made the comment that we have a lot of passengers here, and that our duty time was getting close, and we would have to take the flight or not, and he'd have to get another crew or something to that effect. But there was no pressure.

CHAIRMAN HALL: Were you talking to the dispatcher himself?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And he's there at the airport in the Operations Center?

THE WITNESS: I believe he's at the Dispatcher Center, which is in a different location than the airport.

CHAIRMAN HALL: But you were talking to him on the telephone?

THE WITNESS: Correct.

CHAIRMAN HALL: On the telephone. And then, he's an employee of American Airlines?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Now, explain to me, if you could, what in your mind is the responsibilities of the dispatcher and what he provides you before a flight?

THE WITNESS: According to the FARs, he and the captain have a joint responsibility in dispatching an aircraft. The captain and the dispatcher will agree on the pertinent information on the flight regarding weather, fuel, and alternates.

CHAIRMAN HALL: And then you're briefed on that information or are you part of that process?

THE WITNESS: No, sir. That's between the captain and the dispatcher.

CHAIRMAN HALL: So, the decision here was the captain's and the dispatcher's to go ahead and proceed with Flight 1420?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Very well. And in your training, you mentioned you'd had some training, extensive training, obviously with American, and you came to American obviously with a lot of experience.

In the training that American on weather, was the expression "bowling alley" used during the training?

THE WITNESS: No, sir, and as I mentioned, I believe the dispatcher was trying to give us a descriptive view from the text, and it demonstrated his ability to give us the information we were looking at on the -- on the text.

CHAIRMAN HALL: Okay.

THE WITNESS: It's common to get free-text messages through the ACARS.

CHAIRMAN HALL: Right, and I just was -- I was just wondering about the training and whether that description or expression

had been -- been used before --

THE WITNESS: No, sir, not to my knowledge.

CHAIRMAN HALL: -- during the training, and -- very well.

Now, in regard to -- you've had a chance to listen to the cockpit voice recorder, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- and in retrospect, were you all on time or behind in terms of, you know, the procedures and things that needed to be done to prepare the plane for landing?

THE WITNESS: I thought up to the descent, before landing checklist, the items that I mentioned were accomplished. They were done on time. At the point of approximately a thousand feet or the flaps, I was behind the aircraft at that point but catching up.

CHAIRMAN HALL: Okay. And you expressed your concern, and at one point on the go-around, and the captain -- do you think he heard that information?

THE WITNESS: After reviewing the cockpit voice recorder, I don't know. I don't -- at this point, it sounds like, as I mentioned, that we talked at the same time, and he may not have heard what I said.

CHAIRMAN HALL: As part of your training, is there any procedure you're supposed to follow when you recommend a go-around as the non-flying pilot?

THE WITNESS: Yes, sir. To continue to give advice when advice is not -- when you think it's needed, and since he made corrective

action, I stopped giving the advice.

CHAIRMAN HALL: Okay. But you -- in your mind, you feel you followed those procedures --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- as trained to?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Okay. We've discussed briefly the fact that you had -- you were going to initially land on 22 L, is that correct?

THE WITNESS: I believe so. Yes, sir.

CHAIRMAN HALL: And that you had not used the longer runway because the ILS was out?

THE WITNESS: Correct, sir.

CHAIRMAN HALL: And then they changed you to 4 Right?

THE WITNESS: Correct.

CHAIRMAN HALL: Were you aware that there was a river at the end of that runway?

THE WITNESS: Yes, sir. It was on the approach plate.

CHAIRMAN HALL: It was on the approach plate? I was looking at the approach plate, and I saw trees. What does the river indication look like? Is it --

THE WITNESS: The airport diagram, I believe.

CHAIRMAN HALL: Oh, the airport diagram has --

THE WITNESS: Yes.

CHAIRMAN HALL: Okay. But you were aware there was

the river there. Okay.

Now, when -- let me take you just a minute, as Mr. Sweedler did, to after the accident had occurred, and -- and you were sitting in the seat. Are there any procedures that the crew is supposed to follow in those situations in terms of -- taught at American?

THE WITNESS: Yes, sir. The evacuation procedures, and as I mentioned, as I sat there, I was in excruciating pain, and it was completely dark. I was disoriented, and my first thought was to -- to get out of that situation.

But as I mentioned, I have the -- on the yoke, the evacuation procedures, and I just couldn't see them. I couldn't even see the throttle quadrants. I couldn't see the fuel levers, and I don't know if I got them or not.

CHAIRMAN HALL: Was there any emergency lighting or was it just pitch black?

THE WITNESS: It was completely black.

CHAIRMAN HALL: And did you hear the rain at that time do you remember/recall?

THE WITNESS: Excuse me. I'm sorry.

CHAIRMAN HALL: Surely. Go right ahead. We're in no rush.

THE WITNESS: Oh. I -- I do remember. It took a few minutes to get oriented, and when I got out of the seat, and I fell back, the hole in the cockpit and the lights and, excuse me, the rain and the noise from the rain.

CHAIRMAN HALL: But you did not see any -- I'm kind of -- I want to find out if any of the instruments or do you know whether the -- your ability to communicate, the radios were still working?

THE WITNESS: I believe all the power was off.

CHAIRMAN HALL: All the power was off?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Did you have a flashlight in the --

THE WITNESS: Yeah. It's in my kit bag, and I couldn't get to my kit bag because of its position.

CHAIRMAN HALL: I understand you're in shock and a lot of pain, and I -- I -- I'm just trying to understand the circumstances that evening, so that we -- if there's anything that can be done in the future to address the subject of the evacuation and -- and recovery effort, we've done that.

Well, Mr.Origel, you have been a very cooperative witness. I'm very appreciative, and we have -- you have been very patient while you have been questioned by this Board of Inquiry, the Technical Panel, and the Parties.

I'd like to present you an opportunity, if you have any comments or questions that you think, based on your experience, that we ought to be looking at and changes of the FARs, American Airline procedures.

As you know, the purpose of this hearing and the purpose of this investigation is to try to learn from this event to prevent a similar event such as this from recurring, and it is certainly fortunate that you

survived as well as so many others, and, of course, the whole event was tragic as well as the loss of life of the individuals who -- the 11 individuals who died in this event.

But I would certainly welcome any comments that you would have on any subject that you think might help us in the future.

THE WITNESS: I -- I definitely do want to help. I do -- I'd like to increase airline safety as much as possible, and I think it's an on-going part of airline operations as technology increases and advances, and I'd like to reserve the right to be able to address the Board at a later time about my suggestions.

But right now, I'd just like to thank the passengers who have written and expressed their gratitude and prayers and thoughts to my family, and I want to thank my family for helping me get through this process.

So, thank you.

CHAIRMAN HALL: Well, we -- we thank you, and -- and, Mr. Origel, normally we do not excuse our witnesses until the completion of the hearing, but I appreciate your willingness to come this -- this morning and spend the amount of time you have going through what I know is obviously a very difficult and painful event, and you are excused.

THE WITNESS: Thank you very much, sir. Appreciate it.

(Whereupon, the witness was excused.)

CHAIRMAN HALL: We will -- give the hour, and we have been going on, we will take a one-hour recess for lunch and reconvene at 2 p.m. Central Time.

(Whereupon, at 1:00 p.m., the hearing was recessed, to reconvene this same day, Wednesday, January 26th, 2000, at 2:00 p.m.)

AFTERNOON SESSION

2:05 p.m.

CHAIRMAN HALL: We will reconvene this hearing of the National Transportation Safety Board. It's a public hearing on the accident of American Airlines Flight 1420.

I'd ask our hearing officer, Mr. Berman, if he would please call the next witness.

MR. BERMAN: I call Mr. William Trott, Flight Dispatcher.

Whereupon,

WILLIAM TROTT

having been first duly affirmed, was called as a witness herein and was examined and testified as follows:

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Good afternoon, Mr. Trott. For the record, would you please state your full name and business address?

A My full name is William G. Trott, and my business address is in Fort Worth, Texas, with American Airlines SOC. I don't have the street address.

Q And by whom are you presently employed?

A American Airlines.

Q Thank you. Please state your present position.

A I'm an aircraft dispatcher with American Airlines.

Q How long have you held the position of aircraft dispatcher?

A I've been employed with American since April of '96, but I've been under the AMR Corporation as a dispatcher since 1991.

Q Could you please briefly describe your duties and responsibilities as a dispatcher?

A As a dispatcher, I'm responsible under the Federal Aviation Regulations to monitor the progress of a flight, to provide safety-of-flight information to the pilot-in-command, and to cancel or redispatch any scheduled flights for American or non-scheduled.

Q And could you please briefly describe your education or

training for that position?

A I graduated from Embry-Riddle Aeronautical University in 1990 as -- with a Bachelor of Science in Aeronautical Science. I also received a commercial pilot license with multi-engine and instrument ratings. I've also received a dispatcher license and advanced ground instructor license from Embry-Riddle, and on my own, I've received an air frame mechanic's license.

Q Have you any dispatch experience prior to joining AMR or its affiliates?

A I worked in the Federal Express Airlines Dispatch Office in Memphis, Tennessee, for one year but not as a dispatcher.

Q And how much total flying time do you have, and in what types of aircraft, generally?

A I haven't pursued flying much since college. I have around 300 hours only.

Q Okay. Thank you very much.

CHAIRMAN HALL: Who from the Technical Panel is doing this questioning?

MR. EICK: Thank you, Mr. Chairman.

CHAIRMAN HALL: Mr. Eick, please proceed.

MR. EICK: Thank you, Mr. Chairman.

INTERVIEW BY TECHNICAL PANEL

BY MR. EICK:

Q Mr. Trott, good afternoon.

A Good afternoon.

Q Have you had a chance to review Exhibit 5A and 5B, specifically your statement, your interview with us?

A I've read over it briefly.

Q Okay. Mr. Berman has already asked the responsibilities of a dispatcher and the shared responsibility.

I would like to ask you, what was your workload on the evening of June 1st in relationship to 1420?

A The workload on the night of the accident, it was -- it was a busy night. It was a challenging night, but it was manageable by my standards.

Q How many flights were you handling or releasing at -- during that -- your shift?

A When I come on duty at 10:00 p.m. for the midnight shift, the operation has winded down. I'm pretty much in a flight-following mode, and I was handling between 20 and 30 flights -- 20 to 30 flights in various stages of departure and arrival.

Q Now, American Airlines is certified as an Enhanced Weather Information System or EWNS. Can you explain to us what that means, and what advantages it provides you as a dispatcher with American?

A Sir, I'm not familiar with the EWNS Program. I understand it's a meteorology function. I -- I have a brief understanding of it but not a knowledgeable understanding.

Q All right. So, you -- you were not EWN-certified then? It was just the American Weather Services that will issue a forecast?

A I believe the Meteorology Department for American Airlines

is EWNS-certified, but as a dispatcher, I don't believe that I am certified as an EWNS person.

Q On the evening of June 1st, can you tell us something about how you got -- went about getting weather familiarization, your knowledge of the weather conditions, and how it would be impacting the flights?

A Part of my work routine is to look at the weather while I'm at home. I'm connected to the Internet, and I reference the Weather Channel on the Internet and also aviation sites for the en route scenario. It's just a habit I've had since I started as a dispatcher.

I wanted to see -- I knew that thunderstorms had moved through Dallas that night, and I just wanted to see how -- if the operation would pretty much look that day -- that night, and then as I came on duty, I took a briefing on the weather from the prior dispatcher that I relieved.

Q Your work station that you release your flights and do your flight following, can you describe to us how that is set up, what weather tools you have available at your work position?

A At my work position, it's a series of four desk pairings that pretty much encompass different parts of the country. On the midnight shift, I assume responsibility for two desks.

Each desk has two monitors -- three monitors, and on the monitors, I have WSI vendor products. That's a meteorology vendor service, and that is radar imagery, satellite imagery, and various meteorological charts that I require for my total understanding of the weather scenarios.

Q And how often are the radar -- radar summary or is this a

single-site radar? Can you explain a little bit further on the radar for me?

A It's not -- it's not a single-site radar. It's -- it's -- it updates every 15 minutes for certain portions of the United States. On the desk that I was working, I had various areas of the country highlighted, and every 15 minutes, I would get a new snapshot, so to speak, of the radar imagery in that particular area.

Q Does that radar provide the weather watches convective SIGMECs or American Weather Service's SIGMEC alerts?

A Weather watch boxes are -- are highlighted on the map, but SIGMEC areas were not highlighted. We do have new technology that does do that now, I believe.

Q What about the access to lightening data? Do you have access to that capability?

A Directly behind, we have these very large screen monitors that is inputted into the lightening detection network that they have available.

Q With the use of these systems that you have at your work station, have you received a lot of training on how to use and interpret the weather data?

A My training began in college. I had one year of meteorology, basically two classes, and also at American Airlines and American Eagle, my prior employee, we are trained in weather, 16 hours per year.

Q So, you had basically about 75 hours of formal classroom instruction at Embry-Riddle, 16 hours of meteorology training at

American, and then recurrent training, also?

A Yes. It is discussed yearly in recurrent, and also as a rated pilot, I was -- I was familiar with weather methodology and just pretty much being trained in it.

Q Did any of that training involve thunderstorm dynamics, mezo-scale interactions, things of that nature?

A Yes. Thunderstorm activity is -- is also part of the training.

Q Another tool that's hitting the industry, if you will, is aira traffic situation display, ASD, which provides aircraft track. Did you have access to that at your work station?

A Yes. That's a fairly new program with American Airlines, and it's a very useful program. It portrays the United States, and I can depict various portions of the country that I'm responsible for, and I can superimpose radar pictures on top of actual aircraft that are flying. It taps into the air traffic control system. However, everything is in a delay mode. It does not have real-time information.

Q Can you tell us anything about how that presentation was as you were getting ready to release Flight 1420 to Little Rock on the evening of June 1st?

A The night of the accident, the eastern half of the United States, from the Mississippi on towards the East Coast, was in various forms ofconvective activity.

There was some very severe lines up in the Great Lakes region and also in the Lower Mississippi Valley, and there was large areas of scattered to broken thunderstorm activity throughout the eastern

half of the United States.

Q And how was the impact across Arkansas?

A The impact across Arkansas at the time that I took the desk, there was a prominent thunderstorm line in the western portion of Arkansas.

Q With regards to your radar data, you said that it updates every 15 minutes, but when it updates, is that instantaneous -- instantaneous time or is there a lag on that presentation?

A The 15-minute updates, the radar picture can be delayed even further from there, from five to 15 minutes. It's not a real-time picture.

Q All right. Now, you also have text information at your work station. So, you would have access to all the TARs, the terminal forecasts and weather alerts?

A That's correct.

Q Do you have access to the weather alert updates, the WWAs?

A Yeah. That information is relayed through the American Airlines Meteorology Department, and it is sent to me at my desk.

Q Now, also, as you mentioned, you have -- American has their own Weather Department, and it is well known in the industry. Did you consult with them on the evening of June 1st on how the impact with the thunderstorms would be affecting the flights?

A I felt totally briefed before I took the shift. I didn't feel the need to further consult. It would have been a moot point.

Q Is there any standard procedure of when you would contact the Weather Service?

A There's -- there's no standard procedure to get a weather briefing from the Meteorology Department. They do broadcast a briefing, and it is up to the dispatcher to listen in on that briefing, if he feels so necessary. I felt I was fully informed of the situation before I took the desk.

Q Okay. I would like for you, if you could take a minute, to look at Exhibit 5A and look at Page 26, where we're -- you have the terminal forecast at 2330Z.

A I see it.

Q Is this the forecast that you released the flight on?

A Let me read it.

(Pause)

THE WITNESS: It appears to be the -- the TAF that I released the flight on.

MR. EICK: Okay.

BY MR. EICK:

Q Can you describe the planning concerns you had based on that forecast, and what you knew about the weather situation?

A Looking at the TAF, that's not my sole reference to releasing a flight. I also take into consideration the radar mosaic and the satellite imagery and the lightening data, and the main body of the TAF at the estimated time of arrival for the flight showed VFR conditions, and then there was a temporary condition for the thunderstorm, and based on the

information that I was looking at and the radar, satellite, and the lightening data and the TAF, I felt that it could be a normal operation.

Q The -- the forecast is referring to a temporary condition with the thunderstorms. Would that require an alternate based on the thunderstorm or because of the lowering ceiling of visibility?

A The Federal Regulations require that if the ceilings are below 2,000 feet, it does need an alternate, and that was -- that was one consideration I had, and, of course, the radar imagery that I saw in Western Arkansas, I felt they needed two alternates to give them more options.

Q Is there another term that we can use besides VFR in categories of weather? We usually refer to IFR, marginal VFR, and VFR weather. In that forecast, what category would that be based on?

A Well, my understanding of VFR conditions is ceilings better than a thousand feet and visibility greater than three miles. Technically, that is a VFR forecast.

Q But I -- do you agree that that meets the criteria of marginal VFR?

A I would say that --

Q Ceilings between 1 to 3,000 and/or three to five miles visibility?

A I agree with you.

Q All right. On that forecast, did you plan a wet dispatch for Little Rock, and can you describe what a dispatch is for us?

A I believe you're referring to a release, and, yes, I did base it

on a wet runway. A release is sort of like a legal contract between me and the captain, stating that we have looked at all conditions en route, departure and destination, and both of our signatures signify that this flight can operate normally to its destination.

Q All right. And that calculation of the wet dispatch also increases the amount of runway available for landing?

A The wet runway conditions, the way I plan the landing data is that I look at the available landing length, in this case 7,200 feet. That is a fixed reference. The variables are the pressure altitude, the weight of the aircraft, and the temperature, and based on those variables and the fixed variable, I adjust the payload on the aircraft and make it so that the aircraft will be able to land per the regulations in that prescribed distance of 7,200 feet.

Q Is the Little Rock flight normally restricted to weight for landing?

A The runway and climb limit restrictions for Little Rock, there are none. It's -- 7,200 feet is considered not to be a problem for the MD-80.

Q Okay. Do you issue the pre-flight weather package or is that a load control or someone else's responsibility?

A The weather briefing package that's appended to the release is automated. The weather briefing package, our system is set up so that the computer will look at the route of the particular flight, and based on the route of flight, the computer will pull up all weather data that is pertinent to that flight, and it'll append it to the weather briefing

package.

Q Now, do you know what specifically is on that weather package sitting at your desk or -- or do you just rely on the MARS and square to select the required data, the observations, the forecasts, the NOTAMs, in-flight advisories and weather watches?

A Well, I do know what is on the weather briefing package, if that's what you're asking, yes.

Q Can you review the weather package at your desk?

A I have the capability of -- of looking at the weather package, correct.

Q Do you know if American Flight 1420 was provided the latest convective SIGMEC and severe thunderstorm warning?

A I do know that that is automatically appended on the weather briefing package. There comes certain text information. You have a map feature of the United States in textual form. It also appends all surface and terminal area forecasts that are pertinent to the flight, to that weather briefing package.

We also include any notices to airmen. Pilot reports are also appended, and we also have our company messages, I believe they're called J8s, and also F4s are appended to the -- to the release, and the other weather information is the de-icing situation at a station, and the runway conditions at a station.

Q Looking in the weather factual, Exhibit 5A, on Page 24 through 26, is that the weather document -- weather docket that was provided to Flight 1420?

A The -- well, looking at it very briefly, it -- this is --

Q I should say it's a summary of what was included.

A It appears to be a summary. It's not the actual information. It -- it appears to be a summary of the information.

Q All right. Well, we do have that as a -- well, under the exhibits in 5 -- in the original 5A, which is apparently not there.

A Yeah.

Q Did the flight crew call you prior to departure regarding the weather at Little Rock?

A The first officer called me, and we discussed his duty time limits and the availability of aircraft for 1420.

Q Now, this -- this route was being impacted with a line of thunderstorms and weather watch. Is it normal to have a call from a flight crew when severe weather's forecasted along the route?

A The route was not affected by the thunderstorm activity at the time of release. The routing that I had planned them on remained clear of the activity. But usually the crew will call if there's a concern about the weather.

But normally the captain and the dispatcher independently look at the weather.

Q Well, let me rephrase this. Was the convective SIGMEC and weather watch current for Little Rock Airport?

A Based on what I saw, looking at our SIGMEC, the significant meteorological conditions report, and what I observed, it did reflect

conditions that will eventually happen at Little Rock.

Q Does -- does that weather watch normally alter your flight planning or your flight-following role and escalate a caution or concern?

A Yes. The weather watch boxes do take -- they do get my attention, and I do look at them, but I also take the whole picture, and I look in the movement of the area, the intensity, the estimated time of arrival, and per our regulations, we're required to remain clear of any broken or solid lines of thunderstorms, and that will affect my route decision.

Q Do you remember how intense that line was, that scattered to broken line of thunderstorms, approaching Little Rock?

A At the time that I observed the radar imagery at release of the flight, it was an intense thunderstorm line in the northwest corner of Arkansas.

Q And under the National Weather Service VIP levels, that'd be equated from what, from a Level 1 through 6 thunderstorm?

A Say again your question. I --

Q In the National Weather Service VIP Scale, Level Scales 1 through 6, --

A Yes, it -- it shows the VIP Scale 1 through 6.

Q And the WSI radar is calibrated to give you sixteen levels of return or -- or more?

A I believe our scale goes to 16, but that is a scale that you -- as a dispatcher, I toggle down because it will pick up precip, which is very light precip, and, so, --

Q But --

A -- the lower scales are reduced so that they're not picked up.

Q But in this case, you -- you just mentioned that it was painting an intense cell or part of a line?

A It -- it painted a severe thunderstorm line in the northwest corner of Arkansas, correct.

Q Okay. The flight has blocked out now and now you're switching hats from a release to a flight-following role. In Exhibit 5A, on Page 27, we have your flight update.

A Yes.

Q Can you read that to us and explain what you meant by it?

A Well, before I do that, I need to explain that our company SIGMEC was issued prior to my free-text message. The SIGMEC is the formal notification to the pilot-in-command of intense weather or the severity of an area of weather.

I felt that the cockpit crew needed to have further explanation, and that was the reason for this free-text message.

Q All right.

A Did you want me to read it now?

Q Yes, and just go on and explain.

A I wrote, "Right now on radar, there is a large slot to Little Rock. Thunderstorms are on the left and right, and Little Rock is in the clear. Sort of like a bowling alley approach. Thunderstorms are moving east-northeastward towards Little Rock, and they may be a factor for our arrival. I suggest expediting our arrival in order to beat the thunderstorms

to Little Rock, if possible. Regards, Bill Mott. Please acknowledge the message."

Q And did you receive an acknowledgement from the crew?

A A few minutes later, I did receive an acknowledgement.

Q Okay. Can you describe what you meant by the "bowling alley approach"?

A In order to explain that, I must describe the ACARS unit on the cockpit -- in the cockpit. The printer is very small. The text that prints out, you're not allowed a large -- you cannot write a paragraph of information. So, that is the reason for the -- the description the way I wrote it, to be as brief and concise and clear to the pilot-in-command as to what I saw.

The large slot, as I explained it before, and also the term "bowling alley", the radar image that I saw, the bottom half was about half the state of Arkansas in width, narrowing down to about, I'd say, 60 nautical miles towards the top end.

The left side was solid. The right side was broken. Any escape or any diversion required would have been easily accomplished to the east, the southeast, the south or even the southwest.

The term does sound rather non-aviation-related, but my only goal in giving him that term was to give him a mental image of what to expect out there due to the fact that his on-board radar will not paint a full area of coverage.

Q With regards to the remark about expediting to beat the thunderstorms into Little Rock, did you have information that the line or

area of movement or speed was increasing at that time?

A The radar imagery that I showed was showing it tracking to the east-northeast at approximately 20 knots, and that's no indication of any increasing movement.

Q What further information would you provide under your flight-following role to the crew?

A Basically any safety-of-flight information is required by me to be sent to the pilot-in-command.

Q And that would be included as what? Can you define that? What you -- if you received an updated special observation from Little Rock, contamination confirmation again?

A There wasn't an indication of a special for severe thunderstorm on the field till two minutes after the crash, but, yes, you are correct. If -- if any information regarding the field conditions at estimated time of arrival, if it was in reference to safety-of-flight, it would be sent to the cockpit.

Q After you released the flight, at 0358Z, the terminal forecast for Little Rock was amended, and that is in Exhibit 5A on Pages 21 through 22. That forecast lowered visibility to one mile, and thunderstorm and heavy rain, mist, ceiling overcast at 1,500 feet with cumulonimbus clouds.

Did you receive that forecast at your work position?

A I don't ever recall seeing that new TAF come to my desk.

Q What -- can you tell me what category that amended forecast put Little Rock into? IFR? Marginal VFR? VFR?

A Well, that would put it into an IFR category, and the flight was planned as such.

Q Would that amended forecast be defined as safety-of-flight information, a change in the basic forecast and require update to the flight crew?

A That's correct. If -- if I had of received it, it would have been transmitted to the cockpit.

Q Is there any formal American Airlines procedure on what is uplinked, such as an amended TAF, granted it was not the one you released the flight, but a change in the basic forecast? Is there a policy at American touplink changed/amended terminal forecasts to the flights?

A There is no written policy. The way the regulations read, and it is kind of generic or general in term, terminology, is any safety-of-flight information must be sent by the dispatcher to the pilot-in-command.

Q Okay.

A And this TAF could be interpreted different ways, but in my opinion, I would have sent it to the cockpit crew had I received it.

Q While you were flight-following, did you receive any other weather bulletins specifically mentioning terms such as "super cell", "line echo wave pattern", "bow echo"?

A No, I did not receive any information to that effect.

