

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

January 12, 2007

Human Performance

Human Performance Group Chairman's Factual Report

DCA06MA064

A. ACCIDENT

Location: Bluegrass Airport, Lexington, KY
Date: August 27, 2006
Time: 0607 eastern daylight time¹
Operator: Comair Airlines, DBA Delta Connection
Airplane: Bombardier CRJ-100, N431CA

B. HUMAN PERFORMANCE INVESTIGATOR

Evan Byrne, Ph.D.
National Transportation Safety Board
Washington, D.C. 20594

C. OPERATIONS/HUMAN PERFORMANCE GROUP

Captain Dave Tew
Ops Group Chairman
Operational Factors (AS-30)
National Transportation Safety Board
Washington, DC 20594

Dr. Evan Byrne
Human Performance Group Chair
Human Performance (AS-50)
Natl. Transportation Safety Board
Washington, DC 20594

Captain Brian Schimp
Fleet Manager
Comair Airlines
77 Comair Blvd.
Erlanger, KY. 41018

Captain Louis Johnson
Manager Human Factors
Comair Airlines
77 Comair Blvd.
Erlanger, KY. 41018

¹ All times are eastern daylight time (edt) based on a 24-hour clock, unless otherwise noted.

Ellen Tom
Aviation Safety Inspector
Federal Aviation Administration
Cincinnati FSDO
Cincinnati, Ohio 45226

Captain Jacques Nadeau
CRJ Customer Liaison Pilot
Bombardier Aerospace
Mirabel
Quebec, Canada J7N 3C6

Captain Shawn Pruchnicki
Airline Pilot Association, International
535 Herndon Parkway
Herndon, VA 20172

D. SUMMARY

On August 27, 2006, about 0607 eastern daylight time², Comair flight 5191, a Bombardier CRJ-100, N431CA, crashed upon takeoff from Blue Grass Airport in Lexington, Kentucky (LEX). The airplane ran off the end of Runway 26 and was destroyed by impact forces and post crash fire. The flight had been cleared to takeoff from Runway 22. Of the 47 passengers and 3 crewmembers onboard, 49 were fatally injured and one (the first officer) survived in critical condition. The flight was operating under the provisions of 14 Code of Federal Regulations Part 121 and was en route to Atlanta, Georgia (ATL).

E. DETAILS OF THE INVESTIGATION

The Operations / Human Performance Group activities are outlined in the Operations Group Chairman's Factual Report.³ The Human Performance Group Chairman's Factual Report contains additional documentation and interviews relevant to personnel information, crew resource management (CRM) training, safety initiatives, and company guidance.

² All times are eastern daylight time based on a 24-hour clock, unless otherwise noted.

³ An addendum to this report will contain documentation of the group's taxi observations on August 28 and the photo tests conducted on September 25 & 26.

F. FACTUAL INFORMATION

1 Personnel Information⁴

1.1 Flight Crew

1.1.1 The Captain

The captain, age 35, held a first class medical certificate issued August 21, 2006, with the limitation "Must wear corrective lenses."⁵ The captain reported 5,300 hours total pilot time with 280 accumulated in the last 6 months on the medical application. A search of records at the National Driver Register found no history of driver's license revocation or suspension. According to his wife, the captain had no previous accidents or incidents in aviation, and no accidents or speeding tickets while driving.

In 1993, the captain graduated from Rutgers College with a B.A. degree in economics.⁶ From 1993 to 1997 the captain worked in various non-aviation jobs, including substitute teacher and wrestling coach, claims adjuster for an insurance company, and a client service administrator for a finance company. In July 1997 he attended the Comair Aviation Academy in Sanford, FL, and completed its professional pilot program in August 1998.⁷ After graduation, the captain worked as a flight instructor at the Academy until he was hired by Comair. His resume, containing employment history and aviation experience before his date of hire at Comair, listed total flight time as 837 hours (including 779 as pilot in command and 705 in single engine airplanes), and listed experience in the following aircraft: Seneca, Seminole, Cutlass, Skyhawk, Katana, Tomahawk, and Cessna 152.

A line check airman who flew with the captain in May 2006 described him as professional based on his recollections and stated that he received standard scores on the line check (3 out of 4). A first officer who had flown with the captain on a 6 leg trip spanning August 25 and 26 described him as someone who was by the book but easy to talk to and get along with. He said the captain was a good manager who established a good atmosphere in the cockpit and demonstrated good CRM.⁸ A first officer who

⁴ For additional information about the flight crew see the Operations Group Chairman's Factual Report.

