

NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, D.C. 20594

May 9, 2005

Group Chairman's Factual Report

HUMAN PERFORMANCE

DCA05MA004

A. ACCIDENT

Operator: Corporate Airlines, Inc. dba American Connection
Location: Kirksville, Missouri
Date: October 19, 2004
Time: 1945 central daylight time¹
Airplane: Jetstream 3201, Registration Number: N875JX

B. HUMAN PERFORMANCE GROUP

Malcolm Brenner, Ph.D. - Chairman Human Performance Division (AS-50) National Transportation Safety Board 490 L'Enfant Plaza East, SW Washington, DC 20594-2000	Captain B. David Tew - Member Operational Factors Division (AS-30) National Transportation Safety Board 490 L'Enfant Plaza East, SW Washington, DC 20594-2000
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¹ All times are Central Daylight Time (CDT) based on a 24-hour clock, unless otherwise noted. Actual time of accident is approximate, determined by the Flight Data Recorder (FDR) and Air Traffic Control (ATC) transcripts.

C. SUMMARY

At approximately 1945 central daylight time, October 19, 2004, a Corporate Airlines, Inc. flight operating as American Connections flight 5966, BAE Systems Jetstream 3200, N875JX, operating in accordance with 14 CFR Part 121, crashed while the flight was on approach to the Kirksville Regional Airport (KIRK), Kirksville, Missouri. The flight was conducting a non-precision LOC/DME Runway 36 approach. Eleven of the thirteen passengers and the two flight crewmembers were fatally injured. The two surviving passengers received serious injuries. The airplane was destroyed by impact and post-impact fire. The reported weather was visibility three miles in mist and an overcast ceiling at 300 feet.

D. DETAILS OF THE INVESTIGATION

The Human Performance Group was formed on October 30, 2004, to supplement information about the crew. The group conducted telephone interviews of thirteen persons familiar with the accident pilots (including pilots no longer working for the company) and interviewed the company Director of Operations and Director of Safety. The group also reviewed relevant background and medical material.

1.0 BACKGROUND OF THE PILOTS

1.1 Captain

The captain, age 48 years, was reportedly interested in aviation since childhood. He completed a private pilot license in the early 1990's but, because of limited job opportunities in aviation, worked professionally as a computer specialist. He returned to aviation as a flight instructor in the late 1990's and was hired as a pilot by Corporate Airlines in March, 2001. Several witnesses indicated that the captain enjoyed working as a pilot and hoped to upgrade to a job with a major airline. The captain lived in New Jersey in a house shared with his fiancée and commuted to work at his St. Louis base.

FAA records indicated no previous accidents, incidents or enforcement actions. Four pilots who had flown with the captain at Corporate Airlines spoke about him positively as a competent pilot who followed procedures. One pilot reported that the accident captain experienced and successfully handled an in-flight emergency on the Jetstream involving intermittent power losses in both engines due to fuel contamination. A search of the National Driver Register found no history of driver's license suspensions or revocations for the captain.

According to his fiancée, there had been no major changes in the captain's financial situation in the past 12 months. He had accepted a substantial pay reduction when

he changed careers from the computer industry and had not received a pay increase as a pilot. There were major changes in the captain's personal situation in the past 12 months since they had moved into a house together during this time and become more committed. At the time of the accident, the captain anticipated a job interview with a major airline and was reportedly very happy. Other pilots described the captain personally as a relaxed, intelligent, and friendly person who enjoyed joking.

When he did not have work demands, according to his fiancée, the captain normally went to bed around midnight and awoke around 0630 to 0700. He did not have a desperate need for sleep but, occasionally, would have a night where he did not sleep continually. On Friday 10/15, he went to bed early around 2300 to midnight (Eastern Daylight Time, EDT). On Saturday 10/16, he awoke around 0630 to 0700, spent a routine day at home, and went to bed about midnight (EDT).

On Sunday 10/17, he awoke about 0700 (EDT) and departed home about 0800 (EDT) for the airport. His fiancée, who ate breakfast with him, said his mood was very happy. The captain flew a deadhead trip to St. Louis (STL) and telephoned when he arrived. Telephone records show that calls were made from the captain's cell phone to his home telephone at 1008, 1233, and 1255 (CDT). According to company records, the captain departed STL on the accident trip on schedule at 1445, flew three flight legs, and arrived in Quincy, Illinois (UIN) at 2125 for an overnight. Hotel records indicate that the captain checked into the layover hotel at 2149. Telephone calls to his home were made on the cell phone at 2018 and at 2157 when, according to his fiancée, the captain may have been speaking from a restaurant. The captain mentioned that he was really enjoying the first officer he was flying with.

On Monday 10/18, the captain was not scheduled to begin flying until early afternoon and he did not check out of the hotel until 1305. According to his fiancée, whom he telephoned at 1253, the captain did not like this day of the flight schedule because he hated sitting around the hotel. Additional telephone calls were made from the cell phone at 1011, 1036, 1128, 1206, and 1350. Company records indicate that the captain departed UIN at 1415, flew four flights, and arrived at Burlington, Iowa (BRL) at 1945 for an overnight. He checked into the hotel at 2020, telling the front desk clerk that he was going directly to bed since the next day involved a long flight day. A telephone call was made from the captain's cell phone to his home at 2027 that lasted 8 minutes. According to the fiancée, the captain seemed in good spirits when he called her.

On Tuesday 10/19, hotel records indicate that the captain answered a wake-up call at 0410 and checked out of the hotel at 0506. The hotel van driver indicated that the two accident pilots seemed happy and got along well. Company records indicate that the captain departed BRL on schedule at 0544 and arrived in STL at 0644. He was scheduled to fly a roundtrip to UIN at 0930, but this sequence was cancelled and the next trip was not scheduled until early afternoon. A pilot who

arrived in the company crew room between about 0730 and 0800, and remained for about 45 minutes, stated that he observed the captain sleeping on a small couch in the room during this time. The same pilot returned to the crew room between about 1030 to 1100, stated that he observed the captain resting on the same couch, then shortly afterwards observed the captain leave to have lunch in the cafeteria with the accident first officer and other pilots.

According to the captain's fiancée, whom the captain telephoned at 1043 and spoke with for 28 minutes, the captain stated that his flights had been cancelled due to bad weather so that he ended up sitting around the airport telephoning relatives because he had nothing else to do. He stated that he woke up that morning in the hotel with a bad headache and a stomachache.² He also stated in a telephone call that he had a hard time sleeping overnight in the hotel.³ He sounded happy and was looking forward to returning home the next day. Telephone records indicate that additional telephone calls were made from the captain's cell phone at 0918, 0922, 0924, 0930, 1122, 1226, 1227, and 1227 and that incoming calls were received at 1031 and 1137.

Company records indicate that the crew departed STL at 1236 on a roundtrip flight to Kirksville, Missouri (IRK), arrived back at STL at 1453, departed at 1513 on a roundtrip flight to BRL, and arrived back at STL at 1745. Finally, the crew departed STL at 1842 on the accident flight to IRK. According to the captain's brother, whom he telephoned briefly at 1828 as he prepared to board the accident flight, the captain sounded normal.