Q Are you familiar with their significance and meaning?

A Yes, I am.

Q Could you recognize any of them on your WSI radar if they had occurred?

A The terms that you just stated?

Q Yes.

A With -- yes, if -- if I had radar imagery, I could possibly identify those areas.

Q And I believe -- did you see any on that evening of June 1st while the flight was airborne?

Any severe signatures, such as hail, loop, a bow echo, any of those?

A What the radar imagery indicated was a severe line, and I took it as that.

Q Okay. What is American Airlines' policy on flight-following and contacting the flight en route regarding the weather in the terminal area?

A Well, the dispatcher is required to relay any information to the crew, to the pilot-in-command, that affects the safety of flight.

Now, there comes a point, though, where my role would almost not be effective to the pilot-in-command. I'm basically a strategic planner, and I do the pre-flight planning or -- yes, the pre-flight planning for the pilot-in-command to -- to reference.

There comes a point as the plane gets closer to the terminal area, where the strategic planning is no longer effective, and the captain has to make tactical decisions based on the information he receives.

Q Do you as a dispatcher put any reliance on the FAA Air Route Traffic Control Center, Center Weather Service Unit or -- on providing weather support to your flights?

A The air traffic controller, it's -- his primary mission is

separation of aircraft, but I also understand that as an additional -- I can't think of the terminology, but based on workload, he can provide weather information to the pilot-in-command.

Q To the best of your knowledge, do you know if the center controller has the same radar display that you have? Same type of capability?

A The radar that the controller has, I don't believe it is specifically designed for weather radar imagery, but it can pick up radar returns.

Q Okay. What about in reference to the Little Rock TRACON or Terminal Approach Control in the tower? Do they have capability, to the best of your knowledge, of providing weather support?

A The TRACON and the Tower, I don't believe they do have the same capability as -- as I would.

Q Okay. Does American Airlines Dispatch and Weather Service have access to the FAA Terminal Doppler Weather Radars, the TDWRs, nationwide?

A Does American Airlines?

Q Have access to the TDWR Doppler Radars?

A No, we don't. No, we do not have access to Doppler, which is unfortunate.

Q Okay. Were you aware that the National Weather Service Regional Office in Little Rock had issued a severe thunderstorm warning versus a watch? This was a confirmation of severe weather. They had issued that at 0256Z for a line of severe thunderstorms approaching the

airport. Did you have access to that information?

A No, I did not have access to that information.

Q Would you normally have access to that?

A The -- no, I don't believe so. Could you restate who the issuer of that information was?

Q Well, we initially put out a weather watch for potential conditions.

A Weather watch box? I --

Q Right.

A That would be received by me.

Q Warnings are issued by the local areas to confirm severe weather and put a higher level of alert status up to the communities affected.

Do you have those weather warning messages available to you at your work station?

A That information -- I'm trying to decipher as to what you're talking about. I know we do get the weather watch boxes, and that -- that information is used by me, yes. But --

Q Okay.

A -- the weather warnings, I -- I can't recall.

Q Now, you mentioned beforabout the lag in some of your weather products. Would an accurate 30-minute movement in intensity forecast product of convection be valuable to you as a dispatcher? 30-minute forecast for thunderstorms?

A Any information that would help me to make a decision is

very valuable to my decision-making, yes.

Q Okay. How did you first become aware of the accident, and what action did you take?

A The first indication I received of the accident was approximately 10 minutes after midnight. I received a call from an American Airlines ramp agent telling me that we have a problem with 1420, and he said something to the effect "there's smoke, and it may be off the end of the runway", and that was my first indication of a problem.

Q And you notified who?

A The -- well, after that phone call, I called Little Rock Tower to confirm what was going on, and then I notified my sector and center manager as to we have a problem with 1420.

Q Were you relieved of duty shortly thereafter?

A I was eventually relieved of dutyes. It was a very disturbing event for me.

Q Well, I imagine it was, and I know from your background and your support that you provided, you made a good effort, and we do appreciate you coming in and answering some of these questions.

That's all the questions I have for you, MFrott. Thank you very much.

A Thank you.

MR. EICK: Mr. Chairman?

CHAIRMAN HALL: Are there other questions over there at the Technical Table?

MR. FEITH: Yes, sir. I just have a couple follow-ups.

CHAIRMAN HALL: Well, I wanted to ask a question, if I could, before you get to that, Mr. Keith.

The -- how many -- at the time you were handling Flight 1420, how many flights were you following?

THE WITNESS: I don't have an exact number for you, sir, but when I come in on midnight shift, the -- you know, as I stated before, the operation is winding down, and I'm handling between 20 to 30 flights in various stages of departure, en route and arrival, and that's composed of two desks that are combined on midnight shift.

CHAIRMAN HALL: Okay. And then how do you pick and choose with the bad weather night what you're following? You just kind of -- what you're following on the screen or how do you make those decisions?

THE WITNESS: The -- the Flight Monitor Program that I talked about a little bit earlier, I think, is the ASD. It superimposes all aircraft that I'm responsible for on a -- on a map image, and it also imposes the radar snapshot at the 15-minute intervals, and based on that, I -- I take a look to see which aircraft need attention in reference to weather.

CHAIRMAN HALL: But you don't have the access to the terminal -- I mean to the Doppler weather radar at the locations or over the areas that you have responsibility for?

THE WITNESS: No. I believe that's been addressed. We would like to have Doppler radar technology available as it is real time, but we do not have Doppler in our office.

CHAIRMAN HALL: Is that on the Internet available or --

THE WITNESS: I've looked on the Internet, and I have seen, yes, Doppler sites available, but it's not available at our stations.

CHAIRMAN HALL: Now, the -- the -- and this information from Little Rock that didn't get -- you didn't get picked up and passed on, where did that come from?

THE WITNESS: You're saying I didn't get picked up what information?

CHAIRMAN HALL: What was the information you were referring to?

MR. EICK: Mr. Chairman, --

CHAIRMAN HALL: The amended terminal forecast.

THE WITNESS: Oh, the amended TAF. No, I do not recall that coming to my -- my desk.

CHAIRMAN HALL: How would that have come to your desk? On your screen or --

THE WITNESS: It is automatically sent to my screen, and usually, yeah, it will be automatically sent, and I can identify it, but I -- I -- I don't recall seeing that come across my screen.

CHAIRMAN HALL: So, you just don't remember seeing -- recall seeing that that evening?

THE WITNESS: I don't even recall if it was sent to me, to be honest with you, and --

CHAIRMAN HALL: Who would have the responsibility for sending it?

THE WITNESS: I believe that's -- I really don't know.

CHAIRMAN HALL: Do you know, Mr. Eick?

MR. EICK: The FAA's responsible for the dissemination of the weather. So, it could be either the -- it slipped up from the FAA's dissemination or American Airlines dropped it in their computer system for some reason, or it might have been presented, Mr. Trott just does not recall.

We do know for a fact that a terminal forecast was amended. It was sent through the circuits, and it was provided to us in our -- our analysis and fact-finding trips on the Little Rock Airport.

CHAIRMAN HALL: Assuming you had that information, sir, what would you have done with it?

THE WITNESS: Well, it's sort of a moot point because I already knew that the area was eventually going to impact Little Rock. An amended TAF would bring my concerns, but I already knew that eventually, that it would be a factor for Little Rock.

I was more concerned with looking at the actual conditions at the field, and that's what I believe I was doing, was referencing the current reports, and they did not indicate any kind of gust fronts or any thunderstorm on the field.

CHAIRMAN HALL: Okay. I have one last inquiry, Mr. Smith, and that is, on the -- when you calculate whether you're going to dispatch or not, do you -- and you're dealing with some people that are up against duty time, do you factor in how long it would take them to get to an alternative airport?

THE WITNESS: That's -- that's not a factor. The crewman, the pilot-in-command normally will state that if he's fatigued or not, but --

CHAIRMAN HALL: No. I'm just talking about the practical amount of time that it would take --

THE WITNESS: For diversion?

CHAIRMAN HALL: -- for a diversion, yes. Just whether that's a factor or not.

THE WITNESS: Normally, that is not a factor.

CHAIRMAN HALL: Okay. Mr. Feith?

MR. FEITH: Thank you, sir.

BY MR. FEITH:

Q Mr. Trott, just a couple of questions. You had talked about your concern regarding the weather and providing a lot of information to the crew.

Did that concern extend beyond the en route portion to and through the approach phase? I mean you had talked about the fact that you were concerned about all of this weather, and then we had some updated weather information, the convective activity.

Did you take that concern to try and keep communicating with the crew to provide them that information?

A Well, that was -- I did have a concern, and that was the reason for sending the updated SIGMEC, excuse me, and also the free-text message. My -- I wanted to heighten the pilot-in-command's attention to the possibility that the thunderstorms could be a factor at our estimated time of arrival.

Q Okay. But keep going. After that -- that last free-text message, did you decide --

A I didn't receive --

Q Was there concern enough to -- to keep on trying to update them or --

A Well, looking at the radar imagery that I had, it still appeared the route was clear. The current report at Little Rock did not indicate that there was a thunderstorm on the field, and as I stated before, there comes a point when the pilot gets into the terminal area, and my information is no longer tactical.

Q Okay. You had talked about convective activity, and I think you gave a definition of that convective activity, am I correct? Did you talk about what your opinion is of convective activity or your understanding of convective activity is?

A In the conversation with Mr. Eick?

Q Yes.

A I believe we did talk, yes.

Q Are you aware of any American Airlines policy regarding the operation of the aircraft in an area of convective activity, any restrictions about flying three miles, five miles, 10 miles, in that type of area?

A Our policy is that we will remain clear of any broken or solid lines of thunderstorms. That's the American Airlines' policy.

Q Any minimum distance or is that just a judgmental call?

A There -- there's no distance requirement. It says you will remain clear of thunderstorm activity.

Q Okay. Given the crew that -- given that this crew, had they waited for their original airplane, would have likely timed out on their duty day, what kind of impact would that have had for you as the dispatcher and the crew and then getting this flight underway?

A If we had stuck to the original aircraft, the crew would have timed out, and I would have consulted with the Dallas Tower as to whether they wanted to -- excuse me -- the Dallas American Airlines Tower, the ramp manager on duty, and asked him if we would want to put the passengers into, you know, the hotels or would you want me to try to find a replacement crew.

I would take input from other people to see if we needed to find another plane and crew to take the passengers to Little Rock.

Q Using the conditions that existed that night, would that have been a significant burden on -- for you, given the fact of the impact that the weather was having on other flights?

A If -- yeah. If we had been delayed any further, of course, I wouldn't have ceased operation because of the thunderstorm line, but we were able to get an aircraft swapped and depart.

Q Do you know what time that crew was supposed to depart from Little Rock the next morning, had the flight landed successfully, and the crew got to the hotel?

A Their required rest period -- I know that they would be legal after a required minimum rest period.

Q Which is?

A I believe it's eight hours.

Q But do you know what time they were scheduled out?
A The scheduled departure time?
Q What time that crew was scheduled out the next day.
A No, I -- I don't know what their sequence was for the next day.
Q Okay. Tell me -- I know that you probably answered this question, but as far as the field conditions, do you recall how much time elapsed from the last notice of field condition report that you had in relation to the accident time?
A The sequence report that I was looking at, based upon an estimated time of arrival at Little Rock, indicated VFR conditions to me. I believe two minutes after the crash, this is hindsight now, two minutes after the crash, there was issued a new sequence report stating severe thunderstorm on the field, but up to that point, it was VFR.
Q So, you didn't have any idea that the runway was wet?
A Well, I assume that the runway would have been wet because of the forecast.
Q Was that before the aircraft landed or during its approach?
A It was planned that it would be a wet runway eventually -- let me try to think. I believe the field condition report that was by the American Airlines agent indicated wet runway.
Q So, the crew would have been planning for a wet runway landing?
A I don't know what the crew would have been planning for.
Q All right. As far as alternates and having a crew divert to an

alternate, is there a policy regarding when the crew will divert, and do you have any influence on -- on calling that?

A The pilot-in-command makes the decision to divert the aircraft. I can have a say in that. I can't command the pilot to divert. The regulations don't allow for that. They state the pilot-in-command is the final authority to the operation of that aircraft, but I can suggest to the captain, I see a condition that requires a diversion, and I can send a message to him, if required.

Q So, given the nature of your understanding of the weather en route and, of course, as it was moving into the Little Rock area, and your concern about that weather, is there -- was there any concern or any thought to suggest to the crew that they go somewhere else because of the weather?

A Based on the imagery that I was looking at, the route remained clear of the activity, and Little Rock field conditions also were reporting clear of the activity. I assumed that the captain would make a decision if the field had reported a thunderstorm, that he would make a decision whether to land or divert.

Q But given the SIGMEC and all of the updated information that was -- that was coming forward towards the tail end of that flight, --

A Hm-hmm.

Q -- that still didn't suggest that they should go somewhere else or at least make an attempt to call them and discuss it?

A Once again, based on the radar imagery that I saw, I didn't feel that the flight was going to encounter the thunderstorm activity. I felt

it would remain clear, and I was relying on the captain to make the decision whether the field was clean or not for arrival.

Q Would you just look at Exhibit 5B, 5 Bravo, Page 18? And looking at the Figure 24A, would you have had access to that particular depiction of the weather?

A The radar imagery that I have is not that -- would not -- I -- I don't believe it would look similar to that particular image that you're referencing to.

Q Can you give me a -- your characterization of -- of that particular weather system?

A The imagery that I'm looking at right now?

Q Yes.

A It does indicate a severe thunderstorm line.

Q How about in the proximity of Little Rock?

A I don't know what the scale is, but Little Rock is in front of the activity.

Q With this kind of information, and given the time of 1635Z, this kind of information, would you have passed that on to the crew and discussed going to an alternate based on this picture?

A Once again, I didn't have this picture to give that information to the cockpit crew.

Q Hypothetical. If you had had this picture?

A Of course, it's required of me to provide any safety-of-flight information to the pilot-in-command.

Q So, you are part of that process then as far as the decision-

making process that takes place because it is your responsibility as well as --

A Well, --

Q -- the captain's?

A -- I don't make the decision to divert or land the aircraft. That's the pilot's decision.

Q Understand. But you are part of that process of ensuring safe operation of the aircraft?

A That's correct. If -- yes.

Q Okay. Thank you, sir.

CHAIRMAN HALL: We will move to the tables. I assume American would like to defer to the end. Has anybody else got any preferences? If not, we'll begin with the Boeing Commercial Airplane Group.

MR. HINDERBERGER: Thank you, Mr. Chairman. Boeing has no questions of the witness.

CHAIRMAN HALL: Okay. The Allied Pilots Association?

MR. ZWINGLE: We have no questions. Thank you.

CHAIRMAN HALL: The Association of Professional Flight Attendants?

MS. LORD-JONES: We have no questions. Thank you.

CHAIRMAN HALL: The National Weather Service?

MR. KUESSNER: We have no questions. Thank you.

CHAIRMAN HALL: Little Rock National Airport?

MS. SCHWARTZ: We have no questions, Mr. Chairman.

CHAIRMAN HALL: Little Rock Fire Department?

MR. CANTRELL: No questions, sir. Thank you.

CHAIRMAN HALL: The Federal Aviation Administration?

MR. STREETER: One question, sir.

INTERVIEW BY PARTIES TO THE HEARING

BY MR. STREETER:

Q Mr. Trott, the statement was made that the FAA disseminates those TAFs to you. Is that your understanding, that American Airlines receives the TAFs from the FAA?

A We do receive the TAFs from, I believe, the National Weather Service, and --

Q Okay.

A -- I don't know what the link is. Also, our Meteorology Department can issue a TAF, if required.

Q Thank you, sir.

CHAIRMAN HALL: Very well. We'll move to the Board of Inquiry. Mr. Sweedler?

Oh, I'm sorry. American Airlines. Thank you. Mr. Baker, I apologize.

MR. BAKER: Thank you, Mr. Chairman. We have no questions.

CHAIRMAN HALL: We moved through the table so quickly, I forgot. Fine.

Mr. Sweedler?

MR. SWEEDLER: I have no further questions, Mr.

Chairman.

CHAIRMAN HALL: Who's next here? Ben? Mr. Berman?

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Mr. Trott, you mentioned that you didn't believe the flight would have to divert. You thought they'd get in based on the radar you were looking at.

Did you give any -- any -- any -- any anticipation to what if they had to divert? Did you -- did you do any work about where you thought they'd go if they -- if they did?

A Well, that was in the flight plan text. There was always a plan for diversion, if necessary. I elected to give the pilot-in-command two alternates. I did not have to give him two alternates, but I felt that he should have one on the east side and the west side, and I did take into consideration that if he had to go somewhere, I wanted to give him the options.

Q Did you do any ground work with the crew scheduling people or maintenance control about the event of getting that airplane into another airport in case that airplane had ended up in a different airport?

A If he had diverted to another airport, it would have been -- the information would have been disseminated to everybody in the company, and the alternate site plan, Nashville or Dallas, are -- are scheduled airports. So, it would not have been a problem.

Q And if the airplane had diverted into either of those fields, would the crew have been able to take any more flights out of that airport

that evening or would they have been done?

A The duty time-wise, I believe once they diverted there, they were -- they're required to stay there.

Q Okay. Thank you. No more questions.

CHAIRMAN HALL: Okay. MrHaueter?

MR. HAUETER: Just a brief one. I want to make sure I heard right.

BY MR. HAUETER:

Q You recommended or suggested to the crew that they divert, based on weather?

A No, no, no. I -- the flight plan text, the release, there was a plan. I had two alternates, Nashville and Dallas. In the flight plan, there was information for diversion, if required.

Q Okay. Thank you.

A Yeah.

CHAIRMAN HALL: Mr. Clark?

BY MR. CLARK:

Q Earlier and just now, you referred to the release and your evaluation of the weather, and you released the aircraft.

What type of a scenario on a short flight like this would you be looking at that would cause you to hold that airplane or not release it?

A Well, there's numerous considerations to take. In effect, whether the flight can go or not, weather being one of them.

Q I was referring specifically to weather. What would you be looking at that would cause you to hold that airplane because of the

weather?

A Basically, judging the time that the weather would be a factor for the arrival, and also, you know, any current conditions. That would be a factor for my decision whether the flight can go or not.

Q If -- if it were -- from your estimate, you were going to project that the weather were going to be at the airport upon arrival, that would be one cause to not release the airplane?

A If the main body of the terminal area forecast indicated that the thunderstorms would be on the field, that would be a serious consideration, but it was not in the main body.

Q Do the forecasts normally indicate that thunderstorms are predicted an hour away to be on a field, though?

A Well, -- say again your question. I --

Q I stated it poorly. Do -- do the forecasts normally predict that a thunderstorm is going to be on a field at a particular time, with an hour away?

A The main body of the forecast after the 4 Zulu would be a good indicator that, yes, there -- the -- the forecaster is definitely saying that at this time, there will be something on the field. However, if the forecaster is hedging his bets, so to speak, he'll say -- in the remarks of the forecasts, he'll say temporary condition or a chance of, and that's what the TAF indicated for Little Rock, that it was a temporary condition.

So, I assumed that the forecaster wasn't sure whether it was going to be there or not.

Q Okay. Thank you.

CHAIRMAN HALL: I just -- Terminal Doppler Weather Radar, is that -- are you familiar with that, Mr. Trott?

THE WITNESS: Yes, I am, sir.

CHAIRMAN HALL: And you're aware, I guess, that some airports in the United States have that equipment and some do not?

THE WITNESS: I'm aware that Terminal Doppler Radar is available throughout the United States, but certain areas have it and certain areas do not have it. It is a very useful tool.

CHAIRMAN HALL: Yes. Does that impact your dispatch information, whether you have that type of information available or not?

THE WITNESS: I don't have that information available to me to render any kind of decision.

CHAIRMAN HALL: Period? Do you know, were there plans that you would eventually have that type of weather information or the American Airlines Weather --

THE WITNESS: I know there --

CHAIRMAN HALL: -- folks would have that?

THE WITNESS: Well, I know there is a push to get Terminal Doppler Radar information available to the aviation community, and I think it would be an enhanced tool to use for flight planning.

CHAIRMAN HALL: And how would that -- how would -- but you don't know of any immediate plans at American for that?

THE WITNESS: I don't think American can instigate it, but I would like to see that available to the aviation community.

CHAIRMAN HALL: All right. Well, I would, too, because

when people are sitting in their living rooms, and they got better information than someone, you know, getting ready to make an approach into an airport, we need to try to do a better job --

THE WITNESS: I agree with you.

CHAIRMAN HALL: -- in that area, and that's why I was trying to inquire.

What is your hours of duty? How long do you work, and how long had you been on duty?

THE WITNESS: I work eight-hour shifts, and the shifts -- my rotation during a month is six days on, three days off, six days on, three days off, and then six days on, four days off. That's one rotation a month.

CHAIRMAN HALL: Okay. And I was trying to understand. You were covering two positions. I got a picture. You're not actually running from one position back to another, are you? Is that two different set of screens or how do you do that?

THE WITNESS: No. The desks are co-located within each other, and the dispatcher has the ability to merge the desks, to put all information on one or, if he so desires, he can go back and forth. I choose to merge the information.

CHAIRMAN HALL: Okay. And that works adequately for you?

THE WITNESS: That's correct. The requirements on the midnight shift aren't as -- as they are during the day shifts.

CHAIRMAN HALL: And what is the difference in the shift where you don't have bad weather and one that you do? How does that

impact your -- your job?

THE WITNESS: Well, you have to expect bad weather days every now and then, and in a scheduled airline operation, and when we have bad weather days at American Airlines, there is an effort to bring in other dispatchers to maintain operational control.

CHAIRMAN HALL: Were any additional dispatchers brought in that evening?

THE WITNESS: During that -- during the second shift, the shift prior to mine, I believe there was other dispatchers on duty, and as the midnight shift came on, and the operation was winding down, there was no additional dispatchers available.

CHAIRMAN HALL: Very well. Well, Mr. Mrott, you've been very responsive, and I'd like to provide you an opportunity for any comments you would want to this Board and the individuals that are assembled that would have an interest in this flight.

If there any suggestions or recommendations that you have of areas that we ought to look at or changes that ought to be made in the aviation system, we would be glad to entertain them at this time.

THE WITNESS: The only thing that I can think of offhand is, as you stated before, that there is better weather information available on the Internet than there is available through the aviation community. I would like to see that information trickle over, and it would be more useful to me.

CHAIRMAN HALL: All right. Well, thank you, Mr. Mrott, and you're excused, and we'll call the next witness.

(Whereupon, the witness was excused.)

CHAIRMAN HALL: Mr. Berman?

MR. BAKER: Mr. Chairman?

CHAIRMAN HALL: Yes. I apologize. Have you still got a question, Mr. Baker?

MR. BAKER: I have two items to cover, if I might, sir.

CHAIRMAN HALL: Surely.

MR. BAKER: First, let me --

CHAIRMAN HALL: Do you want Mr. Trott to remain?

MR. BAKER: No.

CHAIRMAN HALL: Okay. You're excused, Mr. Trott. Please go ahead, Mr. Baker.

MR. BAKER: Thank you. Let me try to clarify American's view on Doppler as we understand that subject. That technology, as Mr. Trott testified, is -- is really quite -- quite marvelous in its abilities.

The airlines of this country have a standing request to the FAA to gain access to that for our operation centers. It's my understanding that there are various technical and vendor difficulties in achieving that, but the industry, through the Air Transport Association, continues to work that issue, and from our perspective, the faster we can achieve it, the better off we're all going to be. So, it -- it's -- it's not a new subject to us, and it's -- it's one of continuous work.

Let me move on to another subject that the Chairman raised earlier, and we think that in the normal course of things, this would be the

point in time in the hearing in which we would hear from the air traffic controller at the airport, and we feel obligated because of how strongly we feel about this subject to -- to get into the record at this appropriate time the following points.

American Airlines clearly supports the NTSB's public hearing process, but this hearing process is totally dependent on having all of the appropriate witnesses testify, and although our personnel would no doubt prefer not to experience the rigors of testifying in a high-pressure public hearing, they have recognized their obligation to show up and answer questions about this accident.

The FAA air traffic controller who was in the airport tower and who cleared Flight 1420 to land should also be a witness here today. He is conspicuous by his absence.

The controller's perhaps the only eyewitness, other than the first officer, who we have heard from this morning. Certainly he is the only one who can fully describe his own role in this accident. He is also the only one who can provide needed information on a number of important issues.

Like the first officer, the controller was interviewed by the NTSB after the accident, but he is the one who is not here today to answer further questions from all the parties.

We recognize that he may be distraught about his own role in this accident, but the accident was seven months ago, and he was previously able to give an interview and return to work, and we do not think this investigation should conclude without at a minimum the parties

having an opportunity to further question the controller directly.

Thank you very much, Mr. Chairman.

CHAIRMAN HALL: Well, thank you, Mr. Baker, and let me mention, and then I'm going to call on Mr. Feith for a comment on this, that I appreciate very much the attendance of the officials that have been here previously, the first officer and the dispatcher.

I think it's important to this investigation that these witnesses appear, and we have this opportunity for the questioning and dialogue that just took place.

I myself was concerned and disappointed, but I will defer to Mr. Feith because I had relied on Mr. Feith in terms of advice on the testimony of the tower controller.

Mr. Feith?

MR. FEITH: In response to your statement, Mr. Baker, the FAA provided me with a letter from the air traffic controller's physician, who is attending to the controller, and that letter states that his testimony under this type of environment may be detrimental to his mental health.