⁵ The medical record did not record the captain's uncorrected vision but showed both distant and near vision to be corrected to 20/20 in each eye and combined. The captain reported not using near vision contact lenses while flying on the medical application. The medical record also reported that he passed his color vision examination and had normal field of vision. The captain's wife stated that he wore contact lenses and had no difficulties with night vision. A medical application from February 3, 2004 showed the captain's uncorrected distant vision to be 20/100 and his uncorrected near vision to be 20/20.

⁶ Information in this paragraph is from the captain's application to Comair dated October 8, 1999, and an undated resume contained in his personnel file.

⁷ A Comair captain who had known the accident captain for about 9 years stated that he didn't seem to struggle in flight school while at the academy.

⁸ The first officer said that on one of the legs flown on August 25, a newly trained first officer was riding in the cockpit jumpseat. He said the captain briefed the observer about sterile cockpit discipline and he described the sterile cockpit discipline as very good.

flew with the captain on August 20 also said his CRM was good and he would have had no problem speaking up to the captain if necessary. A first officer who flew with the captain in early August stated that the captain followed standard procedures and called for checklists at the appropriate time. He described the captain's greatest strength as being someone who was authoritative but easy to fly with because you knew he was in command but he didn't micromanage. All pilots interviewed who had flown with the captain reported that he had not demonstrated any difficulties navigating airports. Pilots, instructors, and line check airman stated they had not heard anything negative about the captain.

The captain was married and had two daughters.⁹ He lived in the vicinity of CVG and was also based there as a reserve captain. According to his wife their finances were under control and there were no changes in their financial situation during the last year; and he also had no major life changes in the last year. His youngest daughter was born earlier in the year and a first officer who flew with the captain on August 20 stated, that based on their conversations, the captain may have been experiencing a little lack of sleep because of the newborn, however he detected no performance issues or effects of fatigue when they flew together. The captain was reported by other pilots to have been exploring options for employment at other airlines because he wanted to find a more financially stable company and not because of career dissatisfaction at Comair.¹⁰

The captain was a nonsmoker, and according to his wife he did not take any medications.¹¹ His wife stated that he did not drink alcohol often, having last had a drink on August 10 while visiting family in NJ. The captain was reported to drink a cup of coffee each morning, a caffeinated diet cola with lunch, and did not drink caffeine in the evenings. His wife stated that when not working they usually got up as a family about 0700, and she described him as "annoyingly cheery" in the mornings. Also when not working the captain would typically watch SportsCenter before going to bed. She said he had fairly normal sleep patterns and did not take any sleep aids. His wife stated he had experienced no changes in his health in the year before the accident and described him as being in good health in the days before the accident. He regularly exercised and pilots stated he would often go for a run after getting to the hotel. The first officer who flew with the captain 2 days before the accident for 6 legs said that the captain appeared to be in very good health.

1.1.1.1 Activity Lookback/72 hour history

On Wednesday August 23, the captain was off duty with his wife and children visiting in-laws in Paintsville, KY where he awoke about 0800. The captain with his wife

⁹ The oldest was about 2 years old and the youngest was about 3 months old.

¹⁰ A first officer who had flown recently with the accident captain stated that he talked about the Comair situation with Delta as a matter of fact and was not reactive or emotional about it.

¹¹ The captain stated he did not currently use any medication (prescription or nonprescription) on his FAA medical application dated August 21, 2006.

and daughters drove back to their home in the afternoon, where he ate dinner, performed routine activities, and spent the evening watching TV.

On Thursday August 24, the captain awoke at home about 0630 and spent the day running errands with his oldest daughter who had been kept home from daycare because of a cold. The captain performed routine activities around the house including mowing the yard and in the evening he made dinner for his family.

On Friday August 25, the captain awoke about 0615, made coffee and ate breakfast before getting ready for work. He made the 40 minute drive to the airport and checked in for his 'ready reserve' assignment about 0752.¹² At 1225 the captain was notified of a 2-day 6-leg trip assignment. At 1432 he departed CVG and at 1548 arrived GRR. At 1603 he departed GRR and at 1710 returned to CVG. At 1809 he departed CVG and at 2006 arrived MSP.¹³ According to the first officer who accompanied him on the 2-day trip, at MSP they waited outside the airport about 25 minutes for a crew van to take them to the hotel, and once at the hotel the captain looked for a workout room to find a treadmill. Telephone records show a call between the captain's mobile telephone number and his home phone number starting about 2149 and lasting about 4 minutes.¹⁴