A company pilot stated that weather around STL on Sunday to Tuesday (10/17 to 10/19) was very bad during all three days and among the worse he had experienced in a long time.

1.2 First Officer

The first officer, age 29 years, was reportedly interested in aviation since childhood and always wanted to fly large airplanes. After completing a private pilot license, he became a flight instructor in 1995. He worked briefly as Boeing 727 first officer for a company that hired and furloughed him several times before it ceased operations, returned to flight instructing, and was hired as a pilot by Corporate Airlines in August, 2004. According to several witnesses, he was happy with his job at Corporate and aspired to upgrade to a larger airline in a few years. He had flown since the beginning of the month with the accident captain and, according to several witnesses, enjoyed flying with him. The first officer lived in Cincinnati OH with his mother and commuted to work at his St. Louis base.

² The fiancée identified the overnight hotel incorrectly as Quincy rather than Burlington.

³ The fiancée did not recall whether the captain stated this in reference to the Monday or Tuesday night hotel stay.

FAA records indicated no previous accidents, incidents or enforcement actions. According to his mother, he had been involved in a previous emergency involving a near-midair collision when he was a student pilot under instruction. A search of the National Driver Register found no history of driver's license suspensions or revocations for the first officer.

According to his mother, there had been no major changes in the first officer's financial situation in the past 12 months. He earned more money as a flight instructor and took a pay cut to join Corporate Airlines, but saw it as an entry path to the major airlines by building up flight time. There were no major changes in his personal life in the past 12 months although, in February 2004, an engagement to be married ended (and he was preparing to start dating again at the time of the accident). The company chief pilot described the first officer personally as upbeat, hard working, and ready with a joke.

When he did not have work demands, according to his mother, the first officer's sleep schedule was irregular. He occasionally had difficulty sleeping, such as when his dog would awaken him and he would have trouble getting back to sleep. According to his mother, the first officer's normal schedule was to leave home on Sunday morning, fly his schedule, and return Wednesday evening. He did not maintain a sleeping facility at STL since his schedules allowed him to sleep at outstations.

On Friday 10/15, he stayed out late with friends and she did not know when he went to bed. On Saturday 10/16, he came home early from visiting friends, they talked briefly, and he went to bed about 2230 (EDT). He was fine and seemed normal.

On Sunday 10/17, the first officer was still in bed when she left the house about 0725 (EDT). He did not need to leave the house until 0900 or 1000 (EDT) to catch his flight to commute to STL.

Company records indicate that the first officer flew the assigned schedule with the accident captain, departing STL at 1445 (CST) and arriving at UIN at 2125 for an overnight. Hotel records indicate that the first officer checked into the layover hotel at 2149.

On Monday 10/18, he checked out of the hotel at 1305, flew the accident trip schedule, and checked into the overnight hotel at Burlington at 2020.

On Tuesday 10/19, the first officer answered a wake-up call at 0430 and checked out of the hotel at 0510. He had packed sandwiches because the day was really long and he expected that he might not have an opportunity to eat, but two early

flights were cancelled due to weather. At 0944,⁴ the first officer left a message on the answering machine of a close friend in an unsuccessful attempt to meet for breakfast (the friend was a pilot for another company who happened to be in town). Between about 1030 to 1100, a company pilot spoke casually with the first officer in the company crew room. He said that the first officer seemed alert and happy but somewhat bored (which can often happen when flights are cancelled unexpectedly and pilots have not prepared anything to do). The first officer did not have anything to read and did not watch television, but was playing with his hand-held computer and demonstrating its features. The pilot indicated that the first officer soon departed with the accident captain to eat lunch in the company cafeteria.

The first officer flew the accident flight schedule of four flights between 1236 and 1745. About 1500, he spoke briefly by telephone with his close pilot friend while he was on the ground between legs. According to the friend, the first officer sounded happy and joked about his friend being lazy and sleeping late that morning so they were unable to meet for breakfast. About 1730 to 1800, a company pilot saw the first officer on the ramp preparing for departure on the accident trip. The first officer greeted him, and they each indicated their pleasure that they were conducting their last trip of the day. According to the pilot, the first officer looked alert and happy.

3.0 MEDICAL FACTORS

1.1 Captain

According to FAA records, the captain held a valid First Class Pilot Medical Certificate dated 6/22/2004 with the restriction “shall have available lenses for near vision.” The medical record listed the pilot’s distant vision as 20/20 in each eye, and his near vision as 20/40 corrected to 20/20 in each eye. The FAA medical certificate listed the pilot’s height as 6’ 4” and weight as 205 lbs.

The captain’s fiancée characterized the captain’s health as good and indicated he had no major health changes in the past 12 months. On the day of the accident, the captain said that he woke up that morning with a bad headache and a stomachache. The captain did not normally have headaches, according to the girlfriend, and the condition was serious enough that he spoke about it.

Toxicology tests were performed by the FAA Civil Aeronautical Institute (CAMI) on fluid specimens obtained posthumously from the captain. A urine sample tested negative for alcohol, while a blood sample tested positive for

⁴ The friend indicated that the message was logged onto his answering machine at 1044 but, based on the fact that the friend lived in the eastern time zone and other available evidence, this time is changed here to 0944 to correspond to likely local time.

acetaminophen (9.07 ug/ml) and negative on a wide range of drugs, including drugs of abuse.⁵

3.2 First Officer

According to FAA records, the first officer pilot held a valid First Class Pilot Medical Certificate dated 2/17/2004 with the restriction “holder shall wear corrective lenses.” The medical record listed the pilot’s distant vision as 20/999 corrected to 20/20 in each eye and combined, and his near vision as 20/20 in each eye and combined. The FAA medical certificate listed the pilot’s height as 5’ 9” and weight as 234 lbs.

The first officer’s mother characterized his health as good and indicated he had no major health changes in the past 12 months.

Toxicology tests were performed by the FAA Civil Aeronautical Institute (CAMI) on specimens obtained posthumously from the first officer. Tissue specimens tested negative for alcohol, while blood and liver specimens tested positive for quinine and negative on a wide range of drugs, including drugs of abuse.

4.0 COMPANY FACTORS

According to his fiancée, the accident captain had mixed feelings about the schedules at Corporate Air. He loved to be home for three days, but he would say an 8-leg day was a long one. According to a pilot friend, the accident pilot’s only complaint about Corporate Air was the lack of an autopilot on the Jetstream.

According to a close pilot friend, the first officer mentioned that the training at Corporate was difficult. He did not dislike any captains with whom he flew at Corporate and did not mention anything particularly dangerous or bad about the routes he was flying.

Four pilots who were no longer working for Corporate Airlines provided positive comments about the company as a first airline job. They agreed that pilots were not pressured to make schedule, to fly when they felt fatigued, or to “duck under” the minimum altitude on a difficult approach. However, they also agreed that the long duty days involved in company schedules could be tiring. This was especially true when visibility was low (which tended to occur throughout the entire route structure at the same time and add to pilot workload on a long duty day). Three pilots indicated that the Jetstream was an unforgiving airplane and

⁵ The drugs tested in the post accident analysis included (but are not limited to) marijuana, cocaine, opiates, phencyclidine, amphetamines, benzodiazapines, barbiturates, antidepressants, antihistamines, meprobamate, and methaqualone.

especially tiring because it did not have an autopilot. All four pilots agreed that the rest facilities available to pilots at STL were not ideal.