As the investigator-in-charge, in consultation with the Chairman and the hearing officer, we found that with regard to his testimony under these conditions, it was better served that if in fact the parties have additional questions for the controller, that we will reconvene the Air Traffic Control Group as a group with the parties participating and come back down here, and under a less-hostile environment from the standpoint of his mental faculties re-interview the flight -- the air traffic controller as many times as necessary to glean the information that we

believe is necessary to complete the factual record.

We have to take that into consideration. That was a responsibility I had and -- and the Board had as far as determining who these witnesses would be. So, again the offer is out through the Chairman and through myself as the investigator-in-charge that our Air Traffic Control Group chairman will in fact reconvene that group and come down and re-interview the air traffic controller when he is cleared by his physician.

MR. BAKER: Thank you. We find that an acceptable solution to this difficulty.

Thank you, Mr. Chairman.

CHAIRMAN HALL: Thank you, Mr. Baker, and again I appreciate American's cooperation in providing the witnesses for this morning's hearing.

Mr. Berman, the next witness, please.

MR. BERMAN: I call Captain Eric Lewis.

Whereupon,

CAPTAIN ERIC LEWIS

having been first duly affirmed, was called as a witness herein and was examined and testified as follows:

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Sir, would you please state your full name and your business address?

A My name is Eric Lewis. My business address is GSWFA,

that is Greater Southwest Flight Academy, Dallas-Fort Worth International Airport, Texas.

Q And by whom are you presently employed?

A American Airlines.

Q What's your present position, sir?

A Presently, I'm serving as the Managing Director of Flight Crew Relations at American Airlines. At the time of this event, I was serving as the Douglas Fleet Manager.

Q And when did you begin your current position, and then, also, how long had you been in the previous one?

A I took my duties in my current position the first week of December of 1999. I started work as the Douglas Fleet Manager in February of 1998. Prior to that date, the 727 and Super-80 fleets were combined, and I was the manager of that fleet. So, I've been working in the Super-80 fleet for about a period of three years.

Q Hm-hmm. And considering the Douglas Fleet Manager position, would you please briefly describe the duties and responsibilities of that position?

A My duties as the Fleet Manager are to oversee the training programs, to ensure they comply with all applicable Federal Aviation Regulations. I monitor our trainees' progress through the various courses that they are enrolled in.

I assist our Flight Operations Technical Organization with developing some of the manuals material and, in a limited way, some of the policy guidance contained in our Flight Manual, Part 1.

Q And could you please briefly describe your education, training and experience for the preparation for the position you're describing?

A Yes, sir. I'm a graduate of Loyola College in Baltimore, Maryland. I was hired by American Airlines in November of 1978. Since I got hired, I've served as a 727 flight engineer, MD-80 co-pilot, DC-10 co-pilot, upgraded to captain on the 727, served as a 727 pilot check airman and Air Crew Program designee, and I've served as a Super-80 check airman, and an MD-11 check airman.

Q Thank you. Finally, could you please give me your -- a summary of your FAA certificates and your experience in the MD-80 and DC-9 fleets?

A Yes, sir. I hold an airline transport pilot certificate with DC-9, 727 and MD-11 type ratings. I hold a certified flight instructor certificate, a flight engineer certificate, and an advanced ground school certificate.

Q And your experience in the Super-80 or DC-9?

A I flew as a first officer on the DC-9 for a period of about three years, flying about 2,500 hours during that time. I transitioned to captain on the airplane and flew it essentially as a check airman for a number of years.

Q Thank you very much.

MR. BERMAN: And now to Capta Trew.

INTERVIEW BY TECHNICAL PANEL

BY MR. TEW:

Q Good afternoon, Captain Lewis.

CHAIRMAN HALL: We keep hearing that term, check airman, Captain. Would you tell the audience, for those who are not familiar with aviation terminology, know what a check captain -- airman is, quickly?

THE WITNESS: Yes, sir. A check airman is a person designated by the FAA to perform proficiency checking functions, both in the simulator and in the aircraft.

CHAIRMAN HALL: Thank you very much.

BY MR. TEW:

Q Good afternoon, Captain Lewis.

A Good afternoon.

Q The Operations Group has previously interviewed you, as we know. Does American Airlines have any fatigue recognition training?

A Our fatigue training is given in the context of an alertness strategies course. This particular alertness strategies course is taught during the basic indoctrination training for all of our new hire pilots and was also carried for a period of about a year and a half to two years in our recurrent training.

It focuses, as I said, on alertness strategies; that is, more on fatigue countermeasures than on recognition of any individual symptoms.

Q Okay. What training or guidance does American provide its pilots concerning weather and weather interpretation?

A Regarding weather and weather interpretation, during the

captain and first officer upgrade courses, and during the basic indoctrination course, our trainees are familiarized with the types of weather products available to them typically on their dispatch release.

Also during the basic indoctrination course, trainees are given a tour of the SOC and Meteorology Sections of the Operations Center, hopefully to encourage them to participate in the process and call on these resources, if they're needed.

Additionally, in terms of weather training, the controls and indicators specific to the particular type of aircraft that they are being trained on is introduced in the ground school, and then the bulk of the weather radar training is accomplished during the IOE phase; that is, in the aircraft while flying with the pilot check airman.

Q Okay. Maybe I didn't hear this. Do you get into the weather interpretation, like, you know, the cells, how to distinguish what would be a serious -- Level 5 or Level 6? In other words, weather interpretation? Is there a course or training on that?

A We don't really train to the National Weather Service levels of thunderstorms. We train to the precipitation reflectivity that's presented on our airborne weather radar. That's the primary thrust of our training, and again we do that during the IOE phase.

Q Thank you. What training or guidance for American provide its pilots concerning the avoidance of weather, such as wind shear or thunderstorms, including what criteria would they be given for avoiding thunderstorms, for instance?

A As Mr. Trott said, in our Flight Manual, Part 1, we have the

policy guidance that American Airlines provides for operating in a terminal area, the en route phase, and so forth.

Our pilots are forbidden to enter or depart a terminal area blanketed by thunderstorms. The dispatcher and the captain will not agree to dispatch a flight along a route unless it is free of broken or -- or -- or greater levels of thunderstorms, and in the event that we can't avoid the thunderstorms entirely in the flight-planning process, the airborne weather radar is required to be operative to dispatch along that route.

Q You touched on the training that's given on the weather radar, the airborne weather radar. Where does the pilot get its hands-on training in the operation of it? I know how you can read it in the book, how to read --

CHAIRMAN HAL: Mr.Tew, before we proceed, I -- I'm kind of interested. What does the word "blanketed" mean? I think I know, but I don't --

THE WITNESS: It's a significant amount of coverage of the area.

CHAIRMAN HALL: Is that just kind of your own opinion or is there some way you know that term?

THE WITNESS: There's not a quantitative percentage coverage or anything like that.

CHAIRMAN HALL: All right. Thank you.

MR. TEW: I guess it didn't stand out because I was used to the term.

CHAIRMAN HALL:I've heard these terms bowling alley and

blanketed but not in this context. So, I was trying to --

MR. TEW: It's an excellent question. It's just I was just used to it, I guess, so it slipped right by me.

BY MR. TEW:

Q The question I believe we were at was, you touched on the -- the airborne weather radar training that they do receive, and where would your pilots get their hands-on operation of actually using it?

A Again, we would do that during the initial operating experience phase of their training; that is, they've completed the ground school and simulator phases, and then they're assigned to fly a minimum of 25 hours in the aircraft, and during that time, we reference a worksheet which goes through the areas that we're required to cover with the individual trainee, and the operation of the weather radar is part of that training.

Q And what if the weather is clear when -- you know, you can't paint a picture to show a pilot what it looks like. How do you -- how do you go about describing them how to use it?

A In the event we don't have a chance to observe actual weather conditions in flight, we have the ability to adjust the antenna tilt and get the trainee used to the weather radar display by using the ground return, and also we have reference material in both our Volume 1 and Volume 2 of our Operating Manual that has pictures, talks about reflectivity, the various types of precipitation and so forth.

Q What are American Airlines pilots trained to do when they receive a report of a wind shear?

A Could you be more specific about -- are we talking about a wind shear alert or a microburst alert or --

Q A wind shear alert.

A A wind shear alert should provoke an increased state of awareness on the part of the pilot that it's possible to encounter wind shear conditions. We would expect him to evaluate the quality of that report in terms of the amount of direction change, the anticipated gain or increase of air speed, and then make a decision to either continue or to hold or to divert.

If the decision's made to continue, we would expect him to take appropriate measures, such as increasing the planned approach speed for that particular approach, consider that there's -- or review and consider the possibility of a go-around or some other kind of maneuver to avoid the area.

After that, the next phase that we want the pilot to be aware of is a recognition phase. If he continues and experiences uncommanded changes in pitch, roll, rate of descent, then we would expect the pilot to execute an escape maneuver.

Q What is the definition of severe wind shear?

A Severe wind shear, as defined in our Operating Manual, Environmentals 13, is a reported -- a pilot report of an air speed -- abrupt air speed change of more than 20 knots.

Q Could you tell us what training is provided to American pilots concerning crosswinds?

A Yes, sir. Specifically, on the sixth day of our simulator

training course, and this is typical for most of our fleets, we have a day that is dedicated primarily to handling the airplane close to the ground. So, that's our take-off and landing day.

The take-off and landing day in the sim is preceded by a two-hour briefing that covers all the key points of the aircraft's handling characteristics, the wind shear escape and recovery, and occasionally there are other items added, such as TCAS and so forth.

When we get them into the simulator, what we attempt to do is start off with little or no crosswind, dry runway, and then gradually increase the crosswind component until we reach the aircraft's demonstrated maximum.

After that, we'll reduce the runway surface friction using the simulation; that is, decrease the amount of braking that's available to each trainee or available to the aircraft, and then we'll repeat the process, start out with a little bit of crosswind and then gradually increase it until we experience the control difficulties that we want the pilot to learn to correct.

Q Thank you. How are your pilots trained to determine what the crosswind is, and if it exceeds the company limitations?

A The crosswind training is introduced in the ground school. We have a day primarily dedicated to performance training; that is, familiarity with our performance manual.

The performance manual has a chart, it looks like a grid, where you can determine the number of degrees off the runway and the amount of the crosswind -- the amount of the wind velocity, and then

resolve that into a headwind and crosswind component.

Q Okay. If a pilot's flying like these pilots were doing, and they get a crosswind, would you expect them to take this chart out and look at it or --

A If they want to be very, very precise about it, yes, I would. There are some general rules of thumb that you can use to approximate the crosswind component.

Q Okay. What are American's procedures for landing on a wet runway?

A Landing on a wet runway, we'll encourage the use of aggressive manual braking or maximum auto braking. We'd like to limit their reverse thrusters to approximately 1.3 EPR. That's for directional control considerations.

Q And with a crosswind?

A Wet runway and crosswind is similar. The procedures are similar. The -- the intent or the -- the careful consideration on the crosswind part is the directional control issues that can result.

Q How does American train its pilots in wet runway procedures?

A In the simulator, again we -- we have the ability to set a friction loss, variable from zero to nine. It's a -- it's an engineering scale. It does not correlate to pilot reports of braking and so forth, but any type of surface contaminant is going to reduce that, whether it's wet or snow or whatever. So, all we do is we adjust that friction loss component during the simulation.

Q Have the wet runway procedures been changed since the accident, and, if so, in what ways?

A As far as procedures, no. They have received additional emphasis because of some of the conditions in this particular event.

We have added this directional control information into our recurrent training program, so that our pilots will have this in front of them as they come back through for their annual training cycle.

We've also taken the opportunity after this event to bring in all of our check airmen during our third-quarter standardization meetings in 1999. All of our MD-80 check airmen were exposed to a review of all the adverse runway condition landing considerations.

To do this particular bit of retraining, what we did was we obtained a video that Captain Melody -- of a show that Captain Melody did at another carrier. Tom has visited our academy before on this same subject, and again we used this video tape to give a credible source to go back through and review the information for our check airmen.

Q Okay. I'd like to reference Exhibits 2QQ and 2RR, Quebec Quebec, RomeoRomeo.

A Yes, sir, I have those.

Q Okay. During observation of two separate simulator training sessions that were specifically dedicated to take-off and landing training, it was observed that during one session, wet runway procedures were not being followed by the students or the instructor, and during the other session, wet runway procedures were not discussed or trained.

How do you monitor this training and ensure that proper

procedures are being taught?

A As I said, when you and Captain Wyatt observed these two sessions, I was very concerned about it. What we did then was, as I said, we brought everybody in for a third-quarter meeting and reviewed all the material in depth.

What we do is twice per year, we have a standardization coordinator, that is typically an Air Crew Program designee that's one of our more senior check airmen, observe our newer check airmen conducting each of these types of events.

We also have FAA oversight periodically to make sure that this is being conducted the way we expect it to be conducted.

That said, for this year, we have also added additional staffing in terms of a full man-month of -- of a standardization coordinator. So, now we have additional days and hours available for a senior check airman to observe perhaps some of our less-experienced check airmen doing their work.

Q Did you monitor any of the training sessions after we did?

A Yes, sir, I have.

Q Did you discover anything of interest?

A No, not really. I think that we gained a fair amount of benefit from reviewing all these adverse landing considerations. That -- that presentation was very, very helpful, I think, for all of our instructors, especially our newer people.

Q Do you feel that American's wet runway training is sufficient?

A Within -- yes, I do. Within the ability of the simulator to reproduce the kinds of conditions you can encounter, I do. Again, there are some -- some limitations on the ability of the simulator to replicate what you experience on any given runway in any part of the country.

Q How do you --

CHAIRMAN HALL: Can the simulator simulate this rudder blanking?

THE WITNESS: Yes, sir. The Douglas Aircraft Company provided a ground-handling package, I believe in 1988. That ground-handling package was incorporated into all of our simulators within six to eight months after it was available.

Again, depending on which test pilot you talk to, which pilot, line pilot you talk to, you may find some disagreement as to how faithful any simulator is at simulating those types of conditions, but it does allow us to train the desired learning objective, which is reduce the amount of reverse thrust until you regain directional control.

BY MR. TEW:

Q Once again referring to the wet runway procedures, how do you ensure that these procedures are being properly performed during line operations?

A In line operations, we give our captains periodic line checks. To be honest, as you observe a captain on one or two legs per year, you may or may not experience these kinds of conditions. That latency is one of the things that I think helps the pilots stay proficient at adverse field conditions.

Fortunately for us, most of the time, many of us aren't exposed to these kind of conditions on a very, very regular basis. It's a relatively unusual circumstance.

Q Is an approach briefing required for all approaches?

A It's required for all instrument approaches. If we are planning on conducting a visual approach, the captain is required to ensure that a briefing is conducted, and basically that particular briefing is going to be identified, who's going to do the landing and the runway of intended landing.

If an instrument approach is planned, then the approach briefing, a full approach briefing is required.

Q Okay. So, maybe I missed it. For a visual approach, there's not an approach briefing really required, other than who's going to land?

A We're going to identify the landing runway to make sure that we land on the correct runway, --

Q Okay.

A -- and then we're going to brief who is going to do the landing, if it's other than the pilot flying, and -- and that will be probably the limit of what will be required on the visual approach.

Again, most of us, as a matter of course, just about every place we go has an ILS available to us. Most of us are going to review that, even if we intend on a beautiful day to -- to do a visual approach, we will review the information provided on the ILS chart.

Q What-- what training does American provide on approach briefings?

A The approach briefing concept is introduced in a ground school as we practice our normal procedures. As we get into the simulator phase of training, approach briefings for each pilot are a very, very regular occurrence.

Typically on every simulator session, we'reigg to do anywhere from two to five or more instrument approaches per pilot, and each of those approaches will have an approach briefing associated with it.

The instructor is going to monitor that briefing and provide hopefully some constructive feedback about additional items that should be added or additional considerations that ought to be briefed, and then hopefully that continues into the IOE phase.

Again, as you're flying with a new captain or a new first officer, you attempt to provide that pilot with the opportunity to continually practice those briefing techniques out in the real world where it really counts.

Q Who -- who conducts the approach briefing?

A Either pilot may conduct the approach briefing. Our policy statement is that the captain will ensure that an approach briefing is completed. That allows the captain to effectively manage the crew's workload.

Q Okay. I'd like to refer Exhibit 2G, 2 Golf.

A I have that.

Q Okay. First thing I would do is -- before that, what are the required items on an approach briefing for an instrument approach?

A I think we have that in one of the exhibits. It might be --

Q Well, would you like to give us a normal American approach briefing using 2G?

A Yes, sir, I can do that.

Q Okay.

A Unfortunately, the -- the date and the chart number are cut off on my copy, and that's usually what I start with.

Q That's okay. We'll allow that one.

A Okay. I would begin by saying we're going to plan the ILS for Runway 4 Right at the Little Rock Airport. It's the 11-2 Chart, and I would review the effective date.

At that point, I would expect some acknowledgement from the first officer. I would expect him to locate his chart, make sure that we have the same date, and then we'll go with whichever one is current. Hopefully they're both the same.

After that, we would review the reported weather, the report of visibility, and then compare that to the visibility required, in this case 2,400 RVR. After that, I'd say the primary nav aid is the localizer. The frequency's 1113. The identifier is ICNL. The in-bound course is 42 degrees. Initial altitude's 2,300 feet. Glide slope cross is 90 at 2217. Decision altitude's 460 feet based on 200-feet height above the ground.

Missed approach procedure is climbing right turn to 4,000 on a 1-10 heading outbound Little Rock, 89 radial to ATERS intersection and hold. Airport elevation is 260 feet. Minimum safe altitude, all quadrants, is 300 feet. Highest obstacle is 2,272 feet, and that looks like

that's on the 12-mile DME arc due south of the airport.

After that, I would -- those are the required items. After that, I would review anything that was special or unique to that particular approach, if we had an MEL issue that was going to affect how we operated the airplane, if we had any icing considerations, any other consideration that might require for us to do something slightly different than what we would normally do.

The intent of the approach briefing is really to review the numbers that we intend to use to conduct a particular approach, and it also is to help us point out anything that's going to be different from what would be considered normal.

Typically, we would not brief or debrief what we would consider to be normal procedures as part of this approach briefing.

Q Okay. You state that the additional items would be added to the required items as necessary.

A Yes, sir. We encourage our pilots to do that.

Q Would -- would these additional items be such as wet runway procedures, wind shear or crosswind limits? Would you expect those?

A If environmental conditions are going to be a factor, I would hope that those would be included, especially if they're at or near limits. Typically, we would not go through and brief what we would consider to be a normal procedure; that is, reducing the amount of reverse thrust we intend to use on a wet runway. That's something that we train to, hopefully with some regularity, and that should be a relatively familiar

concept to the guys. So, we -- some captains may choose to review it, others may not.

Q Hmm. So, -- so, you wouldn't necessarily think that a wet runway procedure would be included on a -- as -- it could be, but it wouldn't -- it wouldn't be necessary?

A Yeah. In my opinion, it would come under the category of other considerations, and again each captain has to look at all the considerations and then sort through what he perceives to be the threats.

Q Okay. You said you would add these additional items. Are the American pilots trained to add these additional items --

A Yes, sir. They are encouraged by their instructors in the simulator phase and during the IOE phase to look at all these factors or as many factors that they think might have a bearing and include those in their plan.

Q Okay. You've read the CVR transcript?

A Yes, sir.

Q What -- what do you think of the approach briefing that was performed by this crew?

A I think that taken in the context of a runway change; that is, we had -- we -- we -- the first officer testified that we had a full approach briefing earlier in the flight. I think taken in the context of it being an amendment to what was said before, I think it would have been adequate to help me fly that approach.

Q Do you think that there should have been any additional briefing on these crosswinds with the wind shear being mentioned and the

high crosswinds? What do you --

A I think that the captain, based on what I saw in the CVR, showed an awareness of the wet runway limitations, and I think by adjusting his reference for his approach speed, rather, I think he showed an awareness that there were conditions there that was understood by both pilots.

Q Who conducts the before landing checklist?

A The pilot not flying is charged with accomplishing the before landing checklist.

Q When would this checklist normally be accomplished?

A Normally, it's -- it's accomplished as you're, oh, most of the way through the descent. In the vicinity of 10,000 feet above the ground is -- is a fairly good approximation for when we would start going through those items.

The way the workload seems to fall out on the MD-80, the way our checklist is structured, the first portion of that checklist, the first five-six items or so, are going to be accomplished around 10,000 feet, and that will take us down to the landing gear on the mechanical checklist.

After that, the landing gear being extended pretty much drives the items that follow it as far as the configuration issues. In other words, we have to have the gear first before we can continue.

So, the workload kind of falls into two areas. One, around 10,000 feet, and then one a little bit closer to the ground.

Q Okay. Reference Exhibit 2M, 2 Mike, --

A Yes, sir.

Q -- how is the before landing checklist accomplished?

A The before landing checklist is accomplished by challenge and response. That is to say, the pilot not flying verifies that the item has been completed, calls out the item, calls out the status of that item, and then moves the toggle switch corresponding to that item on the mechanical checklist.

Two of the items, altimeters and flight instruments and bugs, are required to be acknowledged by both pilots; that is, the response should be recent and cross-checked for altimeters and set and cross-checked for flight instruments and bugs.

One of the things that we've done or will do here toward the end of February is we're going to change the accomplishment of this checklist on all of our two-pilot aircraft to be -- to require a response from both pilots. This is not really a revolutionary thing. It's an evolutionary type of change in that we want independent verification of all the primary tasks that we have, rather than as we have done in the past, leaving one individual basically alone with the configuration issues.

This change again is going to affect all of our two-pilot aircraft and hopefully will be in place here before the end of February.

Q So, you're going to require dual confirmation, you say?

A Yes, sir. Dual independent confirmation. Both pilots will be required to respond aloud to all items on the before landing checklist.

Q All items?

A Yes, sir.

Q Okay. Not just the spoilers?

A That's correct. All the items.

Q Okay.

A Starting -- starting with hydraulic pumps and -- and on down through enunciator lights. Yes, sir.

Q Okay. Who -- who arms the spoilers?

A The way our checklists are structured is we have duty columns. The arming of the spoilers falls into the pilot not flying duty column. So, that's what we train and check to, is having the pilot not flying on the spoilers.

That said, realize that as we pointed out earlier, most pilots, most captains will alternate the legs as we fly. So, each pilot is the pilot not flying 50 percent of the time. It is not unusual in line operations for the captain to occasionally arm the spoilers when he is the pilot flying.

Our line pilots don't seem to have difficulty, and they are our experts, they don't seem to have difficulty with that particular task being allocated the way that it is.

Q Okay. Snce the checklist says it's under the pilot not flying, then American doesn't have a -- it's acceptable for the pilot to deviate from that procedure? It's an acceptable deviation? Is that what you're saying?

A Well, it's not really a deviation so much as in a two-pilot aircraft, the workloads and the areas of responsibility overlap. When it's done well, each pilot is continually aware of the other pilot's activities, and it would not be unusual if the person was tasked with having a

conversation with the air traffic controller, let's say, --

Q Right.

A -- for the other pilot to fill in and get the work done. Again, that's -- we would refer to that as an overlapping loop concept. Just we have a normal -- this is the way that we train, and then sometimes there are other operational considerations which will require some overlap of those duties to get the work done.

Q Okay. You say you're changing the checklist. We'll stay with the checklist, you know, that was in effect at the time --

A Okay.

Q -- for these questions. Who was responsible for confirmation that the spoilers had been armed?

A The -- the pilot not flying, the person that conducts the landing checklist, is responsible for ensuring that all the items on that checklist are in the required position.

Q Okay. When that item, spoiler levers, is read on that checklist, what would be the correct response, you know, to -- to that item and to assure that it's armed?

A I would expect the pilot not flying to visually or tactically determine that the spoiler handle has been armed. After that, I would expect to hear him say "spoilers" followed by the word "armed", and then I would expect him to close the toggle switch the spoiler item on the checklist.

Q Are you aware of any instances where the spoilers were not armed prior to landing?

A I have flown an airplane as captain where the spoilers were not armed. That was the result of an MEL, an item where the automatic operation of the spoilers is allowed to be on -- on a placard, as long as we manually deploy the spoilers and take a distance penalty.

I've heard other anecdotes of the -- of the spoiler not getting armed, but I really don't have any concrete dates, numbers or -- or -- or names for you on that.

Q Okay. When -- I'm trying to remember what you -- what date you said -- you're going -- you're going to change the checklist to where it's now going to be a dual confirmation of all items. When does that go into effect again?

A Hopefully, it will be in all of our two-pilot aircraft manually the end of February.

Q Was this change the result of the accident or --

A No. As I said, it's not really a direct result. It's certainly an evolutionary type of thing. We found that on two other areas, we've done something similar. We -- in terms of setting our altitudes, we require dual confirmation on that. We started that about, oh, four or five years ago; that is, one pilot sets it, the other pilot must verify it before we accept it.

We've done the same thing with our FMS-equipped aircraft with navigational changes, where if a change to the flight plan is going to affect the aircraft's flight path, we require both pilots confirm that.

So, this is really the next logical step in that process.

Q What training and guidance is given to American pilots to guide them in their selection of automatic or manual brakes?

A In our Technique Section, we specify that on wet or on short or slippery runways, that we use the aggressive manual braking or maximum auto brakes.

CHAIRMAN HALL: Could you help us explain for the audience what automatic and the manual braking is, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- Captain?

THE WITNESS: For our manual braking, all of the aircraft are required to be equipped with anti-skid brakes, similar to what you might have in your automobile.

Max or aggressive manual braking, what we would expect the pilot to do is apply a maximum force to the rudder pedals, to the brakes that is, so that the anti-skid will operate.