On Saturday August 26, the captain met his first officer downstairs in the hotel about 0630 and they had a 0640 report time in MSP. At 0740 the captain departed MSP and at 0931 arrived CVG where he was notified of modification to his trip at 0935.¹⁵ The captain's wife said he informed her about the long layover in LEX and suggested that she and their daughters visit for dinner. According to the first officer, after hearing about the extension to his trip, the captain was disappointed but took the change in stride. He said the captain wasn't distracted by the change and was happy he would be able to see his family in Lexington. At 1039 captain departed CVG and at 1145 arrived BNA. At 1210 the captain departed BNA and at 1306 arrived CVG. According to the first officer, the captain spoke to his wife and told her that he wanted to work out as soon as he arrived in LEX. He was happy his wife was driving down to meet him in LEX. The first officer stated that the captain was in a good mood during their 2 day trip and he did not recall the captain making any specific mistakes. At 1429 the captain deadheaded to LEX arriving 1526. He was released from duty at 1546.¹⁶

Hotel records show the captain arrived on August 26.¹⁷ The room assigned to the captain showed key activity at 1558 and 1611.¹⁸ According to his wife, the captain

¹² Ready reserve consists of standby duty at the airport waiting for a flight assignment.

¹³ Company records show his duty day on August 25 was 12:26 (hh:mm) which included 4:20 flight time.

¹⁴ No additional call activity occurred that night.

¹⁵ The modification included the captain deadheading from CVG to LEX at 1429 (arriving 1526), 3 scheduled flight segments on August 27 (beginning with the accident flight), and a deadhead return from ATL to CVG.

¹⁶ Company records show the captain's duty day on August 26 was 9:06 (hh:mm) which included 3:53 flight time

¹⁷ The hotel computer system indicated front desk activity associated with the captain's assigned room at 1554 on August 26. However, the general manager indicated this activity may not correspond to actual check-in. A sign-in sheet indicated the captain requested a 0415 wakeup call when he checked in.

planned to run on the hotel treadmill but it was out of service. At 1630 she picked him up outside the hotel and drove to a local restaurant for dinner. At the restaurant they ate dinner with their children and were joined by her cousin and her cousin's husband who later drove the captain back to the hotel. The room assigned to the captain showed key activity at 1913.¹⁹ According to the captain's wife, he spent the evening in the hotel room watching TV and talking to her on the phone. Telephone records show a call between the captain's mobile telephone number and his home telephone number starting about 2123 and lasting about 4 minutes. The captain's wife said he was planning on going to bed after the call.

On Sunday August 27, the captain had a 0415 wakeup call and his wife did not speak to him that day. Records indicate he had a 0500 report time in LEX. His wife stated that there was nothing at all remarkable or unusual about his activities or schedule in the days before the accident.

1.1.2 The First Officer

The first officer, age 44, held a first class medical dated July 18, 2006 with the limitation "Must wear corrective lens [sic]."²⁰ The first officer reported 6,900 hours total pilot time with 650 accumulated in the last 6 months on the medical application. A search of records at the National Driver Register found no history of driver's license revocation or suspension. The first officer's wife was not aware of any incidents or accidents the first officer experienced while flying or incidents, accidents, or speeding tickets while driving.

From 1981 until 1986 the first officer served as a weapons technician in the United States Navy and received an honorable discharge. Between 1986 and 1995 he worked in non-aviation related jobs in the restaurant industry. From 1995 to 1997 he attended American Flyers to become a pilot. From March 1997 until his date of hire at Comair he was employed by Gulfstream International Airlines where he served as a captain on a BE-1900 and a simulator instructor. His resume, containing employment history and aviation experience before his date of hire at Comair, listed total flight time of 2,800 hours (including 820 hours as PIC, and 2,510 as multiengine turbine).

A proficiency check airman, who gave the first officer his last line oriented evaluation during a 2 hour simulator session, stated that the first officer met standards and nothing stood out about his performance. A captain who flew with the first officer in

¹⁸ The clock in the captain's door lock did not display the correct time. The hotel tested the lock after the accident to determine the offset and found that the time displayed in the log was 1 hour earlier than the actual time. The times presented in this report are corrected in accordance with the 1 hour offset.

¹⁹ No additional key activity occurred while the captain was at the hotel.

²⁰ The medical record listed the first officer's distant vision as 20/30 corrected to 20/20 in each eye and combined, and his near vision as 20/20 with no value indicated for corrected vision in each eye and combined. The medical record also reported that he passed his color vision examination and had normal field of vision. The first officer's first class medical dated July 18, 2005 had no limitations. The medical record also showed the first officer was 6' 2".

March 2006 stated that the first officer was standard and nothing stood out. A captain and line check airman who flew with the first officer during a 5 day trip spanning August 9 through 13 (as a captain) described the first officer as a thorough by-the-book pilot who met standards, was well established in the right seat, not hesitant, and demonstrated very good CRM. He said that when running checklists the first officer used standard phraseology and did not run them from memory. Further, he said the first officer demonstrated situational awareness and good sterile cockpit discipline. A

described the first officer's checklist tempo as conservative because he made sure the captain was with him and would verbalize items so that the captain could hear him before going forward in the checklist. He characterized the first officer's checklist pacing as a little slower than average but articulate. The captain who flew with the first officer on August 25 rated the first officer's speed in doing checklists as slightly above average. With respect to overall performance, he said that the first officer was very good at being involved in the decision making and had very good situational awareness. He said that during their flights together the first officer consistently had his taxi chart out while taxiing without prompting. Pilots, instructors, and line check airmen stated they had not heard anything negative about the first officer.