The company Director of Operations stated that company schedules were a balancing act between what the crews wanted and what the company needed. Crews wanted as much flight time per day because, when they commuted to the base, they wanted to complete their assigned flight hours rapidly to maximize their days off. He did not like to extend the flight time beyond eight hours per day although, as allowed in the regulations, he instructed schedulers and dispatchers that they were allowed to continue a schedule if the pilots were close to eight hours and if the weather was good. Pilots were not required to complete a report for performing a missed approach.

According to the company Director of Safety (at the time of the accident), the company used an employee reporting system and a database for tracking safety trends as parts of a program for monitoring safety issues. Pilot reports did not cite fatigue, the absence of autopilots, or “ducking under” the minimum approach altitude as safety issues. There was no company incentive to “duck under” as pilots got paid an hourly salary that would not be affected if they canceled due to weather.

According to a representative of the manufacturer, the Jetstream 3200 airplane was designed with an autopilot system as an optional feature.

Attachment 1 Interview Summary

Interview: Mary Palmer
Date: November 1, 2004
Location: telephone interview
Time: 0930 EST

Operations Group members present were: David Tew, Malcolm Brenner, NTSB

During the interview, Ms. Palmer stated the following information:

Her son, Jon Palmer ("Jon"), was first officer on the flight. He lived with her in Cincinnati OH when he was not working.

She last saw him on the night of Saturday, October 16. He had been visiting friends, but returned home early and they spoke briefly around 2200 before going to bed. He was fine and seemed like his normal self. She did not see him the following morning, since she leaves about 0725 and he had not yet gotten up. He did not need to leave the house until 0900 or 1000 to catch his flight to commute to work.

His normal schedule was to leave Sunday morning and return Wednesday evening.

When Jon did not have work demands, his sleep schedule was variable. It depended on whether he went out with friends, in which case he might come home after midnight, or whether he had to instruct students, in which case he might be at the local airport at 0800. He instructed two students. Several weeks before, both students cancelled on the same day and he was happy to be able to rest late.

On Thursday, October 14, he watched rented movies with a pilot friend and probably returned home and went to bed around 2230. On Friday, October 15, he stayed out late with friends and she did not know when he went to bed. On Saturday, October 16, he came home early, they talked briefly, and he went to bed about 2230.

Three weeks before, he felt tired and took a nap in the afternoon. However, he did not take naps very often. He occasionally had difficulty sleeping, such as when his dog would awaken him and he would have trouble getting back to sleep. Some nights he complained to her that she had awakened him.

He did not maintain a sleeping facility in St. Louis. He always overnights in an outlying station.

He was interested in aviation since he was a child and always wanted to be a pilot. After the September 11 events, the aviation industry was tight but he did not want to do anything other than being a pilot. He was a flight instructor since 1995.

[The interview with Mrs. Palmer was temporarily interrupted here and resumed the next day, November 2, 2004, at 0900 EST as follows]

In the past twelve months, there were no major changes in Jon's health. His health was good. Outside of his flight physical, he visited a doctor only once in the past several years because of a bad cold about two years before. He was very healthy.

In the past twelve months, there were no major changes in Jon's financial situation. He actually earned more money as a flight instructor and took a pay cut to join Corporate Airlines, but saw it as an entry path to the major airlines by building up flight time. Jon had gained large airplane experience previously in a job with Sun World Airlines but the company ceased operations after furloughing and rehiring Jon twice. He completed about 100 hours of flight time with Sun World as Boeing 727 first officer. Jon always wanted to fly large airplanes. He viewed the Corporate Air job as a stepping-stone to build up time so he could fly for ComAir.

In the past twelve months, there were no major changes in Jon's personal life. He had been engaged but the engagement ended in February 2004. He was going to start dating again and had taken photographs for a dating service.

His vision was good. He wore glasses for nearsightedness since he was a boy. His hearing was good. He did not take prescription medicine, and would not have taken any drugs before the accident that would have affected his performance. He took the regulations very seriously even as a flight instructor. He drank alcohol socially, normally eating food before drinking any alcohol to avoid becoming ill. He visited a friend over the weekend before the accident to drink Tanguerey gin. He did not smoke tobacco. He drank coffee, two or three cups in the morning.

Jon mentioned Captain Sasse favorably and indicated they had a lot in common. Jon had a friend whose fiancée came from the same town in New Jersey as the captain, and Jon and the captain spoke of local landmarks. They had a good time together, and both Jon and Captain Sasse planned to request that they fly together in the upcoming month.

Asked about previous aviation emergencies or accidents, Mrs. Palmer indicated that Jon mentioned one such event, a near-midair collision he experienced as a new student under instruction. He was a flight instructor for many years and was strict about the standards he required of a student. He once refused to pass a student who could not meet his standards.

He learned about the Corporate Air job from a job fair that a friend persuaded him to attend. The company hired a friend of his and, when they began hiring again, he applied.

Around the time of his IOE, someone lost his paperwork so he was on hold for several weeks. The IOE itself was scheduled in St. Louis early on Sunday morning and Jon had to depart home on Saturday to arrive on time. Because he was unable to find a hotel room, the captain he was training with arranged for him to stay at the house of the captain's girlfriend. Jon felt like he was living out of a suitcase.

Jon enjoyed flying the B-727 airplane for SunWorld. It was his first opportunity to fly over ocean. He did not have difficulty with the B-727 training.

Jon mentioned that Tuesday (the accident day) was a really long day. He did not have time enough to eat, so he packed peanut butter and jelly sandwiches. Tuesday started at 0630 and ended at 1930. He was so busy he only had ten minutes off. He did not say how many trips he had to fly.

Jon did not call home when he was gone. He spoke with his friend Tim Webber on Tuesday.

Corporate Air training was very intensive. All Jon did was studying, quite a few people had dropped out of the program. Jon called home after his first simulator test, was proud, and said he did everything OK.

Regarding maintenance, Jon mentioned an event that happened when he first began flying with Corporate Air. On a pre-flight check, he saw an oil leak and the crew aborted the flight. On the following day, with passengers on board, Jon saw oil residue. The captain elected to call the mechanics back. The mechanic told him not to fly, and they cancelled again. This happened in September.

Jon's friend Tim and his fiancée Kate are both pilots. Jon spent time with them at their place.

Attachment 2 Interview Summary

Interview: Marilyn ("Anne") Smith, hotel night clerk, Burlington IO
Date: November 2, 2004
Location: telephone interview
Time: 1530 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Ms. Smith stated the following information:

She was the hotel clerk who signed the pilots into the hotel on the evening of Monday 10/18.

It was a routine evening. She had a conversation with Captain Sasse because she had not seen him in awhile. He indicated that he was going up to bed since the next day was a long flight day. First Officer Palmer was a young pilot new to the hotel. The mood of both pilots seemed fine. She set the wakeup calls for the next morning.

Neither pilot left the hotel or used the hotel van. The hotel restaurant had closed before they arrived.