CHAIRMAN HALL: The rudder pedals are the brakes, right?

THE WITNESS: Yes, sir. The upper portion of the rudder pedals is where the brakes are.

CHAIRMAN HALL: Right. And do you train on how you hit the brakes and operate the rudders at the same time?

THE WITNESS: Yes, sir. Hopefully our trainees have a chance to experience that in the simulator, and I guess from your tone, it is a challenging thing to do. Directional control is a factor.

CHAIRMAN HALL: Okay. Please go ahead on the automatic.

THE WITNESS: Yes. On automatic brakes, the various manufacturers have different types of systems. On the MD-80, on the

landing range, we have three different levels of auto brakes, minimum, medium and maximum.

Minimum and medium, the brakes are applied four seconds after landing approximately, and when the spoiler handle comes to its full-out travel, the braking timer begins, and then four seconds later, we get brake application.

CHAIRMAN HALL: And this is automatic, not --

THE WITNESS: Yes, sir. And I say we get brake application that it uses a programmed rate of deceleration. If the aircraft meets the rate of deceleration through other means, reverse thrust, for instance, then the brakes may not activate until later on.

In the maximum setting, the auto brakes are applied with the full system pressure, reduced only by the anti-skid actuation, two seconds after landing or two seconds after the spoiler handle comes back.

CHAIRMAN HALL: And is there a switch you turn that on ahead of time?

THE WITNESS: Yes, sir. There's a rotary selector on the aft right portion of the pedestal.

CHAIRMAN HALL: Okay. Thank you.

THE WITNESS: And that is an item on our landing checklist.

BY MR. TEW:

Q Going with what you just said there, a question jumped in my mind. The flight data recorder, the auto brakes start applying, I think, two and a half seconds after wheel spin-up?

A Two seconds in max.

Q Okay.

A Approximately two seconds.

Q The FDR recorded it took several more seconds than that for the pilot, 11, I believe, for the pilot to start applying the brakes. That's -- that's a bit of time.

With that in mind, does American feel that on a short wet runway with crosswinds, the decision to use manual brakes is acceptable?

A I think so, and I -- I'll tell you why. Short is a relative term. What do we weigh? What are the field conditions? What's the short at maximum landing weight? It's not really all that short when the airplane's, you know, down at a 100,000 pound gross weight.

So, I'm comfortable with leaving that decision in the hands of the person that has all the considerations at his fingertips.

Q What do you think of a pilot's ability using the manual brakes to quickly apply --

CHAIRMAN HALL: Now, this -- this -- the particular flight, was it just the manual brakes, right? No automatic?

THE WITNESS: Yes, sir. The pilot made that decision.

CHAIRMAN HALL: Okay.

THE WITNESS: Yes, sir.

BY MR. TEW:

Q What do you think is a pilot's ability using manual brakes to quickly apply and maintain maximum braking when landing on a wet

runway with high crosswinds, you know, being that you're having to, you know, use your rudders to control the aircraft and apply the brakes at the same time?

A In my opinion, it certainly raises a difficulty of accomplishing the maneuver, but many of our pilots -- most of our pilots can do that. We -- we give them that experience in the simulator.

Q Do you think it would be as effective as using the automatic brakes?

A I think it can be as effective. Again, it's a matter of the individual pilot's ability to maximum perform the airplane.

CHAIRMAN HALL: What is the adverse? Why wouldn't you use automatic brakes? That's what I --

THE WITNESS: If there is a lot of friction on the runway, a lot of braking available to you, the auto brakes in maximum are -- you can take it literally. It's -- it's fairly aggressive, can be alarming to your passengers.

In a situation where field conditions are poor, it will do something that the pilot may not be willing to; that is, you know, apply brakes promptly, and it relieves you of the difficulty that you were talking about before with operating the rudder.

So, you have to balance all the conditions and make the decision.

CHAIRMAN HALL: Okay.

BY MR. TEW:

Q Just got something here. The Boeing FCOM, the Flight

Crew Operating Manual, --

A Yes, sir.

Q -- recommends that on contaminated surfaces, full braking should be used, auto brakes, if available, should be used in the maximum setting. That's just a statement.

A Yes, sir.

Q Can youthink of any appropriate reason why the captain would have elected not to use auto brakes during the landing?

A I really couldn't speculate as to what considerations or all the considerations that Captain Bushman was working on as he made that approach. So, I really -- I don't think I could accurately tell you what he's -- what he was thinking. I'd be guessing.

Q I'd like to reference Exhibit 2Q, Quebec.

A Yes, sir.

Q What is American's definition of a stabilized approach?

A As you see on the exhibit, it's -- the aircraft is required to be in the final link configuration, whatever we've decided that will be, on the approach speed, on the proper flight path, the proper sink rate at a stabilized thrust setting, and then before we descend below the prescribed minimum altitude, we're supposed to have those conditions maintained throughout.

We're supposed to achieve those conditions before descending through the appropriate minimum altitude, and we're supposed to be able to maintain those conditions throughout the rest of the approach.

Q Reference that exhibit, could you explain to us what parameters would define on approach speed on the proper flight path and at the proper sink rate?

A On approach speed, in my opinion, would be within five knots of what we have briefed as our planned approach speed. Stabilized thrust would be a power setting that we're not having to alter appreciably to maintain that speed and the aircraft's flight path.

The key part of this is that the aircraft's flight path has to be such that it will land in a touch down zone. This -- the intent of this wording here, and again this -- our wording very, very closely follows the wording in the 8410; that is, the Inspector's Handbook.

The intent is that the flight path take it into the touch down zone. That allows for things like visual approaches where you may follow a turning path to the final versus a 10- or 20-mile straight-in type of approach.

Q Federal Aviation Administration's Inspector's Handbook, which gives guidance to the FAA for oversight of the airlines.

These parameters we just -- you just talked about, are they written out for the pilots in the manuals? The guidance for the -- in particular, like for the flight path?

A Well, I think the -- the flight path would allow to land on the touch down zone is -- I think most of the pilots are comfortable with that concept. That said, later in 1999, in the third or fourth quarter, we added some additional policy guidance to our manuals regarding the stabilized approach concept.

The handbook does not address actions regarding deviations below the minimum altitude or course of glide path deviations.

Q Right.

A Our added guidance directs the captain to order or execute a go-around if the stabilized conditions cannot be maintained throughout the approach. That's a change to our policy guidance to expand upon this information that came out in August of 1999.

Q So, what you're saying is that if a pilot exceeded one of those parameters, you would expect him to do a go-around?

A Well, in the parameters again, flight path is a -- is a relatively vague parameter.

Q Right.

A Again, it -- most of us tend to think of it in terms of an ILS approach where you have precise course guidance that is not always the case with visual approaches or some of the runways that we land on that aren't served by instrument approach facilities.

Q What would you expect a pilot to say if he noticed a deviation from these parameters?

A Depending on what type of guidance was available to him, I would expect to hear either a -- a call out of the amount of displacement, either, let's say, a third of a dot or half a dot. If a VASE was available, I would expect to say here's something like you're too low or you're too high.

You might even hear something like you're off course. So, I think that's what the CVR had us hear. The idea is to -- of those deviation

call-outs that we specify in our Operating Manual, is to alert the pilot that there's a condition that needs to be corrected, and the pilot who's flying that receives that call-out is required to acknowledge it.

Q You just mentioned he would call out, you know, localizer half a dot, dot or the same thing on glide slope.

A Yes, sir, if that's available.

Q What -- taking those conditions, what conditions or excedances in that case would require a missed approach?

A The only things that would require missed approach are if the approach was not stabilized, and again there is a variety of considerations in there, allowing for the case where you don't have precise course or glide slope guidance.

So, there are not tight defined parameters on the stabilized approach. We do that for other low-visibility approaches, but this concept really isn't aimed squarely at that.

Q Okay. If you define it for the low-visibility approaches, I assume you're talking about a Category 2 and a Category 3, --

A Yes, sir.

Q -- which are the -- for the audience are the low minimum criteria. That would be determined by the height of the ceiling of the weather or the limited visibility.

Now, this crew was doing an ILS approach, but they were doing just an ILS-1 approach.

A Yes, sir, that's correct.

Q With -- doing an ILS-1 approach, on a final approach, what

kind ofexcedances would -- would -- or guidelines does American train on to tell a pilot that if he's so far off of a glide slope or so far off a localizer, what kind of guidance would they give them in aiding them in making a decision whether to go around or not?

A Again, we have those deviation call-outs that the other pilot is required to acknowledge. The guidance from the Inspector's Handbook, I believe, is going to be full scale at the point where you -- your flight path will no longer take you into the touch down zone.

At that point, then we should be accomplishing a go-around or missed approach, whatever's appropriate.

Q Okay. So, you don't just define, say, one dot to the right, go around, or two dots to --

A No, we do not have a -- when you get to this point, you will do this.

Q Okay. I would call out under the pilot decision-making criteria, I would say -- are you satisfied with the pilot decision-making training and guidance that's provided by American Airlines?

A Yes, sir, I am. The pilot decision-making guidance, what we're talking about is judgment. It can be very difficult to train. What we attempt to do in all phases of our training and during the IOE is put the pilot in a situation where he's required to make a decision, and then we're going to try to help them discover what the optimum decision is for a particular case.

So, the decision-making training that we do is situational in nature. The other thing that we have in the works on decision-making

criteria is we're going to have a comprehensive approach and landing decision-making policy added to our Flight Manual, Part 1, here. That's in draft form right now, and it is subject to review through our all-fleets process; that is, all the different aircraft in our fleet, 10 different models, will be required to review and -- and provide their input before we go to press with it, and this uses a gate concept.

It expands on the two FAR gates, you know, leaving the glide slope intercept altitude and leaving a decision altitude, and it adds another gate up high, pretty much as you leave cruise altitude. So, we're attempting to do some additional policy guidance there for tactical decision-making.

Q So, there are plans to change this guidance or training or enhance it?

A It's to -- I would say it's to clarify and to expand the guidance available to the pilot.

Q Does American leave the decision to go around up to the captain or does the first officer play an equal role in these decisions?

A We expect the first officer to continually provide input, no matter how often that -- that advice might be ignored, and the captain is charged, both by the airline and by -- by the FARs, with making the final decision as to the operation of the aircraft.

Q Okay. You expect him to do this. Is he trained to do this?

A Yes, sir, I believe he is. Again, we do this situationally. We expose trainees to a wide variety of situations and -- and critique and feedback on their actions and their decisions and the consequences

thereof.

Q What are American Airlines' procedures, and how are pilots trained concerning spoiler extension after landing?

A They are trained in the context of normal procedures to -- to arm the spoilers and observe them deploy. In our landing checklist, the expanded portion of it, I think we've got it in one of the exhibits here, you'll notice that the -- after landing, there's -- the description of that duty goes across both columns.

There's an implied requirement there for both pilots to monitor spoiler deployment, and then it goes on to say that the captain, regardless of which pilot who is making the landing, will manually deploy the spoilers, if they fail to deploy.

In this area, we recognize that we could benefit from having additional information provided to the captain in this case. This week, we added to our Operating Manual on the airplanes where it's appropriate a no-spoilers call-out. If the spoilers fail to deploy automatically, we'll have a no-spoilers call-out by the pilot not flying, and then we'll continue with having the captain manually deploy the spoilers.

Q So, that's going to be a new procedure?

A Yes, sir. That should go to press this week.

Q Any thought to Delta Airlines --

CHAIRMAN HALL: That procedure was one recommended by Boeing, right?

THE WITNESS: Yes, sir, I believe that is -- I believe the manufacturer recommends a no-spoilers call-out.

CHAIRMAN HALL: And do you know how or why you didn't incorporate that at the beginning, since it was recommended by Boeing?

THE WITNESS: No, I don't really remember what date it came into the manufacturer's manual, to be honest with you.

CHAIRMAN HALL: Okay.

BY MR. TEW:

Q I guess one of the things that jumped out when we heard earlier testimony was that if it didn't extend, the only other procedure in the manual was for the captain to pull it. There was nobody to call out for it. So.

A Yeah. There wasn't a call-out. There was that responsibility for both pilots to monitor their operation, --

Q Yeah.

A -- but again the call-out is helpful to prompt action on the part of the captain, I think.

Q Well, if the first officer's monitoring it and doesn't call something out, then the captain might not know to pull it, you know, if he didn't see it.

A Exactly.

Q Have you given any consideration to a positive call-out? In other words, when it -- when it would extend, just call -- Delta, for instance, has a call-out of spoilers up. That's a positive definite verification. If they don't hear it, they -- you know, they look for something wrong.

A We have --

Q Did you consider that?

A We -- we kind of argued it both ways on all the fleets that have the automatic spoilers. In general, our company policy is that we try to call out abnormal conditions rather than normal conditions.

I think for the most part, that makes you more alert that if you hear something, if you hear a call-out, that there's something wrong which you need to address rather than conditioning yourself, you know, through a repeated number of landings. You may not hear that information coming in, if it was different.

So, we've -- again, our preference is to not call out normal parameters but call out abnormalities.

Q What guidance and training does American give its pilots on the performance detriment that would occur if the spoiler failed to extend?

A Performance decrements for failed spoilers are covered in the context of MEL, minimum equipment list, issues. We typically go through a performance day in our ground school, I believe it's Day 8, where we review all of the various performance aspects, and inoperative automatic spoilers are a part of that. That would drive us to the MEL where the associated distance penalties are published.

CHAIRMAN HALL: Mr. Tew, we have gone about two and a half hours without a break, and I'm trying to figure out when you're going to take a break. I don't want to cut you off. If you've got more, if you've got like five minutes, --

MR. TEW: I would estimate --

CHAIRMAN HALL: -- please continue.

MR. TEW: -- 15 minutes.

CHAIRMAN HALL: Well, let's take a break now for 15 minutes. Stand in recess.

(Whereupon, a recess was taken.)

CHAIRMAN HALL: We will reconvene this public hearing of the National Transportation Safety Board. It's being held in conjunction with the accident on June 1st of American Airlines Flight 1420.

Mr. Tew, if you would continue your questioning of the witness, and again, Captain Lewis, we appreciate your presence and your testimony.

BY MR. TEW:

Q Captain Lewis, reference Exhibits 2QQ and 2RR, you may still have them out there. QuebecQuebec, RomeoRomeo.

A Yes, sir.

Q Okay. During my observation of one simulator session dedicated to landing training, several times, the automatic extension of spoilers was failed, and only once was it noticed by the flight crew.

During a separate observation of a simulatsession, there were no events of failed automatic spoiler extension.

How do you ensure that all Americans -- or how did you ensure that all American pilots are receiving adequate training in recognition of no spoiler extension and performing the appropriate response?

A There's a couple of phases to what we're doing there.

CHAIRMAN HALL: And you might -- I don't believe we have

had anybody, Captain Lewis, and you're probably the best person. Explain what the spoiler system is, where it is on the aircraft, and what impact it has on aircraft performance.

THE WITNESS: Yes, sir. The spoilers on the MD-80 consist of three panels on each wing, total of six. They are hydraulically powered. They are portions of upper wing skin surface located toward the aft side of the wing.

In flight, we can use a portion of those panels to help us descend rapidly without building forward air speed. On landing or during a rejected take-off, they spoil the lift over the wings, put the majority of the weight back on the aircraft's landing gear and provide us more effective braking.

CHAIRMAN HALL: Thank you. That's a good explanation.

BY MR. TEW:

Q Do you remember the question?

A Yes, sir.

Q Okay.

A Regarding failed spoiler events?

Q Yeah. How do you ensure that all American pilots are receiving adequate training in recognition of no spoiler extension and performing the appropriate response?

A On the sessions that you observed, I'd like to point out that a failed spoiler event is not a specific training goal for our Day 6 training or at least it was not at the time.

It fits logically there, and it's been added there. So, now we

will train that event on three separate days. Previously, we had accomplished that training on Day 3 and again on Day 7 of our 10-day simulator course. We have added it to our Day 6 training because it fits there as well.

That said, that's how we intend to take everybody through our equipment course as they qualify initially on the airplane. Our new recurrent training program -- well, our recurrent training program changes every year on February 1st. That's when we implement the next year's training.

We have added that as a briefing item for every recurrent training session that we conduct. So, our check airmen will brief manual spoiler operation and the spoiler's effects on braking and stopping and so forth as part of the briefing, and then we will give each pilot a chance to manually operate the spoilers when they do their simulator training, and we'll do that on an annual basis.

Typically, we will carry that event for about 13 months so that we can ensure that every crew member qualified on the airplane has a chance to receive that training.

Q Okay. Have there been any -- could you tell us which -- what changes have been made to the manuals or procedures as a result of this accident?

A We have tried continually to evaluate what we do and improve and clarify some of the guidance we provided for our pilots. We've done a variety of things.

The checklist change to go ta challenged response

response is probably our biggest and most important change. We've operated all our two-pilot aircraft in a different manner for the past, oh, 18 to 20 years. So, that's a very, very important change.

We've changed one of our standard call-outs. Our thousand-foot call-out. We -- we would normally call out a thousand feet, and then our landing configuration. We have added the words "before landing checklist complete" to that call-out.

What we attempt to do there is we attempttte the accomplishment of the landing checklist to an altitude, and we've found in the past that that's helpful to keep the pilot on task, to tie things to the vertical events rather than a particular time.

We added the no-fault go-around policy that we talked about before. We've also strengthened the guidance for handling warnings from the LWAS or Terminal Doppler Weather Radar. If we hear the words "microburst alert", our pilots are required to execute a go-around or the escape maneuver, and that was added, I believe, in November of 1999.

Again, if the LWAS or the Terminal Doppler Weather Radar availability is such that we can hear the words "microburst alert", that should be a trigger phrase for our pilots.

Let's see. We talked about the no-spoiler call-out being added, and we talked about strengthening the guidance on the stabilized approach criteria to provide for a mandatory execution or ordering of a go-around.

The other thing that we're doing in the way of manuals

organization is on all our fleets whose manuals incorporate a Techniques Section, we are gradually editing out and thinning down that Technique Section until it will disappear. The information contained in that section will go into the particular phase of flight in our normal procedures, so that we can hopefully get the information more towards one spot where it logically fits for the pilot's phase of flight-type of thinking.

Q Okay. The no-fault landing change you said you made to the manual, that was made after the accident?

A Yes.

Q Why -- why was it made, and if you would?

A We had a rather lengthy discussion several years back about non-precision approaches, and what we wanted to emphasize to our pilots by this particular change, it -- it certainly would be beneficial for this accident, but in particular, it came from our discussion of conducting non-precision approaches.

We wanted our pilots to realize that you can do -- you can fly the airplane to your very, very best of your ability, do everything right, and still wind up with a situation where you are required to accomplish a go-around, a diversion and so forth.

So, we want -- it's an attempt to give them -- encourage the pilot to give equal consideration to landing and going around. That -- that's what the no-fault go-around policy is about. It specifically grew out of the discussion of non-precision approaches.

Q Have there been any changes made to the training as a result of this accident?

A Yes, sir. As I said, we've incorporated what we've been able to learn so far from this body into our recurrent training program for this year. We want all our pilots to be aware of all the factors or as much as we're aware of at this point surrounding this event.

Again, we've -- in our recurrent training program, we have added a failed spoiler event, manual spoiler deployment for all pilots. We're going to review the stabilizer approach guidance concept with them, and we're also going to review the wet slippery runway reversing and braking techniques with them so that they have some measure of recent experience in this, at least in the simulator.

As I said before, in long operation, fortunately it's relatively rare. So, we need to use a simulator to the best of our ability to provide them with that recent experience.

Q Has the FAA made any requests or suggestions to require changes to procedures or training since the accident?

A I don't recall any requests in particular. Our relationship with our FAA is that we continually consult with each other on events that occur on the line and how we can best address those issues or irregularities that arise.

So, the nature of our discussions there has been a continuing basis rather than, you know, a specific request at any particular time. It's -- again, it's a continuing process. We have a very strong relationship there, I think.

Q Could you appraise this accident crew's performance into Little Rock, and tell us what differs from American Airlines' procedures?

A Well, there, not being in the cockpit as I would be in the jumpseat in the simulator to observe and critique, obviously we all know that the results were unacceptable to our company, but I really can't, without having observed all of the factors firsthand, as I would as a simulator instructor or an IOE instructor. I really can't, you know, go through a list for you of anything like that.

Q Do you have any suggestions as to how we might prevent an accident like this from happening in the future?

A Well, I think certainly strengthening the training --

CHAIRMAN HALL: That's the Chairman's question, Mr. Tew.

MR. TEW: I'm sorry. Strike that question.

CHAIRMAN HALL: That's the Chairman's question.

MR. TEW: We can hold that.

CHAIRMAN HALL: No. Go ahead, go ahead, ask it.

THE WITNESS: Certainly strengthening training can help. We can always devote additional effort there. Beyond that, I think once -- if -- if, together, we can figure out a better way to do things, then we should be able to use that information to strengthen our training programs.

CHAIRMAN HALL: On that subject, let me ask you, Captain. How do you monitor performance in your DC -- your MD-80 crew in the field?

THE WITNESS: In the field?

CHAIRMAN HALL: Through check airmen or --

THE WITNESS: Yes, sir. Our check airmen --

CHAIRMAN HALL: Are you familiar with the quick access recorder and how that's used to monitor flight performance in Europe?

THE WITNESS: I'm familiar with our aircraft that have it. I fly the MD-11, which has that capability. I'm generally familiar with the program, but --

CHAIRMAN HALL: Is that effective with the MD-11 or how would you -- is that something that would be -- you would recommend for the fleet or are you that familiar with it?

THE WITNESS: I'm not really familiar enough with it to give you a good comment on that, I'm afraid.

CHAIRMAN HALL: Okay.

BY MR. TEW:

Q The accident, Captain, the application of brakes didn't -- didn't occur until 11 seconds after touch down. Is American planning in any way to address the preventing late brake applications in the future, and, you know, the effects that that might have or maybe, you know, educating the pilots or providing guidance?

A I think so. What we plan to do there is provide additional exposure in the simulator environment to -- in both the briefing and in the simulator session for using automatic braking.

Typically, that will do some -- that will do things that the line pilot may not be willing to on occasion; that is, max perform the airplane. The other advantage is with automatic braking, a logical thing to do is start out with the highest level of automation available to you and then

intervene manually, if required.

It's very difficult to do it the other way, where you start out manually and then get back into the automatic mode. So, that's perhaps a viable alternative.

Q Does American have a FOQA Program? And I forget what the --

A Flight Operations Quality Assurance.

Q Okay. Thank you. To track these kind of incidents and issues?

A That is not in place yet, and there are other officials in the company that really work with those issues rather than me.

Q Okay. I'd like to thank you for your participation today, and you participated with me in the past and have been invaluable in your service and your work. I certainly appreciate it.

MR. TEW: Mr. Chairman, I have no more questions of this witness.

CHAIRMAN HALL: Well, thank you. We'll move to the Party Table. If the Technical -- we've been at the Technical Table too long. If you all have any more questions, you can have a chance after the Parties.

The Allied Pilots Association.

MR. ZWINGLE: No questions, Mr. Chairman.

CHAIRMAN HALL: The Association of Professional Flight Attendants?

MS. LORD-JONES: We have no questions, Mr. Chairman.

CHAIRMAN HALL: National Weather Service?

MR. KUESSNER: No questions, sir.

CHAIRMAN HALL: Little Rock National Airport?

MS. SCHWARTZ: No questions.

CHAIRMAN HALL: Little Rock Fire Department?

MR. CANTRELL: No questions, sir.

CHAIRMAN HALL: Federal Aviation Administration?

MR. STREETER: Yes, sir.

INTERVIEW BY THE PARTIES TO THE HEARING

BY MR. STREETER:

Q A few questions, Captain. First of all, have -- has there been any recently-conducted additional training in the radar area, in-flight radar?

A Yes, sir. I failed to mention that earlier. I thank you for that.

In the fourth quarter of 1999, we retained a radar expert to conduct a one-day seminar for all of our check airmen. We had three of these in October, November and December, basically an eight- or 10-hour affair.

This expert reviewed each aircraft's individual radar and its particular characteristics and then went on to review the various types of echoes that might be observed and the conditions that would be associated with those echoes.

It's our hope that our check airmen will then be able to use that information as they conduct the training in the IOE phase.

Q Okay, sir. Another issue I'd like to discuss with you is your -

- American's mechanical checklist. First of all, are there any other carriers that use that system?

A Not a system of toggles. There's various means other carriers use, scrolls and so forth, but I believe we're the only one that uses a system of tabs.

Q Could you give me the company's policy on why -- why you believe that that's a better system to work than a regular paper checklist?

A This would go back before my time, to be honest with you. But what I have observed during my 20 years with American is that the single biggest strength of it is that if you're interrupted by a transmission on the radio or some other condition in the cockpit, you can go back to the checklist and see what you have to accomplish and what has been accomplished.

Using a paper checklist, there's a tendency to come in at the item below the one that you left off on and skip an item depending on where the interruption occurred. That's its biggest strength.

Also, as a captain, I found that it's very useful to be able to look down at the pedestal or, in the case of the 72, back on to the engineer's panel and see how that crew member is coming with the checklist.

So, if I've been doing something else, my attention's taken away, I can look back at the checklist and see the status and our progress.

Q Okay, sir. I believe you mentioned earlier in response to another question there was an indication that you had read the CVR

transcript, is that correct?

A Yes, sir. I saw it this morning.

Q Okay. Have you had any chance to review any of the FDR data?

A I saw it inLittle Rock, the early version of it, back in Little Rock, back in the summer.