The first officer was married, lived in Florida and cared for 4 dogs, and was based at JFK. According to pilots who had flown with him, the first officer was looking forward to upgrading to captain. His wife stated that there had been no major changes in the first officer's personal life over the last year; and added that the first officer was one of those affected by the Comair pay cut.²¹ A friend of the first officer who was also a captain he had flown with stated that the first officer had an interview with Emirates at the end of the month but wasn't sure he wanted to leave Comair because he believed he was close to an opportunity to upgrade to captain.²²

According to his wife the first officer was generally a morning person depending on his schedule. A captain and friend described the first officer as more of an evening person and told investigators about conversations they had about the difficulty of going to bed at 2100 for early reports but how going to bed at 2300 results in shorter but better sleep. The first officer's wife stated he did not have any sleep disorders. She described his health as good. The first officer was described as someone who was in good physical condition and regularly participated in exercise, including running and weight lifting. His wife described his health as good. She said he had been taking Crestor (a prescription medicine used to reduce cholesterol) but provided no additional details about any medication use.²³ His wife stated he sometimes had a cup of coffee or

²¹ A captain who had flown with the first officer recently stated that the company's pay cuts affected the first officer's more because they are on the lower end of the pay scale. He said it was not necessarily a concern for the accident first officer though.

²² A First Officer Progress Report in his file submitted by a Comair captain after a trip contained only superior (highest) ratings for all performance elements. In response to the question on the form: "is this first officer captain material?" the captain circled yes. The form was dated January 31, 2002 (sic). Other pilots who had flown recently with the first officer told investigators that they knew the first officer was preparing to upgrade to captain and they believed he would make a very good captain because of his standards adherence, experience and maturity, and good CRM.

²³ The first officer stated he did not currently use any medication (prescription or nonprescription) on his FAA medical application dated July 18, 2006.

caffeinated energy drink but didn't consume them on a daily basis. A captain and friend stated that the first officer was a coffee drinker in the morning and drank a caffeinated diet cola in the afternoon. His wife stated that he consumed alcohol only occasionally and was not sure the last time he had a drink. His wife said he wore contacts for a short time and had excellent night vision. A captain and friend who flew with the first officer on August 20-22 stated that the first officer did not wear glasses; and another captain stated he wasn't sure if the first officer wore glasses at night or not.²⁴

1.1.2.1 Activity Lookback/72 hour history

The first officer's activities at home on August 24 and August 25 are not known.²⁵ He commuted from FLL to JFK to report at 1150 for his trip.²⁶ At 1305 the first officer departed JFK and at 1435 arrived ROC. The captain on the flight stated that it was raining in NY all day and air traffic delays affected their return to JFK. They were delayed about 90 minutes on the ground in ROC before departing about 1600. Enroute to JFK they received delaying vectors and holds from ATC and decided to divert to BDL for fuel. At 1815 they arrived BDL. At 1839 they departed BDL and at 1955 arrived JFK. Because they were so late the company asked them to reposition the airplane to LEX. At 2130 they pushed back at JFK but according to the captain they did not get airborne until about 2300. At 0140 they arrived LEX landing on runway 22.²⁷ The captain said they went to the hotel and checked in about 0210.²⁸ The captain saw the first officer go into his hotel room shortly afterward. He said the first officer had no indication of any cold, allergy, or taking any medications, and that even though both of them had a long day on Friday neither of them took any naps during the day.

On August 26, telephone records for the first officer's mobile phone show the first call activity occurred about 1443. Hotel door key records show key activity for the first officer's room at 0057 and 1730 on August 26.²⁹ A receipt from the hotel restaurant shows that the first officer purchased an order of chicken fingers and 2 bottles of beer at

²⁴ Security camera video showed that the first officer was not wearing glasses when he passed through operations.

²⁵ In response to written questions the first officer's wife stated that she did not remember his activities on Wednesday August 23, Thursday August 24, and Friday August 25. She stated that there was nothing remarkable or unusual about his schedule or activities in the days before the accident.

²⁶ The 3-day trip had been assigned as part of his scheduled bid package for August but changed during the first day due to late arrivals.