Attachment 3 Interview Summary

Interview: Matt Waggoner, hotel night clerk, Burlington IO
Date: November 3, 2004
Location: telephone interview
Time: 0730 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Mr. Waggoner stated the following information:

He was the hotel clerk who signed the pilots out of the hotel on the morning of Tuesday 10/19. He had seen them in the hotel before, but did not remember them from that morning.

He has limited contact with pilots, and did not recall anything unusual that morning.

Attachment 4 Interview Summary

Interview: Marie Keck, hotel van driver, Burlington IO
Date: November 3, 2004
Location: telephone interview
Time: 0730 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Ms. Keck stated the following information:

She drove the accidents pilots from the hotel to the airport on the morning of the accident. Their behavior did not seem unusual.

She was familiar with Captain Sasse ("Kim") from having driven him twice before during the preceding three months. She did not know First Officer Palmer ("Jon"). They both arrived in the lobby carrying a cup of coffee from their rooms. Kim drank half of it and left the cup in the hotel lobby. Jon drank the entire coffee and left the cup in the van.

The drive to the airport takes about 15 minutes. In the van, all three had a comfortable conversation like they were three best friends. Ms. Keck mentioned that the weather channel was reporting snow in the mountain areas of Utah and Nevada. Kim said that he did not mind snow as long as it did not get too cold, while Jon said that he could handle snow but did not like it. The pilots also joked about topics being discussed on the radio by a local news show. The pilots were funny. Their mood was joking and cheerful, and they got along well with each other.

Kim looked handsome, fine, and happy. Jon was the same. They were both in a really good mood, especially for people who had just awoken. They both seemed alert. They did not mention their trip or rest period.

Attachment 5 Interview Summary

Interview: Kathy Tracy, Fiancée of Captain
Date: November 3, 2004
Location: telephone interview
Time: 0915 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Ms. Tracy stated the following information:

Captain Sasse (“Kim”) went to bed early on Friday 10/15, around 2300 to midnight. On Saturday 10/16, he awoke around 0630 to 0700 and they spent a routine day at home. He did laundry and got clothes organized for his upcoming trip sequence, visited Home Depot, and did some basic maintenance items around the house. He probably went to bed around midnight.

On Sunday 10/17, he awoke around 0700. He got ready, ate breakfast with her, and departed about 0800. His mood was good, very happy. They normally spoke several times each day by telephone whenever he was away and he always called at the end of the day when he finished flying. On Sunday, he telephoned, probably from the airport to indicate he arrived and maybe during the day as well. He sounded good. They had a normal discussion and he mentioned that he was really enjoying the first officer he was flying with.

On Monday 10/18, he didn’t start flying until late in the afternoon. This was his late day, and he never liked this because he hated sitting around the hotel. He called about noon and was in really good spirits. They probably talked at end of the day as well.

On Tuesday 10/19, he telephoned around 1230 and they spoke for about a half hour. He stated that he woke up that morning with a bad headache and a stomachache. He thought it might be his hotel room and spoke to other pilots (who also said they did not feel well when they stayed in that hotel).⁶ He normally did not have headaches. He did have a sensitive stomach, although it did not affect his eating habits. On Tuesday, he also talked about all the bad weather they were experiencing and about flights being cancelled. He ended up sitting around the airport quite awhile that morning because the flights were cancelled, and had telephoned his parents and brother several times because he had nothing else to do. He liked the first officer a lot, enjoyed flying with him and

⁶ Ms. Tracy identified the overnight hotel as Quincy, but records indicate that the captain had stayed the previous night at Burlington IO.

said he was quite skilled. He said they worked really well together in the cockpit. He sounded really good. They talked about him returning home the next day and being happy to get together again. He was just in really good spirits.

In one of his telephone calls, either on Monday or Tuesday, he stated that he had a hard time sleeping overnight in the hotel.

When he had no work demands, he normally went to bed around midnight and awake around 0630 to 0700. He did not have a desperate need for sleep, did not have trouble with insomnia, and was good at getting through the day on little sleep. But, occasionally, he would have a night where he did not sleep continually.

She knew him for nine years and they lived together for the past three years.

He was always interested in aviation since he was a child. He completed his pilot license in the early 1990's. It was almost impossible at this time to get into the aviation industry and, when he could not get a full-time job as a flight instructor, he returned to the computer industry. In 1999 or 2000, he realized that aviation opportunities were increasing so he returned to flight instruction. He missed the money that he made in the computer industry but did not miss the job at all. Corporate Air was his first major aviation job. He loved it, although he was not thrilled about the money. The company had not given a raise since 9/11 and all the pilots were disgruntled in that regard. He knew he would only be at Corporate Air for a little longer until he made a move to a major airline and he was really looking forward to that. He hoped to eventually get a job with AirTran and expected that an employment opportunity there was imminent. According to Ms. Tracy, Captain Sasse had a close friend working at AirTran who indicated after the accident that he had arranged a job interview for him.

He felt that training at Corporate Air was out of the industry norms. They taught the material well, and he learned what he needed to know, but the company had a convoluted testing procedure that did not test directly what was taught. Other airlines used straightforward tests.

He had mixed feelings about the schedules at Corporate Air. He loved to be home for three days, but he would say an 8-leg day was a long one. He had an ability to just do it. He loved to fly and never complained or even said he was tired. When he got off the airplane at the end of the day, he would not crash immediately in bed. Instead, he would go for a nice dinner, get his things ready for the next day, talk with her for a half hour, and then go to sleep. He did not love the schedule but he did not have any issues with it.

On Monday 10/18 they talked after the day was done. It was about 2130 to 2230. He may have called that night from the restaurant or on the way to

restaurant (since he knew that she went to bed early). Everything was very normal.

In the past 12 months, there had been no major changes in his medical situation. He had a cold two weeks before the accident and went to a personal physician for it. He also experienced lower back pain from getting older. But his health was good, there were no major health issues, and he just passed his flight physical in August.

In the past 12 months, there had been no major changes in his financial situation. They had saved money by moving into a house together, but he had not received any promotion at work. He anticipated a new job with AirTran that would have been a financial benefit.

In the past 12 months, there had been several changes in his personal situation. They moved into a house together in March and sold her home. It was a lot of work, with many projects in the new home, but he worked hard and was not lazy. They were becoming more committed and he was working toward changing his company.

He had not experienced any previous aviation emergencies/accidents that he discussed with her, but he tended not to tell her too much about anything that would frighten her. He was never frightened and made her not afraid to fly. The cockpit was his home and he was very comfortable there.

In thinking about the accident, it stuck out to her that he complained about a headache in their Tuesday telephone conversation and that he indicated that other pilots had experienced similar problems in the same overnight hotel. The condition was serious enough that he spoke of it and mentioned that he felt nauseous from spending the night in that hotel. He noticed it as a trend from other times he had spent the night at that hotel.

Attachment 6 Interview Summary

Interview: Tim Webber, Pilot
Date: November 3, 2004
Location: telephone interview
Time: 1530 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Mr. Webber stated the following information:

He was a captain for Jet Air flying a Learjet in corporate aviation applications. He had about 3,500 hours total flight time of which about 2,500 hours were in the Learjet

He was friends with First Officer Jon Palmer ("Jon") and had known him since they began working together as flight instructors at Sporty's Flight Academy ("Sporty's") in June 1999.