Q Well, without -- I don't need for you to refer to that, but just based upon your reading of the CVR and your prior information that you had on the AFDR, are you aware of anything in either of those documents that would fall outside the stabilized approach criteria that -- that American utilizes?

A I would say that the FDR data is probably a fairly limited view of whether the approach is stabilized or not because there's so many other considerations that go into it.

I think it's reasonable, though, to expect that if you look at the ILS, that those indications, course indications ought to be fairly close throughout. So, I really -- I can't give you a good clear opinion on that.

Q Okay, sir. And if you would, look at one other item for me. I believe we -- let me make sure this is on your list here, and I see it is not.

MR. STREETER: Well, Mr. Chairman, I have a question that's based on an exhibit that is not on the list. I think it's in Captain Lewis's area. I defer to -- to you on this.

CHAIRMAN HALL: Well, Captain, it's your preference. If you want to respond to the question or if you would prefer not to take questions not on the exhibits, then that --

THE WITNESS: Well, I'll make my best effort for you, sir.

CHAIRMAN HALL: Okay.

MR. STREETER: Then I'll explain what the issue is here, first. If you -- if you could provide the captain with Exhibit 2X.

BY MR. STREETER:

Q And, Captain, this is an exhibit regarding wind landing limits. I believe this is a page from Flight Manual, Part 1, is that correct?

A Yes, sir, that's right.

Q All right. Now, if -- if I am reading this correct, it seems to indicate that with a visibility of less than 1,800 RVR or a half mile, American has a 10-knot crosswind limit, and it appears to be pretty much across the entire fleet. Is -- is that -- my interpretation correct on that?

A Yes, sir, that's correct.

Q Okay. Now, based on your knowledge of this, the information you do have, and the first officer's statement this morning that he had the runway in sight, my question would be, if your crew had an RVR reported to them of less than 1,800, but they also had good visual on the runway, and in their opinion, that exceeded that limit, does American expect them to comply with the 10-knot limitation or does the 1,800 RVR apply over what they can actually see?

A Based on a reported RVR of 1,600 in this case, I believe that a 10-knot restriction would apply.

Q Okay.

A That said, our policy guidance in this area does not specifically address the issue of where we have two bits of information

that do not correlate well; that is, a low RVR with a considerably greater flight visibility.

That particular section of Part 1, this particular section of Part 1, that is, is in rewrite at this moment. It will be subjected to the all-fleets review process, and we hope to improve the guidance on there to direct the pilot to observe the RVR in all cases where it's reported. That's -- that will be our intention there.

To be honest with you, our -- our guidance needed clarification for these pilots.

Q Okay. Thank you very much, sir. I have no further questions.

CHAIRMAN HALL: The Commercial Airplane Group?

MR. HINDERBERGER: Mr. Chairman, we have no further questions -- no other questions.

CHAIRMAN HALL: Boeing? American Airlines?

MR. BAKER: Mr. Chairman, we have no questions.

CHAIRMAN HALL: Very well. Now, does the Technical Panel still have questions?

MR. FEITH: Just a few, sir.

CHAIRMAN HALL: Okay, Mr. Feith.

INTERVIEW BY THE TECHNICAL PANEL

BY MR. FEITH:

Q Captain Lewis, thank you very much. It's been a long afternoon.

Just following up on Mr. Streeter's comments about the RVR

limitation, basic bottom line is that once the crew received that RVR report, the approach should have been abandoned at that point?

A Well, we don't provide the pilot with that guidance, with that guidance in that particular area.

Q But --

A That's something --

Q But from the standpoint of being a prudent pilot, once they got that RVR report of 1,600?

CHAIRMAN HALL: Well, I don't think -- that's -- let's -- I don't think he's going to be any more specific on that subject than he has been.

MR. FEITH: Okay.

BY MR. FEITH:

Q You had described earlier about blanketed by thunderstorms, and you said that there was no real defined criteria for that description.

How then do you evaluate either crew members' or even the dispatcher's ability then to determine, you know, without specific guidance, you know, blanketed by thunderstorms? What -- what -- what level of measure do you use in making the determination whether it's actually blanketed or partially blanketed, if there's no specific guidance?

A Yeah. I understand the difficulty with the wording there. That's one of those decisions that we typically make with radar and all available weather reports in front of us.

In the cockpit, in a tactical mode, as a line captain, what I

would tell you is we need to have a thunderstorm-free route to the airport, and we need to have escape options should the situation deteriorate.

So, it is a very subjective word. I understand that.

Q Okay. And given that we know that at least part of the route was cleared to the Little Rock Airport, and we know that there were thunderstorms in the area, would that be considered blanketed? Would Little Rock, under the conditions as we know them now, have been considered to be blanketed by thunderstorms?

A At the point where the aircraft was released en route, I don't think it was blanketed. I think clearly there was room to go on and evaluate.

Later on in the approach, again without seeing the airborne radar and -- and going into that tactical mode of decision-making, I really couldn't tell you what the exact situation was.

Q We know that the captain in this particular case was the chief pilot out of the Chicago base. He was paired with a new first officer.

A Yes, sir.

Q Is there any policy at American Airlines regarding the pairing? We know that, based on, you know, the psychological part of crew resource management and especially given that this first officer was in his probationary year, and there could have been some reluctance to speak up.

Has American Airlines evaluated this situation and come up with a policy of any kind regarding this type of pairing?

A No, we don't really have a policy on this pairing. I think what

we have tried to do is we have tried to select as chief pilots the types of individuals that are approachable and show good leadership and communication skills.

I think the selection of the personnel is probably the best way to avoid any kind of a pairing restriction. All of us need to fly for proficiency, and, you know, anyone could be put off by flying with a person in a position of authority.

But again I think the types of individuals that we have selected to be our chiefs are the kinds of individuals that are approachable and communicate well.

Q Just taking the chief pilot status one step further, he is the management pilot. As far as him being required to fly so many hours a month to maintain proficiency, is there a minimum for a management pilot?

A There is not a minimum. Obviously we encourage all of our pilots to remain current. Typically, they are budgeted, depending on the individual, to rotate to line flying duties at least one a month a year, sometimes two, depending on the individual.

Beyond that, I know that the folks in the Chicago Flight Office are very good at being able to get out and fly regularly.

Q You had made an earlier reference regarding wind shear and -- and the guidance that is provided, and if you would please look at 2 AlphaAlpha?

With regard to what we know about the weather in the Little Rock area, and the alerts that were given by the air traffic controller to this

crew, would this be appropriate as far as the criteria that the crew should have followed?

Basically the guidance says that you should avoid areas of known severe wind shear. Given the Little Rock conditions, and the alerts that this crew received, would this guidance have applied to this particular crew?

A No, I don't believe it would have, as it's written. Known severe wind shear would require a pilot report or a report of a microburst alert or from either the enhanced LWAS or the Terminal Doppler Weather Radar.

Q Okay. Let's move down to the third paragraph, where it starts off by saying, "Search for clues which may indicate the presence of severe wind shear. Severe wind shear has been encountered under the following conditions", and it lists five things there.

A Yes, sir.

Q Given the weather at Little Rock, do any of these five criteria match the weather conditions at Little Rock?

A Yes, sir. I believe that at least four of them probably applied. It certainly would be reason to be concerned and have a heightened level of awareness as you approach that area that such conditions might exist.

Q But it wouldn't require the crew to abandon their attempt to go to that airport and deviate?

A No. There's adifference between having conditions which are conducive to and then having areas of known severe wind shear, and

again that's -- maybe that's a little bit vague, but that's -- that's kind of our situation, I'm afraid.

Q And you also said that -- you characterized all the changes that were being made. I presume this is being made fleet-wide as far as the checklist and the -- the call-outs and the verbalization of the call-outs and things like that?

A Yes, sir. Fleet-wide, to the extent that we still operate the 727 and DC-10, which are three-pilot aircraft. All of our two-pilot aircraft, the checklist changes apply.

On some of the other training issues, such as the weather radar training and so forth, that would apply to all 10 types.

Q Okay. And we're going to be talking later on regarding search and rescue and some of the problems that were there. Do any of your aircraft have ELTs on them?

A Not that I'm aware of -- well, let me --

Q ELTs being emergency locator transmitters --

A Yes, sir.

Q -- that's automatically activated in a crash.

A None, I believe, that are automatically activated. The aircraft that are over water-equipped have ELTs which are activated on contact with sea water, but I'm not aware of any ELT in the basic MD-80.

Q So, given the circumstances of this accident, in your opinion, would an ELT, the installation of an ELT, on these types of aircraft to be beneficial or do you see a need for them?

A That's a little bit outside my area, but I think certainly if I

were trying to locate somebody on a dark night, if I had the ability to receive and detect that ELT in my vehicle or whatever, that would certainly be helpful.

Q That was my softball figuring. You're the -- you're the company guy. I figured I'd throw it out and see what I got.

A Oh.

CHAIRMAN HALL: Mr. Feith, you about finished?

MR. FEITH: I am. I am done.

CHAIRMAN HALL: Ms. Sweedler?

MR. SWEEDLER: I have no questions, Mr. Chairman.

CHAIRMAN HALL: Mr. Berman?

INTERVIEW BY THE BOARD OF INQUIRY

BY MR.BERMAN:

Q Captain Lewis, just from your experience and your opinion as a captain, if there is a thunderstorm in the vicinity of an airport that you're approaching, and you find that there are strong gusting winds that are coming from the direction that the thunderstorm is towards the airport, and they're reported at the field, has the thunderstorm arrived at the airport?

A Certainly the wind gusts being detected on the field are a consideration, a pretty good indication that at least the outflow from the storm is on the field.

Q So, you're not going to beat the thunderstorm to the airport at that point?

A Well, you're asking -- you're asking me for one of many

considerations, and you really need to make the decision in the cockpit with the whole picture in view. So, I really can't speculate for you without seeing the whole situation.

Q Okay. I was a little surprised to hear an earlier witness mention that there's no policy, procedure or instruction from American Airlines about the proper distance to remain from a thunderstorm cell. Do you concur with that or do you have information that's different?

A No, sir. We -- we avoid thunderstorms, and that's -- that's kind of the limit of our policy statement on that. We -- we attempt to clarify the routing issues and the arrival and departure issues, but we do not use a distance.

Q Okay. What in your way of thinking now as a person who designs procedures and implements them at American, what would constitute an emergency situation that might require using more than 1.3 EPR on reverse thrust on a wet slippery runway?

A Well, I participate in the design process. We do everything through not really committee but through a participative process, not just a solo or individual effort.

That said, if directional control issues are not a factor, and you're in danger of going off the end of a runway, that's certainly cause to exceed that, but directional control is going to be your first priority in -- in the situation, in that situation.

Q So, the 1.3 EPR limit only applies to a slippery or wet runway, right?

A At our airline, yes, sir, that's true.

Q Yes.

A If you have enough cornering force on your tires to maintain directional control, then there's no reason not to use whatever level of reverse is required to stop the airplane.

If directional control is an issue, that's the first priority as far as landing the aircraft.

Q So, if one of your pilots was starting to have a slight loss of directional control while reversing on a slippery runway, would you want that pilot to interpret that as the type of emergency situation that would call for more reverse, more than 1.3?

A Not if directional control was an issue. No, sir.

Q Okay. Let me ask you to put your captain's hat on again as opposed to the procedures and management captain.

Would you expect the tower controller to -- to tell you to go around if there is weather considerations?

A No, I would not. The only thing that I would ask of a tower controller is to provide me with the best of the information that he had available to him, and I'm -- I'm comfortable with having my crew and I make that decision together.

Q Okay. Thanks. I want to talk to you about some of the deeper lessons that you in your position and American Airlines as a whole might glean from some of the bits of information that have come up as a result of this accident.

For instance, we have Captain New's and another captain's observation of some of the training sessions at American, and as -- as

Dave mentioned, in several instances, the spoilers didn't deploy, and -- and -- and the crews didn't pick that up on most of those occasions.

I know that you've implemented additional training in this -- in this -- in this area, but is the problem here, do you think, one that the crews need to practice manually deploying the spoilers, to practice it once or twice or even once a year, or is it that the -- or is the message here that they weren't prepared -- a good cross-section of them wasn't prepared to be surprised by a failure to deploy?

In other words, is the problem one of surprise or is it knowing how to work the handle?

A Well, I guess I don't necessarily see it as a problem. The sessions that were observed were training sessions, and the purpose of training is to build habits and alter individual behavior.

Perhaps a truer measure of how successful we are is how does that person do on a proficiency check?
At the end of that period, could the individual that we observed accomplish the tasks that we had in front of them or not?

Again, we expect people to err in training. That's how we learn. So, I -- I need to split away the training from the performance standard. At the end of the period, if we've accomplished our objective and changed the person's habits, we've been successful.

Q Hm-hmm.

A That said, therecency that you discussed is also, I think, important for a not-very-often practiced event.

Q An additional concern that we had, possibly with this -- with

these results of our observations, was that the -- the check airmen weren't picking up the problem and correcting it. So, that's not a training issue, is that correct?

A Well, it's a check airman training issue.

Q Right.

A Certainly we -- we've brought on board a pretty good number of new check airmen during the past two years. Every check airman will tell you that it is -- being certified as a check airman is -- is indeed a license to learn, and the person who is radically different in their ability to teach after six months and after a year than they are when they're relatively new in the job. They're a lot more effective as they have more experience teaching.

That said, we depend heavily on their previous experience as we select them to be check airmen, but still there is -- there is so much to learn.

Q Hm-hmm. So, all these people were qualified line captains before becoming a check airman, right?

A Yes, sir.

Q So, they were out there flying the line, and if -- if a spoiler didn't deploy, do you have any concerns that fleet-wide, they may not have done a very good job of picking up the problem?

A I guess I think that the problem stems from the -- not necessarily a problem. It's a good problem. The system is extremely reliable, and it's unusual in line operations to have a spoiler that fails to deploy.

Certainly with the number of operations that we do on a daily and an annual basis, we just -- we don't have that happening with any regularity. So, the recency is probably more of a factor than any lack of knowledge or understanding on their part.

Q And could you just clarify, because I -- I just am not sure I'm remembering it right, but in the training that you've implemented, I know you're going to give them a chance to extend the -- the spoilers manually, but are you going to give them a surprise --

A Yes, sir. That's the intent of it.

Q Okay.

A That's the intent of it.

Q That's good. Let me explore just one more area with you, if you don't mind, and that is, your -- the -- the discrepancy that's apparent between your standard operating procedures for who arms the spoiler and how it's done on the line, you seemed to express satisfaction with -- with the difference between the training school and how it's really done on the line at times.

I can understand why the line captains are grabbing the handle and extending it because it's more convenient for them at times, but does it concern you at all at a deeper level that you have a mismatch between your -- your procedures and your -- the norms out there in the field, and have you considered a response to that?

A Yes, it does, and we've looked at it from a couple of different angles. In the past, we have changed procedures to conform with the line practice in that the line pilot is the person that's out there doing this day in

and day out. Frequently, they are the expert at the best way to do a particular task, and then we also look at it in terms of the manufacturer's recommendations.

So, we try to explore every angle before we make a decision on how to implement or not implement a particular item. I'm concerned about the difference here, but again in a two-pilot aircraft, there's a lot of overlap in the duties. A little bit different situation in a three-person aircraft.

So, I'm not at all uncomfortable with who operates particular control or indicator as long as it gets to the correct spot. What I do have to insist on is that the checklist be strictly adhered to because that -- that is the key safety issue, is the checklist, not who physically operates a control, but do we verify that it's where we need it to be?

Q Hm-hmm. And has there been any consideration given to changing the procedure of who arms it or is that not --

A Yes, sir. And we will take that back to our experts and the other people in the other fleets and see if we can't figure out the best way to put that into our manual or change that in our manual.

Q Okay. Thanks very much.

A Thank you.

CHAIRMAN HALL: Mr. Haueter?

MR. HAUETER: Yes, just a couple. With the Chairman's indulgence, I'd like to ask the witness a question on an exhibit that's not on his list.

CHAIRMAN HALL: Well, it's the captain's indulgence if he

wants to accept a question.

THE WITNESS: I'll -- I'll certainly be happy to take a look, sir, and if I can help you, I will.

BY MR. HAUETER:

Q Okay. It's Exhibit Number 5B, 5 Bravo.

A Thank you.

Q And looking at Figure 24A, B and C, -- I'll let you get there first. This is the Doppler Weather Radar.

A 24A, B and C?

Q Yeah. 24A -- Figure 24A, B and C. I don't have a page number here, unfortunately.

A I think I have it.

Q Okay. It should say at the top, "North Little Rock WSR 88D".

PARTICIPANT: What page number is that?

MR. HAUETER: I don't have a page number on mine.

PARTICIPANT: It's Page 18 on mine.

MR. HAUETER: Okay. Page 18. It's cut off on mine. Appreciate it.

THE WITNESS: All right. Thank you.

BY MR. HAUETER:

Q Okay. And I realize this information is not presented in your cockpits currently, and hopefully one day, you will get this, but looking at these depictions, is this what you mean by blanketed by thunderstorms or --

A Looking at the top couple of frames and again not being an expert in interpreting this particular type of presentation, I would not characterize the first two frames there as being blanketed. I see a clear route to the airport.

The range rings there are 20 nautical miles, is that right?

Q I believe so, yeah.

A In my opinion, I see maneuvering room there, and I see an escape route, and again knowing that the fuel load, there's plenty of decision time there. So, I wouldn't -- I wouldn't characterize that as being blanketed.

MR. BAKER: Mr. Chairman, I'm going to have to object to this line of questioning. I don't think Captain Lewis is qualified to interpret Doppler Radar displays.

CHAIRMAN HALL: Fine, fine. We will -- that will be discontinued, MrHaueter.

MR. HAUETER: Okay.

CHAIRMAN HALL: Other questions?

MR. HAUETER: One other.

BY MR. HAUETER:

Q You mentioned that American now has a no-fault go-around policy. That would kind of imply that before, there was a fault policy. Could you describe what the previous policy was, and why crews may have thought they had to report or --

A No. The -- there was not an implied fault policy there. It's just that we -- we want to make sure that it was clear to our pilots that it is

possible to do your very best and still do a go-around. That is a successful outcome to an instrument approach.

We've just -- we just want to make sure that we were on the record in our policy guidance that go-around is always a viable option available to the pilot.

Q But there's no previous requirement to report a go-around or otherwise make annotations --

A No. No, there is not.

Q Thank you, sir. That's all.

CHAIRMAN HALL: Mr. Clark?

MR. CLARK: I have no questions.

CHAIRMAN HALL: Captain, I appreciate very much your -- your testimony, and -- and -- and I understand your reservations, you know, making decisions on information you may not have had, that others may have had at the time of this particular flight -- flight took place.

I'd kind of like to look very quickly at, you know, -- first of all, let me compliment you and American Airlines on the changes in these procedures. I know many times, there is a chilling effect that our liability system places on carriers to make changes after an event, and that's just a reality of our society, and when I see an airline looking at an event, maybe not determining conclusions but saying these are ways we can improve our procedures and taking pro-active action, I think that, as someone with the safety responsibility at the federal level, that that ought to be acknowledged and commended, and I commend American Airlines for that.

The crosswinds. I read in all this information here. Is this aircraft design any more susceptible to crosswinds than other models in your fleet?

THE WITNESS: Well, I really can't give you a good comment on that. I'm not aaerodynamicist.

CHAIRMAN HALL: Do you think you get adequate crosswind information as it is -- we -- we were able with wind shear to come up with this LWAS equipment, which we're going to get into some detail later about its performance and use.

I don't know how -- is there anything scientific as that in terms of measuring crosswinds?

THE WITNESS: No, sir. Really, the crosswind is just taking the reported wind and the runway heading and then figuring out how much of a component is going to affect your landing. There's really no science involved.

CHAIRMAN HALL: We kind of reviewed that and there were a number of things that appeared to vary with the standard procedures that took place based on the information available to us. Yet at the time we heard the first officer testify that he felt that the -- the captain felt he had it, I think "got it" was the terminology and had an approach and -- and -- and landed.

How long -- how many feet of runway would it take under normal circumstances to stop this aircraft as it was with its weight that it had that evening?

THE WITNESS: That would be difficult for me to answer,

and the reason is the way we do our analysis is we determine a maximum landing weight for a given runway and then observe that as the limit. We don't really calculate the distance required to stop.

We -- we -- we calculate our predicted landing weight and then select a runway which provides us adequate distance. We kind of -- from a pilot standpoint, you -- you know what you weigh. You don't always calculate how long you're going to roll. You -- you -- that's how we calculate our limits.

CHAIRMAN HALL: Okay. And, so, you thought this runway had adequate -- adequate length?

THE WITNESS: Yes, sir, based on what -- the information in our performance manual, the limiting weight, we were well below the limiting weight.

CHAIRMAN HALL: And as you pointed out, we are all aware with what occurred to this aircraft. What do you think was the contributing factors to the performance of that aircraft once it hit the pavement at Little Rock?

THE WITNESS: Well, I'm sure that there are a variety of things that hopefully we can find out together. I would hate to speculate on all those things. I'd like to help you to discover it, but I really can't speculate.

CHAIRMAN HALL: Fair enough. Now, Captain Shaw took my question, but do you have any -- anything else that you think we ought to be looking at as a part of these hearings?

THE WITNESS: Well, I just would like you to be aware that

every employee at American Airlines observes safety as their first priority. That's our tasking from the very top of the organization on down.

I'm just hopeful that together we can use every bit of information that we learn together to improve what we do.

CHAIRMAN HALL: And many of your observations, and again how do you -- do you have anything built into your training that -- that deals with fatigue and how that might affect performance?

THE WITNESS: We talked about the alertness strategies, of course, that we expose our pilots to. That's been helpful to me. I do a little bit of long-haul flying. The prevention-type of countermeasures, I think, is helpful.

CaptainTew asked about recognition. That's certainly an area that we could -- we should explore. I think learning how to detect that in another individual. I wouldn't want to have to go to medical school to do that or anything, but certainly that's something we should look at.

CHAIRMAN HALL: Good, good. All right. Well, I -- unless you have any other closing comments, Captain?

THE WITNESS: No, sir. Thank you.

CHAIRMAN HALL: Very well, then. We will excuse this witness. Thank you very much for your testimony, Captain.

(Whereupon, the witness was excused.)

CHAIRMAN HALL: We will now call the next witness.

MR. BERMAN: I call Dexter Taylor from the Federal Aviation Administration.

Whereupon,

DEXTER TAYLOR

having been first duly affirmed, was called as a witness herein and was examined and testified as follows:

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Thank you, Mr. Taylor. Would you please state your full name and your business address?

A Dexter J. Taylor, and I'm in the AMR CMO at Dallas-Fort Worth Airport, Texas.

Q And by whom are you presently employed? I think we've covered that, but if you'd just state for the record.

A Who am I presently employed?

Q Yes.

A I'm in the AMR CMO.

Q Federal Aviation Administration?

A Yes, sir.

Q Thank you.

A I'm sorry.

Q What's your present position at the CMO?

A I'm presently a partial program manager on the American certificate.

Q I'm sorry. I didn't catch the -- which program manager?

A Partial program manager.

Q Could you explain what that is?

A I'm not sure what the -- my duties are going to be. I take the

liberty of explaining why. I was a program manager, Air Crew Program Manager, on the Super-80 Fleet for the last 15 years, and as of the 12th of this month, I was transferred over to the partial program manager position.

Q Okay. So, at the time of the accident, were you the MD-80 - -

A Yes, sir.

Q -- Air Crew Program manager? How long had you been in that position, did you say?

A I was in that position for 15 years.

Q Thank you. Would you please briefly describe your duties and responsibilities in that position, the one you held at the time of the accident?

A Yes, sir. The Air Crew Program manager is a specialist in the particular airplane he's assigned to. He is responsible for the surveillance of that operation of that airplane, the training programs, the manuals, monitoring all of the flight training, check airman, designated examiners that we use for certification work, and any other tasks that may fall our way.

Q And could you summarize your education and training and experience that qualified you for that position?

A Yes, sir. I was in the Air Force from 1943 until 1967. I joined FAA in 1967 in Oklahoma City. I was an instructor there for six years, five of those six years on the DC-9 that FAA had for training our inspectors.

In 1973, I moved to Dallas-Fort Worth and worked on the American certificate, Braniff, Continental, everybody at DFW at the time, and in 1980, I was a principal inspector for Muse Air, a start-up carrier in 1980, with MD-80s incidentally, and then in 1983, when American started taking delivery in '84 of their MD-80s, I moved over and worked with them on that program, and then in '85, I became the Air Crew Program manager for the Super-80 at American.

Q And could you please tell us what your FAA airman certificates are, and also your experience in the MD-80?

A Yes, sir. I hold an airline transport pilot certificate, Conveyor -- various Conveyor airplanes, and a DC-9, Boeing 727, DC-10. I have about 3,000 hours of instruction time in the Super-80, plus a few odd hours here and there over the years since then.

Q Okay. Thank you very much.

MR. BERMAN: Captain Tew?

INTERVIEW BY TECHNICAL PANEL

BY MR. TEW:

Q Inspector Taylor, welcome. Could you tell us why you're no longer the Air Crew Program manager for the MD-80?

A Pardon?

Q Could you tell us why you are no longer the Air Crew Program manager for the MD-80?

A I was -- yes, sir. About in January, I think, -- December. Pardon me. In December, I took three weeks leave in November into the first week of December. Upon my return, why, the principal inspector and

I were talking about some issues, I forget what they were at this time, and he asked me how long I'd been on the 80 program, and I told him 15 years, and he said, "Isn't that a long time?" I said, "No, sir, I don't think it is."