²⁷ The first officer's duty time was 14:10 (hh:mm) including 9:11 flight time. He had a scheduled rest period of 27:15 in LEX before his report at 0515 on August 27. The captain on the flight reported that the left runway edge lights were illuminated but only about 1/8th of the right side edge lights were illuminated.

²⁸ The hotel computer system indicated front desk activity associated with the first officer's assigned room at 0157:57 on August 26 (entry stating "arrival"). However, the general manager indicated this activity may not correspond to actual check-in.

²⁹ The clock in the first officer's door lock did not display the correct date and time. The hotel tested the lock after the accident to determine the offset and found that the time displayed in the log was two hours earlier than the actual time. The times presented in this report are corrected in accordance with the 2 hour offset.

1826.³⁰ At 1838 the first officer was notified that his report time on August 27 changed from 0530 to 0515. Telephone records indicate outbound calls to Comair System Operation Control Center (SOCC) at 1836 and 1844. Telephone records indicate the first officer made an outbound call to his wife about 2049 lasting about 13 minutes.³¹ She stated they spoke that day and she recalled him stating that he was able to sleep in and was going to go to bed early as he had an early show time. The first officer's wife stated that the first officer sounded good as usual.

At 0510 on August 27, the first officer made a call to SOCC lasting 137 seconds.

1.1.3 Crewmembers Departure From Hotel and Arrival at Airport

According to the hotel van driver, the accident crewmembers were standing and waiting in the lobby with no food or beverages when he arrived to take them to the van. He said they seemed like a normal crew and were making small talk. He said they did not appear tired and he observed no yawning or stretching. He said they arrived at the airport outside baggage claim about 0513.

A captain for another airline observed the crew as they went through security. He and the captain exchanged pleasantries as they waited in adjacent lines. He said the captain appeared to him absolutely normal. Both pilots had hats and coffee mugs and nothing seemed out of place. He did not see the captain drink from the coffee mug but just saw it go through the screening. He did not see anything out of the ordinary with respect to the first officer and described him as a professional crewmember. Their body language indicated to him they were a comfortable crew together. Did not see any of them yawning.

According to a customer service agent working in operations on the morning of the accident the crew checked in about 0515. He said crew was not drinking coffee, yawning or rubbing eyes. The lead customer service agent described the crew as making casual conversation in operations and described them as very professional which was normal for the Comair crews.

³⁰ The receipts associated with this purchase show the order was input into the hotel's computer system at 1814 and closed at 1835. The server stated the person placing the order was alone, about 6' 3" tall, polite and brief, and communicated clearly. According to the server the person took both bottles of beer with him unopened. According to the hotel general manager the time on the machines producing the receipts was checked on September 1 and found to correctly reflect local time.

³¹ This was the last telephone activity shown for August 26. On August 27 at 0103:47 the telephone records indicate a 24 second incoming call entry coded "MT" followed at 0104:12 by a 37 second incoming call to voicemail entry coded "MF." The first officer's brother's phone was identified as the incoming call number for both entries. The brother did not remember the call.

2. Medical and Pathological Information

Tissue specimens from the captain tested negative for ethanol and a wide range of drugs, including major drugs of abuse. The captain's post-mortem examination identified a contact lens present over the left eye.

The first officer's blood tested negative for ethanol and major drugs of abuse; and pseudoephedrine was detected.

3. Crew Resource Management (CRM) Training

Courseware for CRM training was reviewed. Countermeasures presented during CRM training include teamwork, communication, decision making, situational awareness, and workload management. CRM was provided in 2 hour modules which contained specific areas of emphasis for each recurrent training cycle. For example, the 2006 Continuing Qualification Ground School CRM module focused on managing errors and understanding how selective attention and selective noncompliance can increase the likelihood of an error; and the focus of the 2005 module was on understanding and managing risks faced during daily operations and how they can be mitigated by applying good decision making and teambuilding skills. CRM training was conducted using a joint-participant format involving pilots, dispatchers, and flight attendants in the same class. The courseware relied on industry CRM guidance, accident and incidents occurring elsewhere in the industry, Comair events, and NTSB reports and studies. The information was presented through lecture and interactive discussion exercises based on event scenarios.

In addition to the CRM training modules, CRM skills were evaluated during simulator training, LOE, and check rides. A CRM facilitator instructor who was also a line check airman stated that he felt the CRM training at Comair was excellent. When he has noticed first officers not speaking up on line checks after a captain has made an error he said it was not because of a hesitancy to speak up but more because of situational awareness. According to the instructor, Comair's culture encourages establishing a tone where a first officer can and will speak up. That aspect of CRM is reinforced during training and recurrent training. Other captains and first officers interviewed described CRM training as good and stated there were no difficulties in first officers speaking up on the line if they felt rushed or had any concerns with how the flight was being conducted.