On Tuesday 10/19, Jon left a message on his answering machine at 1044. Mr. Webber tried unsuccessfully to return the call, and then spoke with Jon by telephone at 1500. It was a short call. Jon was between flight legs (normally about a 30-minute period) and stated that he had about 10 minutes to himself. Jon mentioned that one or two legs had been cancelled in the morning. They chatted for perhaps 5 to 6 minutes, when Jon said he had to start his paperwork for the next leg. He sounded very much like himself, very normal and very happy.

Jon did not discuss the captain in this final call, but talked about the captain in previous weeks and mentioned that they got along very well. Mr. Webber's fiancée, who had also worked at Sporty's, grew up in a small New Jersey town near the one where Captain Sasse now lived. Jon had visited the fiancée's town, and discussed with the captain a deli and other local sites. Mr. Webber understood that Jon planned to bid the following month's flying schedule with Captain Sasse because they had such good rapport.

In the telephone message left at 1044, Jon indicated that his morning flight was cancelled and that he would like to meet Mr. Webber for breakfast. During the previous weekend, Mr. Webber had told Jon that he would be staying in St. Louis on Monday and Tuesday due to one of his trips. They were unable to meet in the evenings because Jon did not overnight there, so Tuesday morning represented an unexpected opportunity to meet. Jon sounded like himself, very happy, as

though everything were normal. He joked about Mr. Webber being lazy and not getting up. He sounded very alert, judging by the way he spoke. The words were not groggy or slow, as Mr. Webber would expect if Jon were sleepy.

On Friday 10/15 and Saturday 10/16. Jon had visited Mr. Webber in the evening at Mr. Webber's apartment in Cincinnati. He often visited Mr. Webber and his fiancée during his days off, usually arriving between 1800 to 2000 and staying for 3 or 4 hours. On Friday, they took photographs to put on a singles website to help Jon meet a woman. On Saturday, they sat and laughed and watched movies. Jon seemed very much himself, a very happy person. He apologized for bothering them so much, and they told him he was family and welcome any time. He departed on Saturday between 2230 to 2300.

Jon was happy with his job at Corporate Airlines ("Corporate"). He had been a flight instructor at Sporty's for a long time. Although he had a short stint as a pilot with Sun World, he was furloughed soon after training and returned to being a flight instructor. He enjoyed flight instruction, but was burned out and wanted to do something else. Other flight instructors who had been his good friends had already upgraded to better jobs where they were flying jets, such as one who flew for Air Wisconsin. Jon felt that working at Corporate was a step in the right direction professionally and was really happy. He expected to move on to another job in a few years.

Jon mentioned that the training at Corporate was difficult and compared it to the B-727 training at Sun World. He described the training as being really tough, suggesting that they really put you through the ringer and were pretty strict and stringent. Jon did not dislike any captains with whom he flew at Corporate. Mr. Webber had the impression that Jon liked the routes he was flying. Jon did not mention anything particularly dangerous or bad about them and they did not involve long legs but rather legs in the neighborhood of 1.5 to 2.0 hours maximum. Jon did not discuss schedule or maintenance issues.

Jon did not experience any previous aviation emergencies or accidents, at least he did not mention any and he likely would have discussed it.

Attachment 7 Interview Summary

Interview: Eric Stout, Pilot
Date: December 27, 2004
Location: telephone interview [Re-interview]
Time: 1500 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Mr. Stout stated the following information:

On the day of the accident (Tuesday 10/17), he came into the company crew room at St. Louis twice following trips and saw the accident pilots. Mr. Stout first arrived in the crew room between 0730 and 0800. The accident pilots were already there, probably because they had flown an earlier leg and had a cancellation. First Officer Jonathan Palmer ("Jon") was sitting at the table playing with his palm pilot computer while Captain Kim Sasse ("Kim") was laying on a couch asleep. Mr. Stout remained in the crew room for 45 minutes to one hour during which time Kim remained asleep. Mr. Stout returned to the crew room about 1030 to 1100 following an intervening trip. Kim was lying on the couch just as he had been when Mr. Stout departed earlier (causing Mr. Stout to believe that Kim had been asleep for about four hours). Shortly afterwards, Kim got up and went to the cafeteria with Jon and several other pilots.

At that time, the crew room had several couches and chairs available for resting. One was a long couch on which a 6' person could lie without any problem, another was a regular size couch where the person's head would be on top, a third was a love seat, and there were also two recliner chairs. Kim was 6'2" or 6'3" tall, and he was curled up on the love seat that was so short that it left a picture that stuck in Mr. Stout's memory.⁷ There was a table in the room used by most crewmembers for activities such as reading and it was here that Jon was sitting. The crew room normally had some lights illuminated and others not resulting in a rather dim room. Mr. Stout did not like to read in this room because of the low lighting, preferring to read outside in the open or in another nearby room. The love seat was against one of the walls. The room was neither large nor small, perhaps 12' x 16-18', and was never quiet unless you were alone. It had concrete walls that carried sound. It was not a sleep room but rather a room used for congregating.

⁷ In a follow-up telephone call, Mr. Stout indicated that Kim was the only crewmember resting in the room when he arrived and that all other couches and chairs used for resting were available at that time.

During Mr. Stout's first visit, Kim was curled up with his eyes closed and appeared to be sleeping. Mr. Stout did not look at his face to confirm that he was asleep, but remained in the room for 45 minutes to an hour during which Kim did not arise or move around. Kim did not snore, as did some of the pilots.

During Mr. Stout's second visit, he talked with Jon (a new pilot he did not know well). They chitchatted briefly about issues such as regulations pertaining to CFI's (which they had both been) about Jon having flown the B-727 for a company that was now out of business, and about Jon's use of the Palm Pilot. Jon seemed alert and happy but somewhat bored (which can often happen when flights are cancelled unexpectedly and pilots have not prepared anything to do). Jon did not have anything to read and did not watch television, but was playing with his hand-held computer. Jon talked about all the different things that could be done with the computer and the fact that it could measure a person's temperature. Kim got up, stretched, and joined them. He greeted Mr. Stout and started kidding with Jon about his computer, having heard what Jon was saying while he was resting. Kim suggested that they go to eat in the cafeteria and the two left. Kim appeared alert, as shown by such things as not rubbing his eyes or talking about being tired. He and Jon were in good spirits.

That evening, about 1730 to 1800, Mr. Stout saw Jon on the ramp. Mr. Stout's flight was boarding passengers to Nashville and Mr. Stout was walking out to the airplane. Jon came out to begin preparing for his own departure (the accident trip). They greeted each other and Mr. Stout said he was headed "the best place, home." Jon said he had only a certain number of minutes until he and Kim departed for their own overnight. Jon looked alert and happy. He seemed alert as he was walking upright, his eyes were open, and he replied appropriately. Mr. Stout had no other contact with the accident crew on the day of the accident (Tuesday 11/19).