And then about -- on the 12th of -- of January, why, he called me in his office and told me he was relieving me of that particular position because I'd been on the airplane too long, and, so, I was assigned a partial program manager position at that time.

Q Okay. When you were the Air Crew Program manager, were you responsible for the approval of the MD-80 manuals and their revisions?

A I was responsible for recommendation of approval. The principal is responsible for the final approval.

Q Okay. How often did you inspect the content of the ground training that was provided? All my questions, I'm sorry, would be dealing when you were with --

A Yes, sir. Yes, sir. I understand.

Q How often did you inspect the content of the ground training that was provided?

A I try to review the training manuals at least once a year and the training manuals when changes come in from American, and they come to me. I review them then, and most of the changes to the training manuals are discussed prior to even their issuance between the fleet manager and myself, whoever's responsible for the development of them. So, it's -- it's quite frequently.

Q I believe you had an assistant when you were Air Crew Program manager, is that correct?

A Yes, sir.

Q How often did you or your assistant observe a simulator training session? How many simulator training sessions did you and your assistant observe in 1999 and 1998?

A In -- in -- the expansion -- I have to go back a little bit, please, if I may. American entered into an expansion of training in 1988. I'm not sure exactly what month, but they started acquiring additional airplanes, and since the Super-80 is the junior fleet, comprises most of the junior fleet, why, the bulk of the training fell on our program, the retraining and upgrade training, and for the latter half of 1988 and all of 1999, there was a tremendous increase in check airmen and designated examiners. We tripled the check airmen cadre and doubled the designated examiner group in that -- during that time.

It required a tremendous amount of time to qualify those check airmen, and each time we qualified one, we observed a simulator training session and a flight check. Often and as much other as we could do, we did.

Q You say the other, you're talking about the regular simulator training sessions, other than qualifying a check airman?

A A few, not too many. We -- we did manage to get a few.

Q You don't recall how many a few would be?

A No, I -- no, I don't. Not right offhand.

Q Okay. Should more simulator sessions have been

observed?

A Yes, sir,hm-hmm.

Q How often did you or your assistant observe the MD-80 check rides?

A Type ratings?

Q Yes.

A On the type ratings, the certification side, all -- the majority of our certification work is accomplished by designated examiners. I would say 98 percent of it.

The only ones that would be of a mandatory observation is when a pilot fails twice, and we must watch the third check. We had a few of those, not too many, but we had a few.

All the new designated examiners must be observed administering oral exam and administering a type rating, and then periodic checks when we can afford the time to watch them.

Q I believe you heard a remark earlier of an observation that I did and Captain White of Boeing did of some simulator training sessions, and there was some discrepancies found.

With that in mind, how do you ensure that there's -- or how did you ensure that there was standardization in the simulator training?

A We have to -- we depend an awful lot upon the -- get the right word now -- the coordinator program that American uses. We have -- I think they took -- they take the senior designated examiners and call them coordinators, and they're really standardization people, and they watch every check airman and every ground -- not ground, but every --

every simulator instructor at least once a year, maybe more. I don't know.

But I know they watch them at least once a year, and through that effort and through periodic meetings with -- with the check airmen that the company conducts every quarter, and we attend, why, we're able to further our standardization program.

Q So, you rely heavily on the American coordinators to ensure the standardization?

A Yes, sir.

Q Okay. How often did you meet with the American Airlines check airmen?

A At least once a quarter, whenever American scheduled their check airman recurrent visits.

Q What was the purpose of those visits or meetings?

A Standardization meetings, where they bring in -- a lot of times, they'll bring in specialists to cover certain areas. I think they had a special on wet runway operation here not long ago and crosswind operation, hit the hot items that are coming up for the next cycle of proficiency checks, just a general information and question and answer program, and I'm always allowed a few minutes to talk to the check airmen, and we always have a -- oh, maybe a 15-minute to half-an-hour time period allocated to the designated examiners before the check airmen meeting to cover any problems they may have.

Q How did you ensure that American's procedures were being performed correctly during normal line operations?

A By conducting en route inspections.

Q Do you recall how many of these you and your assistant performed in 1999 and 1998, these --

A I don't recall how many Mr. Smith covered, but I had over 700 in 1998, and I think about 600 in 1999.

Q How was the FAA budget restricting your oversight of the MD-80 fleet?

A Well, it's probably not as restrictive on the 80 program as it is on some of the others because most of our work is domestic. It did limit us to a lot of short-haul observations and so forth, which we used to great advantage to -- to qualify our check airmen that we had to look at, and that helped a lot.

But it handicapped us some when we were -- we were -- when we lost any nighttime. We couldn't work at night, and we couldn't work on Sunday because of budget restraints. That cost us about three months this year, right during the real busy time of the year.

Q Was your travel limited?

A Pardon?

Q Was the travel limited?

A Oh, yes.

Q Did the implementation of ATOS affect your oversight of the MD-80 fleet in any way?

A The effect that I felt personally on it was that it took time to insert the material, the data material gathered for ATOS, and the data material. We still had input for PTRS.

Q How is ATOS better/worse than the old system?

A How is it what? I'm sorry.

Q How is ATOS better or worse than the old system, which would be the PTRS system?

A I think -- I think it's too early to pass judgment on ATOS. It's been -- it's been a -- a trial period. We have seen very little results because we don't have the proper people to analyze the program.

The first year was not well organized, but it was the first time. This year looks a little better.

MR. TEW: Okay. For those in the audience, I'd like to explain. The ATOS System is -- the letters stand for the Air Transportation Oversight System. It's a new system by the FAA, and when we refer to the old system, it is the PTRS System, and it's -- Inspector Taylor can probably help me there. It's Performance something Reporting System.

BY MR. TEW:

Q What does the T stand for? Task?

A Pardon?

Q I was just explaining to the audience.

A Oh.

Q What changes has the FAA made or suggested to the MD-80 program since the accident?

A From my -- from my perspective, Captain Lewis and I discussed a lot of the issues early on, but with his position on the Operations Group, and my lack of -- of -- of input on what happened, we couldn't do an awful lot.

Through the press releases and things, we did get opportunity to discuss the spoiler problem. We felt that was an important one, and we spent quite a bit of time discussing those issues.

There were some study groups formed, but I was not a part of those study groups nor was I privy to any information that they -- that came out at the time.

CHAIRMAN HALL: Your lack of input. Would you please explain a little more of that, Mr. Lew? What --

THE WITNESS: Sir?

CHAIRMAN HALL: Yes, sir. You said you had -- you did not provide much input. Who was running this review?

THE WITNESS: American had some study groups. I think they had a couple of them. I did -- I did --

CHAIRMAN HALL: American didn't permit you to participate?

THE WITNESS: No, they didn't -- American didn't -- American didn't interrogate me or question me on the training program, one of their -- one of their members of the study group. We spent about, oh, two-three hours one day discussing training programs, but the -- the one that was conducted at the other study groups, I was not part of.

CHAIRMAN HALL: What other study groups are you referring to?

THE WITNESS: I don't know the names of them even. I know there were two study groups on-going.

CHAIRMAN HALL: By American?

THE WITNESS: Joint -- jointly with FAA.

CHAIRMAN HALL: Was the POI involved or who was involved --

THE WITNESS: I'm sure --

CHAIRMAN HALL: -- from the FAA?

THE WITNESS: Yes, he was. Hm-hmm.

BY MR. TEW:

Q So, you weren't privy to that. Were you privy to the -- what came out of those meetings?

A Not really. No, sir.

Q Okay. You mentioned that you were involved with the --

CHAIRMAN HALL: But you were in this position, correct, at the time these study groups were taking place?

THE WITNESS: Sir?

CHAIRMAN HALL: You were in the -- in your -- the previous position at the time these study --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- groups were taking place?

THE WITNESS: Yes, sir. Yes, sir.

CHAIRMAN HALL: Mr. Taylor, why didn't they include you?

THE WITNESS: I don't have an answer for you, sir.

BY MR. TEW:

Q You mentioned that you made or suggested some changes with the -- concerning spoiler problems, I believe you said, is that correct?

A I didn't understand, sir.

Q You mentioned a minute ago that there were -- there had been spoiler problems, and that you suggested changes?

A No. The spoiler problem that we heard through the press releases was the only ones we could really use because Eric was not -- since he was privy to the Operations Committee, he didn't feel that we could use what he knew, and I didn't know what he knew.

Q Okay.

A So, we just used that as a starter, and because it was public -- public information.

Q Well, were there any other spoiler problems that you're basing this on?

A No, sir.

Q Just this one?

A Just the one that I know of.

Q Hm-hmm. How could this oversight of American be improved?

A Oversight on a program takes a lot -- a lot of man hours because if you're going to do a really thorough job of oversight on the training programs, it takes manpower, and we don't have the manpower. We spend many hours a month on initial operating experience checks that are required by law. We spent a lot of time last year on new check airmen. We spent a lot of time on our designees that all are required by our manuals and so forth, and we don't have the luxury of spending a lot of time in the simulator observing the training programs as they should be.

Q Do you observe the training that American provides on approach briefings?

A Approach briefings?

Q Yes, sir.

A Yes, sir. I'm familiar with them.

Q Did you read the CVR?

A Yes, sir.

Q What is your opinion of the briefing that was performed by the accident crew?

A As near as I could tell by just reading the -- I believe that they performed the initial briefing during the descent of the Runway 2-2. When they diverted to Runway 4, they did a minimum change briefing. Let me put it that way.

Q Was that acceptable to you?

A I think -- I think they covered most of the points that they should have covered. They may not have covered -- they may have missed a few. I didn't get time this morning to review the whole issue.

Q Okay. Were you or any of your check airmen aware of any failures to arm the spoilers on the MD-80 fleet or on any fleet?

A I've been on that airplane for a long time with American, since they -- since they bought the first one, and I can't recall anybody, any captain, not arming the spoilers as long as they were functional.

Q Was the failure to arm the spoilers ever --

CHAIRMAN HALL: How would you -- on what are you basing that information?

THE WITNESS: My personal observation.

CHAIRMAN HALL: Personal observation.

BY MR. TEW:

Q Was the failure to arm the spoilers ever a topic that was discussed among the instructors and check airmen or the FAA prior to the accident, since the accident?

A Not as a -- not as a general issue. I think Captain Lewis pointed out that the system is -- is extremely reliable, and failure of the spoilers to extend is rare, indeed, very rare.

Q What training and guidance does American give its pilots to aid them in the decision-making, such as diversions, delaying a landing or go-arounds?

A They have a D&R Program, Duties and Responsibilities, for captain program. I believe in that program, they do have -- refer to some decision-making processes. They also present a program during recurrent training that provides an opportunity to discuss items of that nature, and it's always brought to the pilot's attention on their annual recurrent training.

Q Did you feel that this training or guidance was sufficient?

A Decision-making is -- is a difficult -- a difficult issue to really pin down. There's so many things that can -- that can change to change a decision, that can influence a decision. There's just -- I'm satisfied with what I've -- what I've seen, but I haven't seen it all.

Q In a statement you made a minute ago, you -- you sort of implied maybe you misunderstood it, that the auto spoilers failed to

deploy after being armed.

Do you think they were armed? Why do you think they were armed?

A Oh, no. I'm sorry. Maybe I misunderstood what you said. Maybe you misunderstood what I said.

Q Oh, I'm sorry.

A I said in all the time I've been in the airplane, I don't recall ever seeing an auto spoiler that was armed fail to extend or a captain fail to arm them.

Q Okay. Thank you, Inspector Taylor.

A Does that help? Okay.

Q Yes. Thank you, Inspector.

CHAIRMAN HALL: Mr. Taylor, during your time in this responsibility, has American reduced any of its pilot training?

THE WITNESS: Reduced?

CHAIRMAN HALL: Yes.

THE WITNESS: No, sir. It expanded it.

CHAIRMAN HALL: It stayed -- it's expanded in that particular area? Have you ever had more than two people to perform those responsibilities?

THE WITNESS: No, sir. Most of -- no, sir.

CHAIRMAN HALL: For how long? American's grown a little bit, hasn't it?

THE WITNESS: Yes, sir. They started -- they started out with 25 airplanes, first delivery, and now there's 200 -- I believe 280 some now after the acquisition of Reno, and that was also added to our program

this year.

CHAIRMAN HALL: So, how many MD -- how many were you responsible for? Airplanes?

THE WITNESS: 260 initially, and now it's about 280 something, I think.

CHAIRMAN HALL: Okay.

BY MR. TEW:

Q Did any of the findings from the recent accidents that American has had filter down to any changes in the MD-80 program?

A Yes, sir. I think they -- the first -- the first one that was implemented, of course, was the spoiler program. It would be -- it already started in the recurrent training, and it certainly is in the initial training, and as Captain Lewis pointed out, it will run for 13 months to be sure and get everybody involved in it for the next year, and that was the first thing they did, and I really don't know what else -- there's an issue -- there's a manual change that just came in last month that will incorporate that particular change on their Procedures Manual, and the checklist -- the checklist challenge response will be on -- in that one.

Q Thank you, Inspector Taylor.

MR. TEW: Mr. Chairman, I have no more questions.

CHAIRMAN HALL: Does the Technical Panel got additional questions at this point?

Mr. Taylor, had you requested any additional people?

THE WITNESS: We got -- we got a little help from OEs, initial operating experience checks. We do get a lot of help from the

various offices around the country where we -- we give the American flight standard schedulers the schedule for initial operating checks for new captains.

Incidentally, American's MD-80 fleet has about -- averages about 28 new captains a month. So, that's a pretty good workload. We get a little help -- we get help in Chicago. We get some help out of New York. We get some help out of Nashville, various inspectors around the country, and the flight standards schedulers, I give them names for those locations, and they get as much help as they can.

But the bulk of it falls on our office here. We get a little help from some of the other people in the office, but -- but my assistant and I do 90 percent of what comes in the office for the 80.

CHAIRMAN HALL: And again how has that additional workload impacted your ability to provide oversight?

THE WITNESS: Considerably. I couldn't put a number on it, sir.

CHAIRMAN HALL: Very well. Well, we'll move to the tables, and I believe I started -- I believe we would begin now with American Airlines.

MR. BAKER: Mr. Chairman, we have no questions. Thank you.

CHAIRMAN HALL: Allied Pilots Association?

MR. ZWINGLE: The Association would just like to wish Mr. Taylor Happy Birthday today. We have no questions.

CHAIRMAN HALL: Very well. Your birthday, Mr. Taylor?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Well, Happy Birthday.

THE WITNESS: Thank you.

CHAIRMAN HALL: Association of Professional Flight Attendants?

MS. LORD-JONES: Sir, we have no questions for Mr. Taylor.

CHAIRMAN HALL: National Weather Service?

MR. KUESSNER: No questions, sir.

CHAIRMAN HALL: Little Rock National Airport?

MS. SCHWARTZ: No questions, sir.

CHAIRMAN HALL: Little Rock Fire Department?

MR. CANTRELL: No questions, sir.

CHAIRMAN HALL: The Boeing Commercial Airplane Group?

MR. HINDERBERGER: No questions, Mr. Chairman.

CHAIRMAN HALL: And the Federal Aviation Administration?

MR. STREETER: No questions, Mr. Chairman.

CHAIRMAN HALL: Ms. Sweedler?

MR. SWEEDLER: No questions, Mr. Chairman.

CHAIRMAN HALL: Mr. Berman?

MR. BERMAN: Just a couple.

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q You -- you mentioned that your office performs 700 en route checks, 600 in the various years recently, and you said that most of those, I think, are for qualifying the check airmen.

A The check airmen and initial operating -- new captains.

Q Does your -- does your department or did your department get to do any routine surveillance that wasn't related to a qualification or a certification?

A En route, you mean?

Q Yeah, yeah.

A Yes. What usually -- well, let me put it this way. Most of them are one-leg checks for the -- for the check airmen and -- and -- and IOEs. So, we get opportunity to observe another crew on the other leg of the trip.

Q And do you recall anything that your office has picked up from watching the routine line operations of American that prompted you to request a change or information or clarification?

A No, sir. We -- you know, being an inspector, when we're on an airplane, everybody does it the right way. It -- if there -- if there are differences, we critique them immediately, and I've never seen any -- I've never seen a major problem, just maybe a minor one now and then, but they're on their good behavior when we're there.

Q Have you ever written a violation for something that you or one of your colleagues observed en route?

A Not -- not -- not something I observed, but something that was discovered, why, through other means. Yes, sir, I have.

Q Through a route check?

A Not through my route check, no.

Q Okay. You mentioned a few minutes ago that the first year of ATOS was not well organized. What -- what did you mean by that?

A I don't think we really were prepared to target the individual inspectors into their -- their particular program. So, what -- a lot of the things we -- that we accomplished were outside the ATOS regime and really had no place to put them, except in PTRS.

It might have been valuable for ATOS. I don't know, but we had to put them in PTRS then.

Q So, you're saying you had a problem coding your activities into the ATOS framework?

A The system was very cumbersome the first year. A lot of delays in inserting data and so forth.

Q Okay. And has that improved?

A Well, we -- we hope so. They say it was -- they say it would be improved for this next year, yes.

Q You haven't noticed the improvement yet?

A I haven't -- I haven't put anything in the last -- since -- I haven't put anything in this month. So, I don't know, sir.

Q Okay. Thanks. No more questions.

CHAIRMAN HALL:Mr. Haueter?

MR. HAUETER: I have no questions.

CHAIRMAN HALL: Mr. Clark?

BY MR. CLARK:

Q You made a statement a moment ago that when you're on board, everybody's on their best behavior.

A Yes, sir.

Q The -- what is the best behavior regarding the landing checklist and the challenge and response issues that have been discussed today? What do you see?

A I see people conducting their checklist responsibilities responsibly. It's a -- sometimes it's busy, sometimes it's a very quiet day, but the first officers or the pilot not flying initiates the checklist when it -- at a practical time, conducts briefings.

I just don't see too many mistakes. If they are, they're very, very minor ones, and we talk about them after the flight.

Q Okay. On the landing checklist, there are 10 items.

A Yes, sir.

Q Do you observe those? Are they handled with the challenge and response on each one or only the two that American Airlines referred to earlier today?

A The two mandatory ones are always -- always conducted in that manner. It's a challenge and response. The rest of them are up to the pilot not flying to conduct the -- each -- each item, and then to respond aloud when it's complete, and then when the whole checklist is complete, landing check completed. Extremely standard.

Q So, there is -- what you routinely see is verbalization on all 10, and you see a challenge and response specifically on two?

A Sir?

Q On a -- as the checklists are read or are performed, you -- what I hear you say is that you have a -- you hear a verbal response on each of the 10 items, and you also hear specifically the challenge and response on at least the two mandatory items?

A Yes, sir.

Q How routine is it for -- to have a challenge and response on each of the 10 items?

A I think it would be good.

Q It would be a good thing to do?

A Yes, sir.

Q In your experience, was -- how often was that accomplished when you were on your check rides?

A If that program is implemented, surprising how many -- how many pilots respond even though they're not required to. The pilot flying responds, even though he's not required to.

Q Okay.

A Just a habit -- I think it's a habit pattern that -- that the individuals develop.

Q Hm-hmm. It wasn't unusual to see that happening in the --

A No, I don't think so, no.

Q Okay. Thank you, sir.

CHAIRMAN HALL: You indicated that, I guess in your responses from the Technical Panel, that you're rather dependent on the American coordinators for information, is that correct?

THE WITNESS: The coordinators are all designated

examiners. They are probably the most standardized people you'll ever find in an aviation group, all of them. They are highly qualified. I know all of them personally. I've watched their work over -- over the past years.

CHAIRMAN HALL: Well, I work with a lot of highly-qualified people at the NTSB, but I constantly have to supervise them.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And how -- how can you -- don't -- it sounds to me, just listening to this, that -- isn't it going to be difficult for you to validate the information they're providing without the individuals to actually get in the field and check adequately?

Do you think the Government is performing the function that you're supposed to be performing with the present manning that you have in your office?

THE WITNESS: This seems -- this seems to be a trend to reduce our manpower pool. Our designees are a good example. I have 21 designated examiners -- I had 21 designated examiners on the program.

10 years ago, 15 years ago, we had inspectors doing all the certification work for American. It took about -- when we first started on the 80 program, it probably took about five or six inspectors to do the certification work. We don't have that luxury anymore.

CHAIRMAN HALL: Has someone replaced you, Mr. Taylor?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And who is that individual?

THE WITNESS: A gentleman from our office was put in my position.

CHAIRMAN HALL: What was his previous experience? D you know?

THE WITNESS: No DC-9 experience, sir, to my knowledge. He had some 7 -- I think he had a DC -- he had a 727 type rating and a 737 type rating. He has not worked on the American certificate, and he'll have to go through the American training program before he'll be of any value.

CHAIRMAN HALL: My understanding, basically, though, of your testimony, if I characterize this incorrectly, please correct me, is that at the present manning levels, that the Government responsibilities are really in large measure to some degree dependent on the proper reporting of the American Airlines pilots that report to you.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Without adequate staff really to -- to verify and check their performance, and I understand you have a long association with them and have a high regard for them.

THE WITNESS: Yes, sir, I do.

CHAIRMAN HALL: But is -- is that an unfair characterization?

THE WITNESS: No, sir, it's not. I've worked with these people almost on a -- on a daily -- not daily basis but frequent basis, and I've seen their work. I talked to them frequently. We have a very open dialogue going on almost continuously with some of them, and I trust them

to do what they're supposed to do.

For example, their failure rate of type ratings is far above what we used to have when the inspectors were doing the certification work. Their criteria -- their standards are much higher.

CHAIRMAN HALL: Let's discuss the responsibilities you have briefly in terms of manuals.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: I -- I just -- one of the things that fascinated me in this job with coming into this with my not having an aviation background but having been in this position, is that the manufacturer puts out a manual in terms of the operations of the aircraft, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- and then the process is that the operator then can create their own manual, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- and there's certain variances sometimes between how the operator -- what the operator has in their manual and what the manufacturer recommends, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- and in fact, we noted one of those today, and it's your responsibility, as I understand it, to approve American's manual?

THE WITNESS: I recommend approval to the principal, principal office inspector.

CHAIRMAN HALL: And --

THE WITNESS: But I go --

CHAIRMAN HALL: And are you the one that tracks the changes as they come to the manual, as the manufacturer makes changes?

THE WITNESS: Yes, sir. I keep -- I keep a volume of the manufacturers' manuals in my office, and most of the -- all -- in fact, all of the changes that are made on this program have been discussed by American personnel who are implementing the changes, the changes that would come to my office, and I review them for their correctness and application and recommend approval or if there's any changes that I don't like, we go back and discuss them with American.

CHAIRMAN HALL: And the MD-80 aircraft and its family is widely used by other major carriers. Do you consult and look at the decisions that are made why, for example, say, Delta might have one procedure or have approved one thing, and you have something different? Do you all have any networking within the FAA?

THE WITNESS: We don't -- we don't have a networking, but I know most of the APMs around the country, and we -- we talk quite often, not real often, but maybe two-three times a year, we get on the telephone. If we have a question, certainly we call them and talk to them about it.

CHAIRMAN HALL: Very well. But there's no -- now, what is the -- is it the presumption when you have a change that comes from the manufacturer? Who is supposed to act on that?

THE WITNESS: American does, is supposed to act on it.

CHAIRMAN HALL: And do you have a time frame that you would expect them to either act or give you a response or is that just something you kind of follow as it goes?

THE WITNESS: No, we don't have a time frame. They're usually pretty prompt about it, though.

CHAIRMAN HALL: And how many changes would you say you've seen through your career?

THE WITNESS: From the -- from the company's manual? Not too many. Not too many. They don't vary too much. I couldn't put a number on it.

CHAIRMAN HALL: Well, were you aware of the Boeing spoiler deployed call-out recommendation that came from Boeing?

THE WITNESS: No, sir. I don't know when it came out. What's the date on it? Anybody know?

CHAIRMAN HALL: Boeing know when that came out?

MR. HINDERBERGER: Mr. Chairman, we're checking on that, and we should have an answer for you tomorrow.

CHAIRMAN HALL: Any of the staff aware of that? The date of it?

MR. TEW: I'm sorry. I didn't hear the question. I was being asked something else.

CHAIRMAN HALL: The Boeing Aircraft put out a spoiler deployed call-out recommendation that I believe you referred to, Captain Tew, or Mr. Feith did, before in regard to -- it was in the Delta procedures.

MR. TEW: Oh, yeah. I did have the date. That was from -- I believe Captain Lewis mentioned that.

THE WITNESS: Delta had -- Delta put out their own -- I believe did their own change after their accident in Cleveland two years ago.

CHAIRMAN HALL: Right.

THE WITNESS: They did it as a result of that, but I didn't see that until the NTSB's report came out, and I forget when that was now. In fact, I didn't see that report.

MR. TEW: I believe that's in their Flight Crew Operating Manual from Boeing.

MR. ZWINGLE: Mr. Chairman?

CHAIRMAN HALL: Yes?

MR. ZWINGLE: Yes, sir. I believe that's Exhibit 2II.

CHAIRMAN HALL: Okay.

MR. ZWINGLE: From the MD-80 Flight Crew Operating Manual. One -- date of '98. Exhibit 2II.

CHAIRMAN HALL: Do you have that, Mr. Taylor?

THE WITNESS: I'm looking right now, sir.

CHAIRMAN HALL: Ms. Dargan, if not, we'd like to get a copy for Mr. Taylor.

MR. HINDERBERGER: Mr. Chairman?

CHAIRMAN HALL: Yes?

MR. HINDERBERGER: That -- the date on that page that was referred to by the Allied Pilots Association is April 1st of '98.