The Comair Principal Operations Inspector stated that in 5 years he hasn't really seen a problem in the area of CRM with crew interaction.

4. Safety Program Initiatives

The Director of Corporate Safety reports to the Corporate Compliance Committee which is comprised of the officers of the company and the president. The Corporate Compliance Committee meets quarterly at a minimum to review safety performance metrics and progress in achieving company safety initiatives. Reporting to the Director of Corporate Safety are the Manager of Security and Regulatory Compliance, Manager of Internal Audit, and Manager of Flight Safety.³² Reporting to the Manager of Flight Safety were a flight safety investigator, an Aviation Safety Action Program (ASAP) coordinator, and two ASAP analysts. According to the Director of Corporate Safety, the flight safety staff provides briefings in the initial and recurrent ground schools and work actively with the training department to make sure that trends are addressed.

Comair has a written safety policy published in multiple locations, including the employee web page and the corporate program safety manual. Pilots get safety information in multiple ways. Flight-specific information is obtained through the dispatch release. Other safety information relevant to pilots is presented on bulletin boards, the On Course magazine which is a quarterly safety newsletter disseminated to the general pilot group, and Ops Notes which are a one page report that pilots are required to read. Pilots can communicate safety concerns via Irregular Operations Reports (IOR) which are transmitted to flight operations management with copies routed to corporate safety. Safety concerns can also be communicated via Comair Communication Logs, and ASAP.

Comair's ASAP program for pilots began in May 2004. The program currently involves pilots and dispatchers and the company was working to add maintenance personnel to the program at a later date. As of July 2006, the program has received 2419 reports. The ASAP Event Review Committee meets weekly to review ASAP reports. The flight safety department reviews ASAP and IOR reports to monitor trends and the information is formally presented at the quarterly flight safety committee meetings. Issues that have been identified through this process include airborne navigation deviations and altitude deviations. Using the ASAP data the issue was evaluated and recommendations proposed to reduce deviations. The navigation deviations investigation was done with participation from the ALPA flight safety group.

The company became an ATOS (Air Transportation Oversight System) carrier in June 2006. According to the FAA principal operations inspector (POI), it is a learning process for everyone involved and he hasn't allowed the transfer to ATOS to interfere with oversight. The POI said that Comair anticipated the changeover to ATOS so they had already reviewed their own processes to determine how they would align with the ATOS safety attribute inspection (SAI) and element performance inspection (EPI) checklists. The Director of Corporate Safety stated that to do this the company had 3 auditors running the ATOS checklists on their flight operations, maintenance, systems operational control, and customer service programs. POI stated that he likes the

³² Comair initiated action to create the Manager of Flight Safety position before the accident, however the change in organizational structure did not occur until the week after the accident.

structure provided by ATOS but felt that there was a reduction in his flexibility in directing oversight because of the dependence on checklists.

Comair has had several audits of its operations in the year before the accident. For example, Comair underwent an International Air Transportation Association Operational Safety Audit (IOSA) in September 2005 and received IOSA certification in July 2006. Comair underwent a Department of Defense Commercial Airlift Division Air Carrier Quality and Safety Audit in February 2006 and received an overall satisfactory review.

In August 2006, the Director of Corporate Safety stated that the company was planning initial steps to begin a flight operations quality assurance (FOQA) program next year as a result of the IOSA audit and its guidelines. He said that they were evaluating which fleet to install the equipment on for an initial trial. When asked about SMS, the Director of Corporate safety stated that the company's Internal Evaluation Program was recently instituted and they were examining the FAA's advisory circular on safety management systems (SMS) issued in June 2006, but that together with their transition to ATOS and the IOSA certification he believed they were moving towards implementing SMS.

Monthly Safety Performance and Compliance reports were reviewed for the period September 2005 through July 2006. These reports were prepared by the Comair Corporate Safety and Compliance Department. Each report contained monthly counts of the number of runway incursions reported in the previous 12 month period; and a brief synopsis statement describing the incursion(s) that took place in the current month. For the 12 month period ending in July 2006, Comair reported 21 runway incursions³³. The incursions describe events occurring with both arrival and departure operations but none described a wrong runway takeoff event.

5. Comair Procedures and Guidance

5.1 Crew Resource Management

The Operations Manual chapter on Operational Policies section 5.6.12 "Crew Resource Management" stated that the captain is responsible for:

"...the CRM concept of 'authority with participation.' Responsible for providing leadership in a working environment of mutual respect and trust. The captain will always retain authority; however the captain will both elicit and welcome participation from other crewmembers during the conduct of the flight assignment."

The guidance stated that the first officer is responsible for:

³³ 17 runway incursions were reported for the 12 month period ending July 2005.