On the previous day (Monday 10/18), Mr. Stout did not see Kim but spoke with Jon in the crew room. Mr. Stout had just returned from a trip to Marion, Illinois and they discussed weather on his trip. It had been worse than predicted. Visibility at Marion had been sufficient to allow Mr. Stout to shoot the approach, but he never saw the approach lights and had to return to STL. At STL, visibility on the approach was also lower than expected. According to Mr. Stout, weather around STL on Sunday to Tuesday (10/17 to 10/19) was among the worse he had experienced in a long time. It was frequently worse at the destination than had been forecast by dispatch. It had been a very bad weather sequence during all three days.

Pilots were pay-protected for flying 75 hours per month, but they routinely flew additional hours. Therefore, a cancelled flight would lower the pilot pay for the month if the pilot was on-track to fly more than 75 hours. For comparison, Mr. Stout averaged about 81 to 82 hours flight time per month in the preceding year (excluding 3 months when he elected to fly on reserve).

Mr. Stout flew twice with Kim, when he administered Kim's initial aircraft training ride and when Kim completed his Captain's FAA ride around September 2003 (as described in Mr. Stout's earlier interview).

Mr. Stout was based in Nashville and flew different routes than pilots based in STL. These included demanding schedules such as 3-day sequences that might involve 6 to 7 legs on the first day, 6 legs on the second day, and 7 legs on the third day. Typically, STL-based pilots would do the same amount of flying split over four days, arriving late on the first day and departing early on the last day. The STL schedules were set up to allow pilots to commute to STL while the Nashville schedules required pilots to live in the Nashville area.

Attachment 8 Interview Summary

Interview: Todd Sasse, Brother of accident captain
Date: December 28, 2004
Location: telephone interview
Time: 1230 EST

Operations Group members present were: Malcolm Brenner, Dave Tew, NTSB

During the interview, Mr. Sasse stated the following information:

He received a brief telephone call from his brother, Captain Kim Sasse ("Kim"), on the evening of the accident.⁸ The captain's flight was boarding, and he was replying to a page sent earlier by Mr. Sasse to his cell phone. Mr. Sasse asked Kim where he could get a pair of earphones repaired and Kim provided a toll-free telephone number.

Kim sounded alert and was focused since he did not have too much time to talk. He seemed OK.

Kim loved his job and took it very seriously. He never discussed details of the job with Mr. Sasse.

⁸ Telephone records indicate that Captain Sasse telephoned his brother at 1808 on 10/19/04 (9 minute call).

Attachment 9 Interview Summary

Interview: Altai Negaty-Hindi, Pilot
Date: December 28, 2004
Location: telephone interview
Time: 1300 EST

Operations Group members present were: Malcolm Brenner, Dave Tew, NTSB

During the interview, Mr. Negaty-Hindi stated the following information:

He was a Boeing 717 captain at AirTran Airlines and long-time friend of Captain Sasse ("Kim"). He was helping Kim to get a job interview with AirTran by helping him with his resume and distributing it within the company. They spoke by telephone several days before the accident and Kim sounded really positive.⁹ The Training Department Manager had received his job application and he was elated. Mr. Negaty-Hindi believed Kim had a good chance of being hired. He met the qualifications and just needed to pass the interview.

Mr. Negaty-Hindi had known Kim since 1991 when they met at an airport in North Carolina. They had maintained e-mail contact several times per month since then. In 1998, Kim mentioned that he wanted to return to flying as a profession. Mr. Negaty-Hindi was then a pilot for Corporate Airlines (from July 1999 to 2000). He gave Kim's resume to the Chief Pilot and helped Kim get hired by Corporate. The industry was strong at that time and it was easy to get hired as a pilot.

Mr. Negaty-Hindi stated that he enjoyed flying for Corporate Airlines. His pilot skills improved because of the airplanes. The Jetstream 3200 was a small airplane, not high in passenger preference, which did not give room for error if a pilot made a mistake. It required hand flying at all times, sometimes with eight approaches in bad weather, and a pilot could sometimes get really tired. The Jetstream 3200 was a very tricky airplane to fly. You were always flying.

Mr. Negaty-Hindi was based in Nashville when he worked for Corporate. A typical flight sequence included waking early, flying 5 to 8 legs on the first day, retiring late, awaking early, and flying the same sequence in reverse to terminate in Nashville. The pilots were overworked and underpaid. The pay was very low and the equipment and conditions were not as good as at a regular airline job. Still, he loved Corporate Airlines because it was his first airline job and was a necessary step under current industry conditions to achieve a pilot career.

⁹ Telephone records indicate that Captain Sasse telephoned Mr. Negaty-Hindi at 1838 on 10/16/04 (28 minute call).

In their last telephone conversation, Kim sounded very motivated. His voice sounded really good. He had social plans to spend time with his girlfriend after completing the current flight sequence (the accident sequence). He was shopping for Christmas. He did not discuss his first officer.

AirTran had already hired 35 to 40 pilots from Corporate Airlines at that time, and two new ones were hired recently.

Training at Corporate Airlines for a VOR approach was to fly to minimums. When Mr. Negaty-Hindi was hired at Corporate, all training was conducted in the actual airplane (while when Kim was hired the training was entirely in simulators). You were authorized to leave the MDA only when you had the field in sight. For IFR training in the actual airplane, they removed the sight blocker for the pilot flying just before minimums.

[At AirTran they fly with Vertical Navigation equipment. On a non-precision approach, they need to have the field in sight at minimums or go-around. On a precision approach, they perform a coupled approach or autoland.]

At Corporate, there were no difficulties from the company if a pilot elected to divert. The relation between dispatchers and pilots was good. He did not feel pressured by the company to keep schedule. Once, Mr. Negaty-Hindi had to divert due to a catastrophic engine failure resulting from improper maintenance.

Kim voiced complaints about the schedule at Corporate Airlines, since he required additional time to commute in and back to his base and it cut into his time off.

The company tended to overwork and underpay pilots. Company pilots were meeting about the possibility of forming a union. It was not the best work environment for a pilot but was a good stepping-stone to AirTran.

In 1991. He and Kim flew together in a Cessna 172 RG on a trip from the coast to central North Carolina. Kim was very impressive as a pilot and very calm.

As a captain at Corporate, Kim experienced an emergency caused by fuel contamination. He lost power in the left engine, power returned, and then he lost power in the right engine. The first officer froze up but Kim handled the situation well. Mr. Negaty-Hindi considered Kim an excellent pilot. Kim performed very well on the captain upgrade. He did well on the checkride and felt very good about it.

In response to a question, Mr. Negaty-Hindi stated that he did not think it likely that a Corporate Airlines pilot would “duck down to take a peek” on an instrument approach. The Corporate pilots tried to follow the rules to the letter. The pilots

did not want to lose their licenses and, in the current employment climate, receiving a violation would end an airline career.

On the accident day, Kim was flying a lot. Kim did not complain about his schedule. He complained about how scheduling treated pilots, such as having days off removed involuntarily. When he was on reserve, he had a really bad schedule.

Kim loved to fly and it was his life. He left a \$100,000 job to fly at \$27,000.