However, that information that's in question as we speak isn't the information that was changed on April of '98. The information in question was changed prior to that.

CHAIRMAN HALL: Very well. Well, I guess, Mr. Taylor, my -- my question is, when -- when a manual change like this comes from the manufacturer, does it go -- is it American's responsibility or your responsibility to -- how's a request like this handled or acted upon?

THE WITNESS: It usually goes through American first, and they furnish us our copies of this -- of this -- this change -- this manual.

CHAIRMAN HALL: So, you do not have your own independent copy, and you are dependent on the airline on any question?

THE WITNESS: I don't -- I don't recall seeing this one.

CHAIRMAN HALL: Very well.

THE WITNESS: I'm sorry. Correction. This is where the 1.3 EPR on the contaminated runways came from. So, I was aware of the 1.3 EPR, but I don't recall seeing this particular -- I know that American implemented it -- implemented this in their manuals, but I don't remember -- I don't recall seeing this one.

CHAIRMAN HALL: Okay. Very well. Well, we'd appreciate it, if the -- you know, we may want to explore that more with the next witness as well, if the FAA has any additional information in that regard.

But again the procedure would be that these changes, procedural changes, went from the manufacturer to American, and then American would bring them to your attention?

THE WITNESS: They furnish us a copy of the change.

CHAIRMAN HALL: And is that the procedure with all the major carriers? Are you familiar with that, Mr. Taylor, from your networking and --

THE WITNESS: I'm sure that's -- that is a procedure. The company's responsible for furnishing us these manuals.

CHAIRMAN HALL: The reason I mention that is we have made some recommendations out of ValuJet Air report that this process on this should be changed at the federal level.

If you all have the responsibility for guaranteeing to the flying public that these deviations and changes in the manual are acceptable, I don't think that the Government should be in the position of being dependent on the carrier for the information, not meaning that there's anything that the carrier would not in good form do. I just think the appearance of that procedure is unacceptable, and we have made recommendations in that area.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Well, Mr. Taylor, you have long served us. You were with the -- with the -- with the Air Force, did you say, sir?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: For how many years?

THE WITNESS: 24.

CHAIRMAN HALL: 24 years, and you've been with the FAA how long?

THE WITNESS: 33.

CHAIRMAN HALL: 33?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Add that. What's that?

THE WITNESS: It's a long time.

CHAIRMAN HALL: Well, that's a lot of -- that's a heap of federal service, and I thank you for that service, and, Mr. Taylor, you have heard -- you're familiar with this event, --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- and certainly it's a tragedy that no one obviously -- it's a difficult -- let's just say a difficult event, but do you have -- with all those years of experience and service and particularly your working in this area with American so closely for the past 15 years, we would be very interested in any thoughts that you had in terms of things that needed to be changed in the system to prevent an event like this from recurring.

THE WITNESS: I believe American took prompt action where they really needed it immediately. That was on the spoiler problem, if it was a problem.

The one issue that -- that I would like to see get some attention would be good runway condition reporting. This is the second accident that American has had with runway conditions less than desirable.

The first one, you're probably familiar with, was at Cleveland, where no runway conditions were related to the captain, other than they were treating the runway, and he was holding, and they finally cleared him to land. When he landed, the runway was covered with a

contaminant -- contaminated. How much, nobody knows.

What they treated the runway with, I don't know. But I knew -- I knew the flight crew. I knew the captain, and was part of the ASAP group that talked with them and -- and took them to the simulator, and we demonstrated what had happened and that sort of thing, checked them, and he told me that when he stepped on to the runway after the accident to get in the bus to go to the terminal, that the slush was over his shoe tops, and they were not aware of the runway conditions.

I think that is an area that needs some attention.

CHAIRMAN HALL: Thank you very much, Mr. Taylor.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: We appreciate your testimony.

THE WITNESS: Thank you.

CHAIRMAN HALL: You are excused.

THE WITNESS: Thank you, sir.

(Whereupon, the witness was excused.)

CHAIRMAN HALL: And we will call the next witness.

MR. BERMAN: I cal Mr. Corky Valentine.

Whereupon,

CORKY VALENTINE

having been first duly affirmed, was called as a witness herein and was examined and testified as follows:

INTERVIEW BY BOARD OF INQUIRY

BY MR. BERMAN:

Q Good afternoon or good evening. Would you please state

your full name and business address?

A Yes, sir. It's S.C. Valentine, and I am at the FAA Office at DFW, the AMR CMO.

Q And by whom are you employed at -- at the CMO?

A The FAA.

Q Thank you.

CHAIRMAN HALL: What's a CMO, Mr. Berman?

THE WITNESS: The AMR Certificate Management Office.

CHAIRMAN HALL: Thank you.

BY MR. BERMAN:

Q What's your present position at the Certificate Management Office?

A I'm assigned as the principal operations inspector for American.

Q How long have you held that position, sir?

A I served -- I was in that position acting for one year, and then I have been on that certificate now as the POI for one year.

Q Could you please summarize your duties and responsibilities as the POI?

A Yes, sir. I give authorization to American Airlines to conduct its operations through the issuance of operation specifications. I approve manuals. I approve MELs. We investigate passenger complaints, and we do enforcements.

Q And could you please briefly describe your education and training and experience that qualifies you to be the principal operations

inspector?

A Yes, sir. I went to the University of Texas, and while I was there, I learned how to fly. I got all of my certificates through civilian training. I spent 10 years as a military contract instructor. I was an airline captain for 13 years for a large regional carrier.

I have an ATP, airline transport pilot certificate. I have five air transport category type ratings. Following that, I joined the FAA. I've been on the American Airlines certificate for 10 years, and during that tenure, I have had five different positions.

Q Thank you. And what type ratings do you have on your ATP, and do you hold any other FAA airman certificates?

A Yes, sir. I have a certified flight instructor certificate. The type ratings are the Shorts 330, Saab 340, the Conveyor 580, the DC-9 Super-80, and the F-100.

Q What experience do you have -- flying experience do you have in the DC-9 or MD-80?

A I was qualified at the FAA Flight Academy. I later went through recurrent training through a contractor. That was at Northwest Airlines. I went again through a recurrent training program at the contractor then, Delta. That's the experience I have.

Q Okay. Thank you very much.

MR. BERMAN: Captain Tew?

INTERVIEW BY TECHNICAL PANEL

BY MR. TEW:

Q Yes. Welcome, Inspector Valentine.

A Thank you.

Q The question came up with -- during the previous testimony about these Boeing changes in the FCOM and all that. Could you address that or did you need that clarified or --

A Yes, sir. I would be glad to. American Airlines purchased two new aircraft this year or actually last year. It's the 777 and the 737. Those manufacturers gave support to the carrier. At the same time, we have inspectors that went through that initial training, initial cadre, instructors, and you have to start somewhere in this training program.

So, these inspectors that were assigned these new aircraft, much like those check airmen at American Airlines, received the same manuals from the manufacturer. The inspectors now still on those new aircraft have those same manuals which are updated from the manufacturer.

So, any bulletins, revisions to those manuals are received by the FAA. I route those to those individuals, whether they're on the 777 or the 737. They -- this person who is here, Crew Program manager, takes that to the carrier, and they discuss if this is an issue that needs to be addressed, their current procedures or policies, if that needs to be changed or revised to conform with whatever the subject matter is of the manufacturer bulletin.

It -- it then comes from that APM back through to me, and with the concurrence of that APM, I make the approvals.

CHAIRMAN HALL: Is there a burden of proof involved there? It would seem to me if the manufacturer, and this is just my

personal opinion, the manufacturer's recommending the change, then you would want to know why the operator did not want to make that change and determine that that did not have any safety consequences.

THE WITNESS: You're exactly right, Chairman Hall.

CHAIRMAN HALL: Is that in procedures or is it just --

THE WITNESS: It is in -- you must remember that while one carrier has an airplane that's configured one way, Delta may have their airplanes configured quite another.

It's much like the options that you get when you buy a new car. Some of these things that come across do dictate change while some may not.

CHAIRMAN HALL: But usually the brakes are pretty standard, right?

THE WITNESS: I think you're right.

BY MR. TEW:

Q Along this line, what criteria would you like -- like I know that Boeing calls after landing spoilers, and then Delta -- I mean Delta calls spoilers that now. American is going to no spoiler call-out.

How do you determine which is a better one? Do you just evaluate what the carrier sends you as what they want to do as a procedure and make a judgment call or what criteria do you use to say this is acceptable or this is not acceptable?

A I rely very heavily on the Air Crew Program managers, since that person has the technical experience having gone through that airplane and is qualified and works with it on a daily basis. They are very

closely in contact with not only the Aircraft Evaluation Group, but the manufacturer and the carrier as well.

So, those combined resources, I consider, when those changes are proposed by the carrier, and the APM concurs or disagrees, we may -- may approve a manual revision, and then we -- we may not.

Q American Airlines has had a number of accidents and incidents in its recent history. What actions has the FAA done in response to these accidents and incidents?

A We convened a System Analysis Team. This was an effort -- it was a joint effort. There was a member from the FAA, a member from APA, and a member from the carrier. This -- this team addressed those issues involving the take-off and landing phases of flight.

That seemingly was the problem areas. It was a very narrow brush and scope, looking at those things that could cause immediate problems.

There were six events -- six accidents and two incidents, over a period of five years that was considered in this System Analysis Team evaluation. What's unique is that you get the input from the three parties that are all involved with the -- the process.

You've got the FAA. You've got the APA. You've got the carrier. The goals are common. So, what we jointly did was look at these things. Were there any commonalities? What -- what surfaced as a high risk?

There were some 89 recommendations coming from these audits. The System Analysis Team, plus the audit that American Airlines

did independently, and the other audit that APA did independently, of these three audits, there were 89 recommendations. There were 17 recommendations that received a high priority and set an immediate goal for changes, and Captain Lewis addressed several of those.

The mandatory call for the spoilers, the checklist revision, the crosswind limitations being modified and simplified, things that the pilots brought in, the APA brought in, and the carrier brought to the table.

There's going to be a divider that you put inside the Jepsen charts that on this little plastic tab that separates or -- it -- it marks the page, the approach that you're using. It's going to have the crosswind limitations. So, you -- you eventually won't have to go looking through other books. It will be readily available.

The spoilers, the call-out, if the spoilers do not deploy. This is going to be a call. So, there were a significant amount of good things that came from these three audits.

The balance of these things will take some time. There have been some discussion on winds. Do you include the gusts in this limitation or is this a steady wind? So, it's been so refined, that of the 17, it was a very quick way to put them into play, rather than put it out as a recommendation some months later, get it done.

CHAIRMAN HALL: Well, Mr. Valentine, that's what interests me in terms of that Boeing spoiler deployment call-out --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- that I referred to.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Because we had an audit that detected that, but Boeing had already brought that to American's attention two years ago.

THE WITNESS: I can't address that. I'm not the APM on that particular program.

CHAIRMAN HALL: The APM -- you heard the APM testify that he had -- was not aware of it.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: So, I mean that's something we ought to probably audit at the Government level --

THE WITNESS: I agree.

CHAIRMAN HALL: -- to be sure that we are, you know, performing -- because as commendable as the audit is, it was after the tragedy.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And when the information from Boeing was before the tragedy and was in place at at least one other major carrier in the country. So, I commend the audit, and I commend the things that have been made, but --

THE WITNESS: I would like to ask a question, if I may, Chairman Hall.

CHAIRMAN HALL: Sure.

THE WITNESS: This spoiler deployment, was this a -- something that the manufacturer recommended as an immediate change? Was this a recommendation that it should be just studied?

CHAIRMAN HALL: Well,-- well, we'll get -- I'll get the manufacturer to respond to that. Are you prepared to do that or do you need to do that tomorrow, sir?

MR. HINDERBERGER: Mr. Chairman, I'm not sure what the context was of the letter that accompanied the change. However, the actual words in the manual read, "If a spoiler lever does not move aft or does not remain at extended position, pilot not flying call no spoilers. Pilot flying move lever aft until full extend position and up to latch position."

So, that wasin the manual.

CHAIRMAN HALL: I take it, Mr. Valentine, that you need to have Boeing indicate the urgency, whether that's something that needs to be done right away, be studied or not be done?

THE WITNESS: No, sir. Having now understood the context of that directive, if you will, American did comply with that in that, as you've heard earlier testimony, American historically calls out problem areas rather than normal operations.

So, if the spoilers did not deploy, then spoilers would be the non-pilot flying, and it's then incumbent on the captain, and it is in their manuals today, that the manual -- the captain physically deploys spoilers. So, that is in the manuals.

CHAIRMAN HALL: Very well. Thank you.

BY MR. TEW:

Q Are you aware of the American Airlines -- I've heard the term "blue ribbon panel". I don't know if that's the correct term. Of a panel that

was organized to look into the recent accidents and incidents that American has been having or panels?

A CaptainTew, yes, sir, I do. That was one of the audits I mentioned beforehand. It was commissioned through the past chief pilot, CaptainEwell. CaptairEwell did give me a courtesy call that they were conducting this audit.

In this particular audit, they wanted to observe cockpit procedures again within the scope of the take-off and landing approach phases flight. We did approve some of these gentlemen to access the cockpit, but I was well aware of that.

Q Could you tell us what actions occurred as a result of this panel?

A No, sir. The debrief -- I was not involved in that particular debrief nor the APA audit. I do know that these recommendations almost parallel what the -- the safety -- the System Analysis Team determined in that all of the parties were there. So, there were some carried-over recommendations.

CHAIRMAN HALL: But you were not a participant in the debriefing?

THE WITNESS: No, sir.

CHAIRMAN HALL: Were you --

THE WITNESS: I was not.

CHAIRMAN HALL: Were you invited?

THE WITNESS: If I had called American, I'm sure I could have. We were in the -- in the same time frame doing an audit with the

same people. So, it would not have served any further purpose to become a party of the APA audit and American's since we were doing the joint effort under the safety analysis team.

CHAIRMAN HALL: Well, I -- okay.

THE WITNESS: Chairman Hall, let me -- maybe I can make this clearer. There were three audits. The SAT, APA and American. They were looking at all aspects involving the take-off and landings.

So, having an FAA representative on the SAT and an APA member and a member from American Airlines, that communications was intact. It was there. So, it would be repetitious for me to -- to be a party to those other audits.

CHAIRMAN HALL: Well, but they were all for the same purpose, is that correct?

THE WITNESS: Yes, sir, they were.

CHAIRMAN HALL: Wouldn't the information from one -- wouldn't you be curious whether that audit information was comparable with what you all were finding?

THE WITNESS That is a true statement, and I was provided feedback from our representative, the FAA representative on the SAT. That's how I knew that there were 89 total recommendations. So, I did know, you know, what -- what they were doing. I just did not participate in the APA audit, and I did not participate --

CHAIRMAN HALL: Well, I understand that, but I was referring -- specifically referring to the debriefing in which they went through what they had found in the audit.

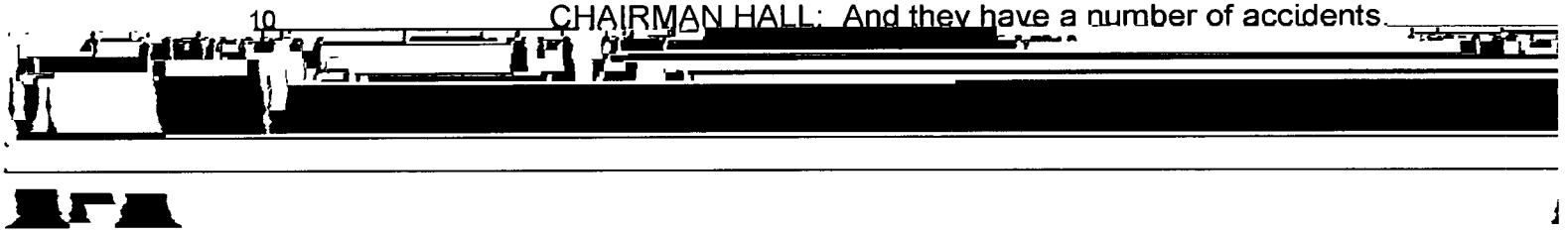
Did -- but you did not feel that was appropriate for you to be there or necessary for you to be there?

THE WITNESS: We did have a debrief with AFS-1 in Washington. It was at that point in time that, you know, I became fully aware of some of these issues, but to be called to American Airlines for that single purpose, no.

CHAIRMAN HALL: But you are the principal person of the Federal Government charged with oversight of American Airlines?

THE WITNESS: That is correct.

CHAIRMAN HALL: And they have a number of accidents.



operations, --

THE WITNESS: That is correct.

CHAIRMAN HALL: -- and you again were not invited or were aware of that -- there was a debriefing on the results of that audit?

THE WITNESS: Of those two audits, I was not.

CHAIRMAN HALL: You were not notified?

THE WITNESS: I was not formally invited to attend the debriefings at the American Airlines headquarters.

CHAIRMAN HALL: But then that information was shared by the Federal Government in Washington by American -- with American?

THE WITNESS: And I was in attendance at that meeting. Yes, sir.

CHAIRMAN HALL: That's just curious. Proceed.

MR. BAKER: Mr. Chairman? Mr. Chairman?

CHAIRMAN HALL: Yes?

MR. BAKER: Let me see if I can add a little light to this dilemma.

CHAIRMAN HALL: Sure.

MR. BAKER: Tomorrow, I will appear as a witness and talk in some detail about these three evaluations, and I think we can clarify some of the intent, the participants and what came out of it.

So, -- or I can talk about it now, but that's part of my presentation tomorrow, for your information.

CHAIRMAN HALL: Well, you've heard our concerns, and maybe you can address those in your -- your testimony tomorrow.

Obviously I'm reacting both to Mr. Valentine's testimony and the testimony of the previous witness in regard to the Federal Government's ability through its appropriate agency, the Federal Aviation Administration, to oversee which they are charged with the training and operations of American Airlines, and since we have been told there was a manpower problem by the previous witness, and I asked Mr. -- will get into that with Mr. Valentine in a minute, and since obviously you all do coordinate and cooperate very closely, which is appropriate, to have a major audit and to have a debriefing without the -- without Mr. Valentine being present, I was curious about, and I'll look forward to your comments on that tomorrow.

MR. BAKER: Thank you.

BY MR. TEW:

Q How do you ensure that American's pilot training is

satisfactory and is standardized?

A Through use of the Air Crew Program managers who are qualified. They go through the same training as the American Airlines pilots. They are in the field observing proficiency checks, training events, line operations.

Any of these things that are not standardized or are being conducted in a state other than in compliance, I'm notified, and then we -- we take action.

Q Do you review the surveillance records of the training and line operations?

A Yes, sir, I do.

Q What areas of concern in training and/or line operations have been evident during recent surveillance record reviews?

A American Airlines is in a state of rapid expansion and growth with the purchase of two new aircraft this year or, rather, last year. They had also purchased Reno Air. There's a great deal of training that is being conducted, and those are concerns.

Q American is one of the carriers that's now under the new Air Transportation Oversight System or ATOS. When did it start at American?

A In February of 1999.

Q What happened to the previous oversight system? Is it still in effect or did ATOS completely replace it?

A The -- as you mentioned before, PTRS is still viable. It's a way that inspectors can record activities or data. Those activities that are

not involving surveillance generally, certification, surveillance is recorded and documented under the ATOS System.

Q What additional training is required for an inspector to be assigned to an ATOS carrier?

A That individual must first go through specialized ATOS training, which is conducted at the Academy in Oklahoma City, and then he must -- he or she must go through the training air carrier-specific, and that would be conducted at the local level.

Q How effectively were the inspectors trained to use the ATOS System?

A With any new program, and as complex as ATOS is, you would expect some stumbling blocks. It was implemented early on. It was a rapidly-changing program. It went under -- it underwent a lot of changes.

It's -- it's not a well-oiled machine, so to speak, today, but it has been changed, the principles of it. I think it's a better way to conduct surveillance.

Q Is completion of this specific training required before an inspector can be used under the ATOS System?

A Yes, sir, it is.

Q Were all the ATOS inspectors assigned to American trained at the time of the accident?

A I have two new inspectors who transferred from General Aviation Offices. They are going through the American Airlines-specific training as we speak, and I have one other inspector who will be assigned

as the DC-9 APM, who was on another certificate. So, those -- those people are not presently qualified.

There were approximately four individuals at the time of the accident not qualified under ATOS.

Q How many ATOS inspectors are assigned to the American Airlines certificate?

A I have 16 inspectors.

Q Is this enough?

A No, sir.

Q Why not?

CHAIRMAN HALL: Well, have you requested more people? Let me get that question out of the way.

THE WITNESS: Chairman Hall, we have. I have 16 inspectors presently in the office. We have six geographic ATOS inspectors. We're under a hiring freeze, and this is something that has severely impacted the abilities to conduct surveillance.

CHAIRMAN HALL: How many do you think you need, Mr. Valentine, to adequately do the job responsibly, since you're -- you know, you're the individual there that's accountable?

THE WITNESS: Yes, sir. I would like to have 20 inspectors in the office. I would like to have a minimum of 10 inspectors geographically assigned to the certificate.

CHAIRMAN HALL: So, that would be an additional 14?

THE WITNESS: Yes, sir.

BY MR. TEW:

Q These inspectors you've got, do you feel like they've got the training to adequately do proper surveillance or have they got the experience level?

A CaptainTew, the -- the way -- surveillance hasn't changed. It's the method of the way we record it. Under the old system, we would go to the carrier or go observe an event and look at it, and it was a rather broad brush review.

Under ATOS, we have -- it's -- it's very narrow in scope. We have job aids that we use. We look at a system rather than the entire carrier. It gives you a much better quality inspection.

Q Did you have any input into the hiring of the geographic inspectors?

A No, sir.

Q Who -- who does?

A I assume the ATOS Program Office. I don't know.

Q I guess we'll ask the next witness that. Who determines where the geographic inspectors are located?

A Not me.

Q Okay. Is there a difference pre- and post-ATOS in the amount of actual surveillance done on an ATOS carrier, such as American, and is that indicated in the existing data?

A The constraints are there. As I mentioned to Chairman Hall, we -- the FAA is presently under a hiring freeze. Congress has allocated a very restrictive budget.

So, in answer to your question, CaptaTrew, is it adequate,

no, sir.

Q It wasn't quite is it adequate? Is there a difference in the amount of actual surveillance done was the question?

A I apologize.

Q Oh, okay.

A There is a difference in the amount and for those reasons I just mentioned.

Q How detailed is the data that's reported by the inspectors under the ATOS System?

A It's very detailed. You have a well-educated inspector having gone through this refined air transport oversight system training, an inspector who has then gone to the airline and learns how American Airlines operates, and then you send that inspector armed with the regulations, with the handbook guidance. You get a much better quality inspection, and those results that you get back are things that you can adapt and identify trends in a much readily -- it's -- it's far more readily than it was under the old system.

CHAIRMAN HALL: Does the new system require more personnel, would you say, sir, than the old system?

THE WITNESS: No, sir. I don't think it would take additional personnel. We -- we are just under-staffed. We were under-staffed before ATOS.

CHAIRMAN HALL:Okay.

BY MR. TEW:

Q How do you ensure that the oversight is broad enough to

cover all the geographical areas?

A We have -- let me make a short answer long for you. We still have inspectors who took an oath when they were hired. Even though they're not on the ATOS certificate, they don't work at the American Airlines CMT, if -- if they observe something that is unsafe, there is an avenue for that inspector to report his or her findings, and that is through the PTRS.

On many occasions, I get telephone calls asking is this -- is this legal? Is this acceptable? Did you know?

Under the surveillance we have with those individuals assigned to the ATOS CMT, those are six individuals, and they are positioned at six different locations throughout the United States. There needs to be more coverage.

Q So, in other words, the oversight could be broader to cover all these areas?

A It could. An example of that is that I don't have an ATOS inspector at San Francisco. This is one of those areas that American has a base. There is a vacancy at New York.

Q How effective are the job aids that are used by the inspectors to do their inspections under the ATOS?

A CaptainTew, the job aids initially were written in such a way, they -- they bred confusion rather than gave an inspector the tools needed. Those have since been revised, and they are much better.

We just completed last week our annual planning meeting, and there were some compliments. We -- we had a critique sheet that we

passed out, and it was one of the comments made on these critique sheets that finally you could read the job aids and have some understanding of what the questions were asking.

Q Could they be improved further?

A Of course. This system is in its infancy. It will take, in my mind, three to five years to fully develop it.

Q Is the ATOS data entry, it is used finally? I'm using a computer term there as far as easy to put in the system and easy to work with for the inspector, easy to work the job aids in data entry?

A Early on,it was extremely difficult. It was extremely time-consuming, and when you could even access the system, you would be entering data or attempting to enter data and be kicked out of the system.

It's come a long way. There has been some changes, but there are changes that could be made to enhance the program, and I suspect as we speak, those automation changes are being done.

Q And do you have access to the data that's been entered into the ATOS System?

A Yes, sir.

Q Okay. How effective is the guidance for the inspectors in the field for planning and performing inspections?

A That, too, has improved. Through the job aids and the work assignments from our annual planning meeting, it's becoming more effective.

Q Are there any constraints placed on the ATOS inspectors regarding when and where they can conduct inspections?

A Those constraints would be driven by the budget. An example of that was we were doing surveillance last year. I ordered increased surveillance in the South America arena. We were severely restricted in the completion of that project because of the budget.

Q When the FAA determines that there's a need for a special emphasis inspection, such as they did for carry-on baggage, how would this be recorded under the ATOS System?