“.. the CRM concept of “assertiveness with respect.” The first officer will be an integral participant in the safe conduct of the flight assignment. The first officer will interact with the captain in a positive, consistent manner while still honoring the captain's position.”

5.2 Flight Time & Duty Time

The Operations Manual outlined policies for flight time/duty time. In Chapter 3 General Policies, section 3.8 “Logging Flight Time”³⁴ stated the rest period begins 20 minutes after actual block in, or the last scheduled aircraft movement or when actually released, whichever is later. It also stated that the rest period ends when the crewmember reports to the gate or operations, 45 minutes prior to departure (or 30 minutes as necessary due to transportation). The section also states that transportation that is local in nature, to and from the hotel, is considered to be part of the rest period. The section stated that the duty period begins when the crewmember reports to the gate or operations, 45 minutes prior to departure. Flight time limits must not exceed 30 in any 7 consecutive days, 100 in any calendar month, or 1000 in any calendar year.

5.3 Use of Alcohol

The Operations Manual outlined Comair's policies for use of alcohol. In Chapter 3 General Policies, section 3.11 “Intoxicants and Illicit Drugs” guidance on alcohol use states that “a certificated airman will be subject to termination if he... [c]onsumes any alcohol within 12 hours of scheduled departure for a pilot.”

³⁴ Dated June 10, 2005 (REV 1).

ATTACHMENT 1: INTERVIEW AND INFORMATION SUMMARIES (Pages 14-19)**Interview Summary**

Interview: Mitch Anderson, server
Time/Date: 1120, September 15, 2006
Location: via telephone
Present: Byrne, Hall

Anderson has been a server in the Radisson Café On The Park restaurant for about 2 years. He stated that the first officer placed a to-go order for chicken tenders and stood there waiting for the order to be filled. Anderson brought the food out and the pilot paid by credit card and then walked away.

Anderson described the pilot as polite, brief, and communicated clearly. He said he was wearing regular white tennis shoes, shorts, and a short sleeve polo shirt. He said the pilot was tall, maybe 6 foot 3 inches.

Anderson said the pilot was not with anyone and was not carrying any bags. The pilot took both beers ordered with him unopened.

Anderson described the time stamps on the receipts. He said the timestamp on the top of the cash register receipt is created when he enters the order into the system and the time on the bottom of the receipt is when he tells the system that the bill has been paid. He said the time stamp on the credit card receipt is generated when he swipes the credit card.

Interview Summary

Interview: Dave Polehinke
Time/Date: 1710 est, December 7, 2006
Location: via telephone
Present: Byrne, Tew

Mobile phone records for the first officer showed an inbound call about 0103 on August 27, 2006. The originating telephone number was called by NTSB investigators and a person named Dave who identified himself as the first officer's brother answered the phone. The brother stated that the originating phone number was his. In reference to details of the call the brother stated he was at a BBQ the night before the accident and had no recollection of the call.

Information Summary

Ida Askew

On September 14, 2006, NTSB investigators submitted written questions to the first officer's wife to obtain 72-hour history and background information about the first officer. On December 1, 2006, the first officer's wife submitted answers to these questions. This document summarizes the information provided.

She has known the first officer for about 14 years.

She did not remember the first officer's activities at home on Wednesday August 23, Thursday August 24, and Friday August 25.

She said the first officer commuted to JFK from Fort Lauderdale on Friday August 25.

She stated she talked to the first officer every day that he was away but doesn't remember that Friday.

She stated that on Saturday, the first officer slept late and she didn't remember what time he went to sleep. She stated she did not remember what he might have eaten. She remembered talking to him on Saturday and the first officer said that he was able to sleep in and was going to go to bed early as he had an early show time. She said the first officer sounded good as usual. She received no email or text communications from the first officer during the trip.

She said she never spoke to the first officer on Sunday. She stated that she doesn't remember any conversation with the first officer about the captain or the flight attendant.

She stated that there was nothing remarkable or unusual about the first officer's activities or schedule in the days before the accident.

She described the first officer as generally a morning person depending on his schedule. She stated the first officer did not have any sleep disorders. She described his health as good. The first officer worked out 3-4 times a week. With respect to the first officer's vision she stated he wore contacts for a short time and had excellent night vision.

She stated that the first officer had been taking Crestor (was unsure of the correct name). She provided no other information about medications. She stated that the first officer consumed alcohol only occasionally and she was not sure of the last time that he had a drink.

She stated the first officer sometimes had a coffee or Red Bull but neither every day.

She stated that there had been no major changes in the first officer's personal life over the last year. She said the first officer was one of those affected by the Comair pay cut over the last year.

She said the first officer was a food and beverage manager before he became a pilot. She said he always wanted to fly so he then went to flight school to become a pilot. She stated that to her knowledge the first officer had no disciplinary actions. She stated that the first officer loved to fly and was very proud to be part of the Comair family and looked forward to making Captain. She did not remember the first officer mentioning anything about flying into or out of Lexington.