Attachment 10 Interview Summary

Interview: John Sageder, Friend of Captain
Date: December 28, 2004
Location: telephone interview
Time: 1715 EST

Operations Group members present were: Malcolm Brenner, NTSB

During the interview, Mr. Sageder stated the following information:

He spoke by telephone with Captain Sasse (“Kim”) several days before the accident.¹⁰ It was a general conversation about how things were going. Kim was finally getting a break in his career of being able to upgrade to the major airlines by having an interview scheduled with AirTran in the coming weeks.

Mr. Sageder had known Kim for 14 to 15 years. Both were flight instructors, although Mr. Sageder was not currently active since he had a regular job that paid well and flight instruction paid poorly. They telephoned each other regularly to maintain contact. In the last telephone conversation, Kim sounded so upbeat that Mr. Sageder thought Kim might finally have his career break.

Kim was satisfied with Corporate Airlines although the job did not pay well. He was happy just to fly and it was his life. He was a very diligent pilot who flew by the numbers.

They had flown together numerous times in the past. Mr. Sageder stated that he would trust Kim in an emergency any time. On one flight, in IFR conditions, they lost a Directional Gyro and reported it. Mr. Sageder was the flying pilot, and they worked out the problem together and made it become routine. Mr. Sageder was not aware of any other aviation emergencies involving Kim.

Regarding his flying with the airline, Kim indicated that it was feast or famine in that he sometimes flew a lot and sometimes sat around. His only complaint concerned the lack of an autopilot. He had to hand fly the airplane through any sort of adverse weather, snowstorms and so forth. In an emergency, according to Mr. Sageder, an autopilot is the first thing a pilot would want to provide time to work things out (although in an airline there would be a second pilot to assist, but the second pilot might also be preoccupied). Some of the company airplanes had terrain avoidance equipment.

¹⁰ Telephone records indicate that Captain Sasse telephoned Mr. Sageder at 1935 (19 minute call) and at 2014 (19 minute call) on 10/16/04.

Kim liked the job because it gave him the opportunity to upgrade out of flight instruction. He worked in the computer industry in the past to earn a living but his love was flying. Mr. Sageder understood Kim's situation, and indicated that he might personally have followed a similar career path to that of Kim if he had also been single.

In their last telephone call, Kim was very happy, perhaps the most upbeat ever since he finally saw the light at the end of the tunnel. Kim was a gentle person without any trace of a mean streak.

Attachment 11 Interview Summary

Interview: Jeffrey Philip Stinson
Date: January 14, 2005
Location: telephone interview
Time: 1030 EST

Operations Group members present were: David Tew, Malcolm Brenner, Chris Hardee.

During the interview, Mr. Stinson stated the following information:

He was hired by Corporate Airlines ("Corporate") in 2001 and worked there (with the exception of several months when he was furloughed after the 9/11 terrorist attacks) until December 2003 when he accepted a job with another company. His total flight time is about 4,000 hours.

He flew with Kim Sasse two or three times shortly before he left the company. Sasse had just upgraded to captain and their flights were routine. They never flew in bad weather. Captain Sasse was new as a captain and seemed to be doing everything fine. He seemed competent. He was a nice person, easy to fly with, and Mr. Stinson did not see any irregularities. Captain Sasse was on reserve, and they just flew short trips rather than a multi-day sequence. Their longest flight day was probably a 10-hour day. No anecdotes stand out. They just flew the trip and went out for dinner. Overall, Captain Sasse was very knowledgeable about the airplane and never in a big hurry about anything. Mr. Stinson last saw Captain Sasse in December 2003.

Mr. Stinson did not know First Officer Palmer.

Overall, Corporate was a good company. It was a small company so pilots had to cover a lot of flying and the only drawback was that the duty days were extremely long. There was also a lot of down time between flights. They might fly a single roundtrip, then sit for two hours until flying the next roundtrip. As a result, the duty days were 14 to 15 hours long and it led to a lot of fatigue. Just about every day was this long. You would try to get rest both at night and between flights. The company had a crew lounge but it was not ideal for resting. It had several old recliners and several couches. But because all the flight banks were the same, there would sometimes be 15 to 20 pilots in the lounge and it would be noisy and difficult to rest. The room also needed additional chairs so more pilots could rest.

Asked whether he was ever concerned about being tired, Mr. Stinson indicated that he was not because most of the flight legs were short. The only exception was when they flew in a lot of bad weather since there was no autopilot on the airplane and it could become fatiguing. Hand flying made for a long day. However, the company was clear that a pilot should call in whenever he felt too fatigued to fly to be relieved. Once, a chief pilot called Mr. Stinson to say that, since he and the captain had been flying in bad weather, they should advise the company if they wanted to be removed from flight status for fatigue. This was a courtesy call, and both the captain and Mr. Stinson elected to continue flying. But it was good of the chief pilot to call to give them that option. Mr. Stinson recalled several examples of pilots electing not to fly due to fatigue. There was no retaliation, and reserve pilots completed the trips.

Mr. Stinson now flies for Comair. The schedules are much better with longer overnights, 12 to 16 hours, allowing enough time to go to the hotel and get 8 hours of rest. With Corporate, the average overnight period during the week was just 9 hours, which was legal but difficult. Allowing for factors such as travel time between the airport and hotel, preparations for the next day, and eating, this would allow only 5 or 5 ½ hours for sleep. Mr. Stinson personally felt that the current duty time regulations were inadequate for rest, as several nights of 9-hour overnight periods, two or three days in a row, left you fatigued and did not allow time to catch up on rest. On weekends, the overnights were longer. Mr. Stinson commuted into the STL base and flew primarily on weekdays.

Asked what he liked about the Corporate, Mr. Stinson said that the training was very good, that he liked flying the airplane, and that the company provided a stepping stone for him to an aviation career. He had nothing really negative to say about the company.

Asked about pilot turnover, ME. Stinson said it was probably due to low pay, with pilots looking at the company as a stepping stone to gain experience.

Asked why the airplane did not have an autopilot, Mr. Stinson indicated that he did not know but noted that the airplane did have a flight director to assist the pilot.

Asked about pilot grievances related to forming a union, Mr. Stinson indicated that the union concerns arose after he left but he believed that it related to low pilot pay and no recent pay increases.

Captain Sasse was a very friendly person who enjoyed joking in social settings and was relaxed around the crew room. Mr. Stinson never heard

Captain Sasse say anything negative about the company. Captain Sasse began flying late in his career (after working in the computer industry) and had a long-time girlfriend. He was well liked and was very intelligent.

Asked whether Captain Sasse always “flew by the book,” Mr. Stinson indicated that he did. Captain Sasse was fresh out of IOE when they flew together, there was a little nervousness on his part because he was new, and he followed the procedures. He always followed checklists. His humor was only occasional during flight and was reserved for in-flight portions.

Mr. Stinson estimated that during his training at Corporate he practiced about 3 non-precision approaches per simulator session. During check rides, they performed VOR and NDB approaches as well as precision approaches. They always went down to minimums on these approaches.

The minimum descent altitude (MDA) represented the minimum altitude that they could descend without seeing the runway environment and they would level off at this altitude. The runway environment referred to the approach lighting system, the runway lights, the centerline markers, the threshold markings, and such items. If they saw the runway environment, they could descend down to 100 feet above the airport elevation.