A I can order an SEI. I can retarget. If we have a heightened awareness, if there is a risk, I can order a -- these inspections or retarget to assign in a geographic location.

The -- the process is -- is adequate to provide the inspector the tools to conduct this inspection, and that data that they accomplish or gather is readily available to me.

Q You've alluded to the budget cuts affecting your inspectors. How else have the budget cuts affected the oversight?

A Again, the -- the -- the budget drives the hiring. The budget drives the availability of positioning personnel. It also drives what you can do with an inspector who needs to go to Osaka, Japan.

Q Well, do you have all the -- do you have enough money to do all the inspections and travel that are required under ATOS?

A No, sir.

Q Okay. Because there's nothing you can do about it?

A No, sir.

CHAIRMAN HALL: Well, you can at least answer those questions honestly, and you did that.

MR. TEW: That was the reason for the question.

CHAIRMAN HALL: I appreciate that because, you know, there -- many times, we'll have people go up to Congress, I've seen it happen while I've been Chairman, and say, oh, everything's fine, and if everything's not fine, it's your responsibility to say it isn't. I commend you for that. Go ahead.

BY MR. TEW:

Q Has an analyst been hired for your ATOS team?

A No, sir.

Q Why not?

A Again, the hiring freeze.

Q Do you know how many analysts have been hired in the entire ATOS System?

A Yes, sir. The POIs have a very close network. We talk frequently. It just so happens that Southwest Airlines has an analyst or an analyst. They -- that inspector was on staff at the time. So, rather than going outside and hiring this analyst, they were already in position. So, they just changed job descriptions, and now you've got the analyst on board. This is the only carrier out of the top 10 that has an analyst.

Q Wasn't the analyst supposed to be an integral part of the ATOS System?

A Most definitely.

Q How are you collecting and analyzing data to, you know, support your trend monitoring and your inspection planning and your retargeting of surveillance without an analyst?

A It's based on my experience with the carrier and those individuals that I have under my employment.

Q How many hours a day are you working to do this? What would you -- what would a -- you've had quite a bit of experience. What about a carrier that might not have the experience and background that you've got? Are they having to rely on what little experience they've got as to how to target their inspections?

A I would not like to be in that position.

Q Okay. Well, the next question is obvious. How is the data being analyzed without an analyst?

A Simply put, it's not.

Q That's a fair question. So if it's not being analyzed, then we haven't determined anything from the data, I would assume, is that correct?

A That's correct.

Q So, ATOS data is not being used at this time? It's being collected, but it's not being used?

A Yes, sir.

Q What were your emphasis --

CHAIRMAN HALL: And that is a program that's been touted and promoted by everybody. Is that the same program?

THE WITNESS: Yes, sir.

BY MR. TEW:

Q What were your emphasis areas at the time of the accident?

A Surveillance of the two new fleets, the South America arena,

the take-off and landing phase under the System Analysis Team inspection. Those were of paramount concern.

Q Could you explain to us what a comprehensive surveillance plan is, and tell us how many you've developed since the implementation of ATOS?

A Yes, sir. The comprehensive surveillance plan under ATOS is the way that we assign work for the year. We develop things that inspectors are assigned to do for that year. Each inspection includes things like carry-on bags, exit row seating, en route surveillance of manuals. All of these things develop under the CSP. All these things comprise that inspector's work program for that year.

Now, the second part of your question was how many of these have I accomplished. As of last week, that was the second one.

Q How effective was the planning guidance in developing a comprehensive surveillance plan?

A Initially, it was a disaster. The -- the second one, because the program had undergone a lot of changes, because there were things that were recommended from the field that were taken to the program office, inspectors who had tried or attempted to enter data, to use the data, retrieve data, all of these things sent to the ATOS Program Office, did make the system better, and once again, Captain Tew, this is an evolution of a brand-new program.

Q In developing this plan, wasn't an analyst an integral part of that?

A Yes, sir.

Q Supposed to be?

A Yes, sir, it was.

Q So, like you said, you're relying basically on developing this thing and -- and targeting your resources based on your experience and not an analyst?

A That's correct.

Q Are you using the ATOS data that's been collected so far to develop these plans?

A No, sir.

Q How effective is the ATOS data that's been collected?

A The data that we have now in the repository, I am saying that it is much better quality. It's timely, and from that data collection, I can sit -- knowing the carrier, I can sit at my desk and draw my own conclusions where I should either retarget work programs or I should maybe commission an SEI, special emphasis inspection.

Q What do you like about ATOS?

A Just that. It's -- we -- we have a very specialized group of inspectors now who know the carrier, and you get a better quality product in your reporting and data collection.

Q Could you tell us what changes you would like to see in the ATOS System?

A Yes, sir. I would like to be able to speak to those persons assigned to the certificate management team, those who would be geographically positioned. I would like to be given the opportunity to at least give them my expectations of what I would like to see from them as

an inspector.

I would also like to have an opportunity to have a say in where I would like them. I have a geographic inspector at Las Vegas.

Q Yes, sir. Thank you very much for your answers.

MR. TEW: Mr. Chairman, I have no more questions.

CHAIRMAN HALL: Does the Technical Panel have other -- other questions?

(No response)

CHAIRMAN HALL: Let me just clarify so I understand. There were three audits?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: One was essentially generated by the Government?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: One by the airline?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And one by the union?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And are all three of those audits completed?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And you have the information from all three of those now?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: And how do they match up?

THE WITNESS: The 39 -- I'm sorry -- the 89 recommendations that come from these audits was submitted in a plan form to our office and was submitted for review, and there were certain issues taken. 17 of these recommendations had such a high priority, that they were immediately implemented.

The remaining recommendations were given a certain amount of time to develop and research, and the direction that the carrier, with their union, would like to pursue.

CHAIRMAN HALL: Now, Mr. Feith, do we have this information in the record? Copies of these recommendations for the record of this hearing?

MR. FEITH: Not that I'm aware of.

CHAIRMAN HALL: Well, we might request that.

Now, who did the targeting? Who decided there were the 17 that were important?

THE WITNESS: That was the core work group from the System Analysis Team that the Government did with the APA and American Airlines.

CHAIRMAN HALL: And were you on that team?

THE WITNESS: I was the team leader.

CHAIRMAN HAL: Okay.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: So, these 17 immediate recommendations reflect your input?

THE WITNESS: They do.

CHAIRMAN HALL: And was that an independent decision that you made and the Government made in an oversight area or was that something that was made in a team effort with the union and the airline deciding how things were targeted?

THE WITNESS: It was a -- a collaborative effort and decision --

CHAIRMAN HALL: And are you --

THE WITNESS: -- between APA and the carrier and the Government.

CHAIRMAN HALL: Are you comfortable with that?

THE WITNESS: I certainly am.

CHAIRMAN HALL: Did that fulfill your responsibilities for oversight?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: Very well. Now, this -- before we go to the tables, I will tell you this will be our last witness for the day. We will start at 8:30 in the morning, and we will take whatever time is necessary to be sure we've completed all of the questioning with this witness.

I know there's quite a few more questions from the Board of Inquiry. I'm sure there may be some from the -- from the party tables, but we will begin with the Association of Professional Flight Attendants.

MS. LORD-JONES: Chairman Hall, we have no questions for this witness. Thank you.

CHAIRMAN HALL: The National Weather Service?

MR. KUESSNER: The Weather Service has no questions.

CHAIRMAN HALL: The Little Rock National Airport?

MS. SCHWARTZ: No questions, sir.

CHAIRMAN HALL: The Little Rock Fire Department?

MR. CANTRELL: No questions, sir.

CHAIRMAN HALL: We then will move to the Boeing Commercial Airplane Group.

MR. HINDERBERGER: Mr. Chairman, we have no questions.

CHAIRMAN HALL: America Airlines, Inc.?

MR. BAKER: Mr. Chairman, we have no questions.

CHAIRMAN HALL: The Allied Pilots Association?

MR. ZWINGLE: No questions, sir.

CHAIRMAN HALL: Federal Aviation Administration?

MR. STREETER: Yes, Mr. Chairman, a couple of points for clarification here.

INTERVIEW BY PARTIES TO THE HEARING

BY MR. STREETER:

Q Mr. Valentine, you said there were 16 inspectors in the office on the certificate. Is this just Operations?

A That's correct.

Q Okay. And can you give me a feel for the average experience level of the inspectors on the Certificate Management Team?

A Yes, sir. We -- the average is 34 years.

MR. STREETER: No further questions.

CHAIRMAN HALL: All right. Ms. Sweedler?

MR. SWEEDLER: Yes, Mr. Chairman.

INTERVIEW BY BOARD OF INQUIRY

BY MR. SWEEDLER:

Q Mr. Valentine, about three and a half years ago, this -- this Board investigated a rather tragic accident, and as part of that investigation, it became clear that the people in similar positions that you hold had become aware of rather serious safety deficiencies at the airline that they were overseeing and attempted to pass this information with recommendations to their supervisors and to the higher-ups at the FAA, and their advice and suggestions were not accepted, and there was a lot of consequences to that, and apparently there were a lot of changes at the FAA to try to avoid this occurring in the future, and my question to you is a very simple one.

You're the person, you're the principal operations inspector. If you detect a problem or you see some things that need -- really need to be corrected, do you feel comfortable and confident that you have the ability to approach your supervisors or anyone else in a higher level at the FAA to get the attention that you need to get these, whatever you think is needed, accomplished?

A Mr. Sweedler, I will assure you I have that ability. I would -- my supervisor clearly understands that if I recognize a safety-related problem, I will elevate it.

Q And you feel that that -- that you will get -- your voice will be heard?

A It -- yes, sir, and historically it has. Like I said, I've been the

principal operations inspector now for two years, acting one and here in the job one year, and I am most comfortable with the support that I get.

Q Thank you, sir.

MR. SWEEDLER: I have no further questions, Mr. Chairman.

CHAIRMAN HALL: Mr. Berman?

BY MR. BERMAN:

Q Mr. Valentine, I have -- I'd like to clarify just a couple of issues based on your earlier testimony and then maybe talk about ATOS a little bit more.

Going back to the -- the MD-80 -- I'm sorry -- going back to the issue of updating manuals based on input from the manufacturer, you mentioned that on the 737 and 777 fleets, the initial cadre of FAA airmen in your office were responsible for maintaining a Boeing manual and then providing input to your office about changes in the Boeing manual.

It appeared to me from the testimony of Mr. Taylor that he in his -- in his previous job, going back a long time, may have been the appropriate person to be in that -- to serve that function for the MD-80 fleet, is that correct?

A Yes, sir.

Q So, he didn't mention having a current manual for the MD-80. Do you -- do you believe he did have one?

A Yes, sir, I think he does.

Q Okay. And did you notice him distributing information from

the manufacturer and discussing it with -- with American Airlines and with you?

A Yes, sir. There are other ways this information is disseminated. For example, MELs. When there is an equipment, some system on an airplane that the Aircraft Evaluation Group determines that now it must be operational, that information comes to our office.

It also goes to the carrier, and that Air Crew Program manager takes that information and knows that the carrier will change their minimum equipment list, and if it complies with the master equipment list, and that APM concurs with it, he gives me his concurrence, and I approve it or disapprove it and return it to the carrier.

Q Hm-hmm. Now, going back, way back in time now, it appears that your office did have a functional way of getting information about the MD-80 Operating Manuals.

Do you have any understanding or explanation for how the -- the -- the no spoilers call-out didn't get into the American Airlines' manual before -- before this?

A I certainly do. It was as a result of the System Analysis Team recommendation. This is one of those 17 most immediate --

Q No. I'm sorry. I'm asking why it didn't get -- did not get into the manual --

A Prior to?

Q -- before this? Yeah, yeah.

A I'm sorry. I can't answer that question, except in that I do know that in the DC-9 Operating Manual, if the spoilers do not deploy, this

is an abnormal call-out, and the pilot not flying makes that call, and it's incumbent on the captain to physically position those spoilers to the deployed position.

Q That's very interesting. So, are you equating the -- the American Airlines' procedure that was in existence at the time of the accident, which I understand was effectively -- it didn't specify who was to monitor spoiler -- auto spoiler deployment, but it -- it did specify the captain was to manually deploy them, if it didn't work.

A That's correct.

Q Do you equate that with the Boeing-Douglas procedure that included an explicit call-out by the non-flying pilot to alert the captain or the flying pilot of the need to manually deploy the spoilers?

A I agree with that procedure simply because I know the corporate philosophy. The communications in the cockpit, if you called out everything that was normal, you would have a great deal of chatter from the time that the approach was started until the touch down through the roll-out.

So, American has opted to use the philosophy of if something is abnormal, those things are what you call out.

Q Yes, I understand that, and in that regard, a no spoilers call-out as Boeing recommended is more consistent with American's philosophy than a spoilers up call-out that appears maybe another carrier uses.

A Yes, sir.

Q But in one case, it's somebody's job to look at the spoilers

and say no spoilers if they don't go.

A That's correct.

Q American's procedure does not specify that? Is -- are those the same or different?

A I think it's almost synonymous, but as a result of this System Analysis Team, it now will become a call-out, and I feel comfortable with that since the system that they were using prior to may have failed.

Q Thank you. Let's turn to -- to ATOS a little bit. It appears from your testimony today that largely due to a budget problem, except for the occasional inspector who -- who's not assigned to American Airlines surveillance and who just happens to notice something, aside from that, it appears that at New York, LaGuardia Airport and Kennedy Airport, where American Airlines has a large volume of operations, that nobody from the FAA is watching American Airlines there, is that correct?

A I wouldn't say that. The -- there are inspectors in that area, and again those inspectors are out looking at their assigned carriers. We have inspectors assigned to the American certificate that are doing en routes from New York, but do I have a geographic inspector assigned to that area? No, sir, I do not.

Q Right.

A So, I am not getting that quality inspection. I'm still relying on someone that recognizes a difficulty, they report it in the old PTRS System or I get a phone call.

Q So, you're getting that good inspection in Las Vegas but not at La Guardia or Kennedy?

A Yes, sir.

Q Okay. And, now, under ATOS, haven't they taken most of the inspectors who used to be geographic inspectors, who would have been available to watch American Airlines from time to time and even assigned to that duty, haven't they taken them and assigned them to become an ATOS inspector for another airline?

A Those selections have been made. Yes, sir.

Q So, there aren't all that many FAA people sitting or working at -- at LaGuardia or Kennedy available --

A Like --

Q -- to do these --

A Like --

Q -- inspections?

A Like I said, I have six inspectors.

Q Yeah. Okay. I understand. Does it appear to you that the FAA stopped the old system before the new ATOS System was ready?

A I think the old system was not giving us what we needed. I think we needed a change. I think we are in an environment now with the technology advancements that it dictates that we have highly-qualified individuals, that we get refined data, something that we can put in a repository, go back and identify trend analysis, and let's get to that zero accident rate.

Q So, ATOS is a good idea, and it -- and -- and it sounds like you're deriving some benefits from it but not -- it's not working yet?

A To reiterate, it, in my opinion, is going to take three to five

years before we reach perfection at this rate.

Q Thanks. No further questions.

A Yes, sir.

CHAIRMAN HALL: Mr. Haueter?

MR. HAUETER: Yes, sir.

BY MR. HAUETER:

Q You're familiar with the NASIP Program, National Aviation Safety Inspection Program?

A Yes, sir.

Q Do you have any opinions on that program?

A I was a team leader on one of those, on another large carrier at one time, and believe it or not, under ATOS, when we do this safety or this System Analysis Team inspection, that is much like a NASIP because you are focusing on details and very specific things that you want to look at, and that data, once it's collected -- presently, there's no avenue to record it or put it into a database. I think that's going to be developed some time in the future, but -- but nonetheless, this inspection is very close to that NASIP.

Q The NASIP inspections have been terminated now in favor of ATOS, I understand it.

A Hm-hmm.

Q But under NASIP, people were brought from outside -- from other carriers to take a look at a carrier, and also in effect also look at the peoplesurveiling that carrier.

Does that outside look now exist under ATOS for somebody

to come in and look at the ability of the FAA to do the surveillance?

A I'm not real sure. I -- I don't know how to answer your question.

Q Under -- under ATOS, does somebody from another airline -- another FAA inspector from another airline, personally yourself, come in and take a look at American, what they're doing as a fresh set of eyes?

A Again, I -- I'm not sure. I don't know how this is going to work.

Q Is -- that doesn't exist in ATOS?

A I don't know.

Q Okay. Thank you

CHAIRMAN HALL: Mr. Clark?

BY MR. CLARK:

Q Are there any parts of the PTRS that have been dropped or disappeared with the implementation of ATOS?

A No, sir. That system is still in effect --

Q Is --

A -- as far as recording certification issues. We do not record surveillance issues under PT -- under -- yeah -- PTRS.

Q Okay. But the -- ATOS covers a lot of areas, but throughout the old systems that were in place, are any of those systems being dropped or eliminated?

A No, sir.

Q Okay. The --I lost track of your inspectors. You -- you now have six inspectors, and are they ATOS qualified or ATOS rated, each

one of them?

A Yes, sir.

Q Okay.

CHAIRMAN HALL: I want to get back to this question of the three audits. The audit that the Allied Pilots Association conducted, did you -- did the Government participate in that?

THE WITNESS: No, sir.

CHAIRMAN HALL: The audit that American Airlines conducted, did the Government participate in that?

THE WITNESS: No, sir.

CHAIRMAN HALL: Buthe Government's audit was participated in by American Airlines and Allied Pilots Association?

THE WITNESS: That's correct.

CHAIRMAN HALL: And the conclusion was -- there were how many recommendations?

THE WITNESS: Approximately 89.

CHAIRMAN HALL: Of which, how many were urgent?

THE WITNESS: The higher priorities were 17 of those recommendations.

CHAIRMAN HALL: Does that tell us that maybe the Government has not been doing the job we need to be doing in oversight if we have audits, and there's 17 changes that everyone deems are urgent to be made?

THE WITNESS: Of the 17 --

CHAIRMAN HALL: Independent of, you know, the union.

They've got their responsibilities. The airline, they got their responsibilities. But it's the Government's responsibility to provide the oversight for public safety, and we have an independent audit by the union that we don't participate in, one by the airline we don't participate in.

We do our own. We -- we -- they participate in it, and we come up with that many items, action items. Does that give you any cause for concern, Mr. Valentine?

THE WITNESS: I had much rather work with the carrier and work with the APA. I think I get better results by doing that rather than going out and doing surveillance under the old system, and when I found something, I did an enforcement case.

I have yet to see an enforcement case provide positive results in preventing future problems. When there is a program --

CHAIRMAN HALL: What would you ascribe to that theory?

THE WITNESS: There was a program just recently adopted by Mr. Clinton. It's the Aviation Safety Action Program, --

CHAIRMAN HALL: Hm-hmm, hm-hmm.

THE WITNESS: -- and American Airlines was the front-runner. In this cooperative effort, we like to think of it like a three-legged stool.

CHAIRMAN HALL: Right.

THE WITNESS: There are -- each party has a liable position, if you will. We have an opportunity to look into areas that we've never looked -- been able to look at. We have those manner -- those

means to correct those problems, and I'll give you an example of one that was corrected.

There was a navigation fix that was incorrect on a database, and the airplane would go beyond that point and make its turn. ATC never said anything because there was no harm, no foul. But it was -- it was almost hilarious to watch these American Airlines airplanes go beyond the point and make a turn while all the other carriers or a few of them were making the turn at the proper point.

CHAIRMAN HALL: Hm-hmm.

THE WITNESS: Well, it came about through an ASAP report that it was challenged, and through the ASAP Program, this was fixed. There are 18,000 reports that have been generated, and had we not had that -- that program, we would have effectively observed less than one-half percent of those things.

CHAIRMAN HALL: Hm-hmm. Well, and I -- you know, I -- I understand what you're saying, and I think the Board's position, particularly in regard to ATOS and these programs, has been very supportive, and -- and cooperation is important.

This investigation is a cooperative effort. We don't -- we could not perform these investigations without the cooperations of the parties to the investigations. So, I -- my -- my concern and question was, there's a difference between cooperation and dependence.

Are we getting in a position where because of manpower, we then become dependent on the carrier?

THE WITNESS: May I make a point of clarification?

CHAIRMAN HALL: Yes.

THE WITNESS: This is only one of the avenues available for inspections under ATOS. The safety attribute inspection, we have -- the Government has set in place for this year four of these programs.

One of these safety attribute inspections that I have directed will address the flight time/duty time limitations issue. So, that is -- that inspection is completely driven by the Government. There will be no team effort from APA or the carrier. So, those inspections will be conducted, and that's how we do validate the system.

CHAIRMAN HALL: What about the manufacturer? What role do they play? I'm specifically just concerned about the FAA having no formal process in place to identify and review the manufacturer versus the operational manual differences.

It would appear to me that it might be a constructive suggestion that this should be done by the POIs collectively on an annual basis with the manufacturer and the various operators involved, so that we're not missing out as these changes are made and these very highly, you know, complex and technical machines that are taking us through the air now.

THE WITNESS: Yes. Chairman Hall, you're well aware of the accident that occurred in Chicago involving the 727 on the auto coupled approach. This is -- this is one of those things that the manufacturer, with our principal avionics inspector, they're working very closely together.

So, in defense of sounding like the manufacturers do not

communicate with the FAA and the FAA not with -- it does occur. I would like to leave you with that assurance.

CHAIRMAN HALL: Well, that's -- well, that's the purpose, Mr. Valentine. I'm not -- I don't want anyone to be defensive because, I mean, I -- what we want to do through this investigation, obviously, is to explore and probe and try to understand the circumstances that brought about this event, so that we can be constructive in that -- in regard to any changes.

One last comment. You indicated that your average age of experience for your 16 or 17 inspectors is 30 --

THE WITNESS: 34 years.

CHAIRMAN HALL: 34 years. I guess I have two feelings about that. One, I'm very proud that we have that many people that have that great service, and Number 2 is I'm kind of concerned who's going to replace them. How much longer are we going to have all those individuals around with all that experience?

THE WITNESS: You know, this is one of the reasons for change. I have an inspector in training now on the 727 in anticipation of replacing the APM who is presently assigned to the 727 who has also been on that fleet for a number of years.

CHAIRMAN HALL: Good enough. But 30 -- that's the average is 36 --

THE WITNESS: Yes, sir.

CHAIRMAN HALL: -- years?

THE WITNESS: Yes, sir.

CHAIRMAN HALL: That's -- that's a lot. Well, Mr. Valentine -- does the Board up here have any more questions? The Technical Panel have any other inquiries? Questions?

BY MR. CLARK:

There are a number of changes in process with you and American Airlines and the MD-80 fleet, many of those as a result of this accident.

How are you carrying on that message to the other FAA counterparts, the other operators that have MD-80 fleets?

A Do we carry this over to the other fleets, did you say?

Q Yes, sir.

A I'm sorry.

Q Do you carry it over or how do you?

CHAIRMAN HALL: How are we going to be sure this information gets to the other major airlines and carriers that are operating this equipment?

THE WITNESS: I suspect that this will be in report form and then made available, once these things have been finalized. This is the purpose of the ATOS Program, to make this data available in a repository.

CHAIRMAN HALL: Well, and I don't want to be critical of the ATOS Program, but what I do think that the public needs to be aware of is if we're going to be presenting a new program and touting it and saying that we're going to do things better, and then we find that it's not even minimally staffed to do what -- what it should have been doing, particularly with the analysis.

The one -- Southwest -- the one only -- the one out of 10 carriers has the key position to evaluate the information, that's certainly cause for concern, and I -- I hope you're not defensive about that.

THE WITNESS: Absolutely not.

CHAIRMAN HALL: That's a factual statement.

THE WITNESS: In fact, Chairman Hall, I -- you don't know me very well. If it's of concern to me, I -- I assure you I will let you know, and I think American Airlines knows me well enough and so does APA and certainly the Government.

CHAIRMAN HALL: Well, Mr. Valentine, I take you at your word, and I -- I just have to tell you sometimes observing things from inside the Beltway, I live outside the Beltway, people will go up to Congress and talk about certain programs as if there are solutions, and -- but you still got to have the funding and the personnel to implement the program.

THE WITNESS: I agree with you totally.

CHAIRMAN HALL: So, that's in --

THE WITNESS: Perhaps your next witness can enlighten you.

CHAIRMAN HALL: -- the category of just commentary, but -- well, now I have given all the other witnesses an opportunity.

Mr. Valentine, I guess really of all the individuals that we have had testify, you're the one individual identified by the Government to have the responsibility for the proper handling of this certificate and the oversight on behalf of the American people of the operations of American

Airlines.

You're familiar with the circumstances of this tragedy that brought us to this hearing today. I would like to provide you an opportunity for any comments that you think that we ought to hear in terms of things we ought to be looking at, things -- changes that ought to be made or comment -- any other comments you might choose.

THE WITNESS: I'll leave you with parting comments. I know my responsibilities to the carrier, to the public, and I take those very seriously. My son is employed by a company, and they buy him airline tickets. He frequently flies. So, I have a vested interest, if you will.

The budget concerns me greatly. The hiring freeze is a great concern, and then the last concern is where are we going to get qualified people, once we can -- can hire?

CHAIRMAN HALL: Well, I appreciate those observations, and obviously you've seen a lot of growth at American Airlines.

THE WITNESS: Yes, sir.

CHAIRMAN HALL: They're serving countries in South America and all over the world now. I can even remember when they once served Chattanooga, Tennessee.

CHAIRMAN HALL: We will reconvene at 8:30 in the morning.

(Whereupon, at 7:20 p.m., the hearing was adjourned, to reconvene Thursday, January 27th, 2000, at 8:30 a.m.)