She was not aware of any incidents or accidents the first officer experienced while flying or accidents or speeding tickets while driving.

When not working she stated the first officer used to love to play golf.

She was not aware that the first officer took personal leave at the beginning of August.

She stated that the first officer doesn't remember the accident.

Information Summary

Amy Clay

On September 11, 2006, NTSB investigators submitted written questions to the captain's wife to obtain 72-hour history and background information about the captain. On October 3, 2006, the captain's wife submitted answers to these questions. This document summarizes the information provided.

She has known the captain for about 7 years.

She described his activities in the days before accident as follows:

On Wednesday August 23 they were visiting family in Paintsville, KY, and he awoke about 0800. That afternoon they drove home to Cincinnati. Not sure when he went to bed.

Thursday August 24, awoke about 0630 ran errands and activities around the house taking care of his oldest daughter (toddler) who had a cold. Mowed lawn after dinner.

Friday August 25, awoke about 0615. Got ready for work and had coffee and breakfast at home. Then drove to the airport where he was scheduled to begin "ready reserve" at 0800. His commute including parking and transportation to the terminal was normally about 40 minutes.

She stated that he always called home several times a day. He wasn't assigned a trip on Friday until late in his ready reserve window. They spoke about 1315 and he told her that a trip had been assigned. They spoke later that day by telephone but she could not remember the specifics.

She had no information about his activities during the rest period in MSP and what time he went to sleep on August 25 and awoke on August 26.

On August 26, he called between 0830-0900 to inform her about the long layover in LEX and to suggest that she and their daughters visit for dinner and to possibly stay the night. They decided against staying the night because of his early wakeup the next day and the hassle involved in packing for their young daughters. She said he had begun his day at that point. They talked several more times throughout the day to finalize the plans to meet for dinner, and discuss the daughters' colds and her plan to shop for things for a work event. She said he was excited that they would be able to meet in the evening and he was looking forward to seeing his family.

According to his wife, he arrived LEX about 1530. At the hotel he planned to run on the hotel treadmill but it was out of service. At 1630 she picked him up outside the hotel and drove to a restaurant in Andover. They had dinner together with their daughters and were joined by her cousin and her cousin's husband. After eating dinner he said goodbye to his family and rode back to the hotel with her cousin and her cousin's husband. She called him on the drive home and he was already in his room. He called

her later to see if the girls went to bed easily and how they were feeling; and called again later about 2200 to say goodnight. She said he was going to bed at that point.

She said he spent the evening in LEX in his hotel room watching TV and talking to her on the phone. No email or text communications made during that period.

She said that on Sunday August 27, he had a 0415 wakeup and she did not speak to him that day.

She said there was nothing at all remarkable or unusual about his activities or schedule in the days before the accident.

She said when not working he would typically watch SportsCenter and go to bed after that. They usually got up as a family about 0700. She described him as "annoyingly cheery" in the mornings. She said he had fairly normal sleep patterns and did not take any sleep aids or anything.

She described his health as excellent; and added that he passed his flight physical on August 23 where he was given a clean bill of health. He had no health changes in the last year. He exercised regularly at least 3 days a week and took his running shoes and shorts on every trip. She said he wears contact lenses all the time and is nearsighted. She described his night vision as fine.

She said he did not take any medications prescription or nonprescription and did not use any medications in the days before the accident.

She said he did not use alcohol very often and they did not keep alcohol in their home but he would occasionally have a beer or glass of wine with dinner. He last had a drink on August 10 when they were visiting family in NJ.

He would have a cup of coffee each morning and liked Pepsi One with lunch. He did not drink caffeine in the evenings.

She said his youngest daughter was born May 18 and his oldest daughter was 2. Was thrilled to be a father to two little girls. No changes in financial situation over last year and had no financial difficulties.

Had a clean record as a pilot. Degree in economics from Rutgers. Worked for Bankers Trust and as a claims adjuster for State Farm before attending the Comair Academy. He was a flight instructor after he earned his ratings before joining Comair as a FO.

He had no previous incidents or accidents while flying, and no accidents or speeding tickets while driving.

Time off spent with family. Enjoyed working around the house and playing with his children in the yard. Zoo and parks. Had been remodeling his house and working with both their fathers in doing so. Cooking and baking. Landscaped around the house and took pride in the results of his efforts and flowers.

ATTACHMENT 2: PAIRING INFORMATION

The 6 pages attached contain extracted information from the Comair Crew Scheduling System for the flight crew along with explanatory text prepared by David Bontrager who was the Crewmember Services IT Coordinator at the time of the accident.