Under training at Corporate, they used a normal descent rate for a non-precision approach (not greater than 900 feet per minute) and normal flight maneuvers (without sideslip or excessive descent rate to help get down). With the captain as the flying pilot on a non-precision approach, the captain would brief the approach and some captains might brief procedures and be very clear about how they would initiate the missed approach. Inside the outer marker, the captain would call for flaps and gear extension, would call crossing the outer marker and should call the target descent altitude. In a timed approach, they would start the timing at the outer marker. Because there was no autopilot, the captain would be on instruments the whole time. The first officer would call 500 feet above MDA, 200 feet above, and 100 feet above, and minimums. The first officer would split his attention between inside and outside the cockpit, making sure the captain was staying on course and watching altitude while at the same time looking for the airport. If the runway environment was not in sight, the captain would advance the thrust levers to level off at the MDA and wait for the missed approach point. The first officer would be the only pilot looking outside.

Mr. Stinson indicated that he had never observed a Corporate Airlines pilot, either captain or first officer, descend below the MDA when lights were not visible (“duck under”). In such a case, the non-flying pilot was

supposed to take over the controls assuming that the flying pilot was incapacitated.

Mr. Stinson described the crew resource management (CRM) training at Corporate as very good. He said that the training emphasized proper callouts. CRM training occurred only in the simulator through crew interactions. There was no dedicated training module for CRM at Corporate, but CRM concepts were integrated into the simulator and mock training in cockpits.

As best as he could recall, Corporate did not have autopilots on any of its aircraft.

Attachment 12 Interview Summary

Interview: Chad Slowak
Date: January 18, 2005
Location: telephone interview
Time: 1400 EST

Operations Group members present were: David Tew, Malcolm Brenner, NTSB,

During the interview, Mr. Slowak stated the following information:

Mr. Slowak did not know First Officer Palmer.

He flew about 10 hours with Captain Sasse in April 2004 on a 2-day trip involving 5 flight legs. Captain Sasse seemed relaxed and experienced in the airplane (having completed about 1,200 flight hours in the airplane before he even upgraded to captain). They ate lunch together and Captain Sasse seemed like a regular person. He appeared to be a confident captain. Weather was not bad during the trip so Mr. Slowak did not observe Captain Sasse fly in instrument conditions. Mr. Slowak appreciated that Captain Sasse had a relaxed rather than a jumpy style as a captain. At the same time, Captain Sasse did not overlook items or skip checklists. He knew what had to be done.

Mr. Slowak has completed about 2,500 flight hours. He now flies for Chitaqua Airlines where he has accumulated about 800 of these flight hours.

Corporate has recently experienced a high attrition of first officers. This was because of factors like low pay and the difficulty of the airplane to fly. The Jetstream was sensitive and there was no autopilot so it tends to tire you out, especially when flying in instrument conditions. The week of the accident had 4 or 5 days of low visibility conditions. Low IMC conditions occurred about 20% of the time he flew the route structure of Corporate. The problem was that the route structure was so close to St. Louis that you either had great days everywhere or you never got out of instrument conditions.

Mr. Slowak worked for Corporate from January to June 2004.

Asked about difficulties at the company, Mr. Slowak suggested that pilots sometimes felt they were not paid all appropriate money. On particularly

long days, when crews were short, it was rumored that the company would adjust times on the computer to allow a crew to continue their flight without running out of legal duty time.

The schedules had a lot of sitting time built into them because the airline served many small towns. You would do an out-and-back trip to one town, sit for several hours, then do another out-and-back trip and sit for more hours. It made the days seem long. The on-duty shows were always early in the morning and involved returning to St. Louis from the overnight out-station. One of the problems with Corporate was that you had to get up early in the morning because of the type of flying the company performed.

Pilots were allowed to sleep in the crew room at St. Louis. The room had several couches, one small TV, one easy chair, and a large table where most people sat. Pilots played solitaire on the computer or sat and complained, talking about what airline they would rather be at. It was difficult to rest when sitting in a crowded crew room with pilots talking and complaining. Corporate did not seem like a happy place to work and Mr. Slovak typically stayed in the terminal rather than the crew room.

Mr. Slovak estimated that, during instrument conditions, about 50% of the approaches at Corporate were flown to minimums. These were often on non-precision approaches since many airports did not have ILS equipment. This was especially true in Western Missouri with airports such as Kirksville, Ft. Leonardwood, and Burlington IO. Mr. Slovak personally was always able to land, but he heard that pilots trying to land at Ft. Leonardwood often returned to St. Louis.

To fly down to minimums on a non-precision approach, it was typical procedure to set the minimums in the bottom selector of the ADF and set the altitude indicator to the next highest hundred feet (since it was only delineated in one hundred foot increments). Standard airline callouts were made (such as how far to the next fix). The training definitely covered how to perform these approaches.

Asked whether approaches were of a “dive and drive” nature or were gradual, Mr. Slovak noted that it was necessary on the localizer approach at Kirksville to descend quickly to see the runway since it involved a steep descent. He was not familiar with the term “dive and drive.”

Asked about tendencies to “duck under” the MDA, Mr. Slovak said that he had never done or seen this done. However, he added that some pilots were known to always get into airports while other pilots were known to always return to St. Louis.

He had never heard of the company pressuring any pilot to take a flight. The company would reschedule low-time pilots if the scheduled flight was too difficult for their experience level.

Regarding economic considerations that might affect a pilot's decision to land or return to St. Louis, commuter pilots would have to pay for the hotel room if they returned to St. Louis. The cost was about \$40 and pilots complained about this.

Pilots put the minimums in the bottom of the ADF. The airplane calls "minimums" based on the GPWS. Routine pilot callouts were 1000 feet to minimums, 500 feet, 200 feet or 100 feet. The GPWS would call out "minimums." There were no callouts below MDA.

Mr. Slowak performed 15 to 20 approaches down to minimums when he worked at Corporate. When the captain flew the approach, the captain would be watching the instruments until the first officer called "runway" or "approach lights in sight" and then the captain would transition to outside the cockpit. The non-flying pilot would typically divide his time looking for ground contact and scanning instruments. With the Jetstream, there was a danger that if you looked away for a second you would be off your altitude or your heading. Because the Jetstream was so sensitive, the non-flying pilot would also monitor instruments.

Mr. Slowak had seen pilots descend as fast as 1500 feet per minute during visual approaches but never during instrument approaches.

Asked about the controlled-flight-into-terrain (CFIT) checklist produced by the Flight Safety Foundation, Mr. Slowak said he remembered watching a film during training concerning CFIT issues and may have received the CFIT checklist. He did not recall any pilots using the checklist in flight.

On a non-precision approach down to minimums, the non-flying pilot would spend about 75-80% on his attention within the cockpit backing the other pilot, until they were below 500 feet AGL when he would devote 100% of his attention outside the cockpit looking for the airport.

Captain Sasse was not a pilot with a reputation for "always getting in."

Mr. Slowak left Corporate because he had always wanted to fly with Chitaqua, and took the Corporate job as a temporary one while waiting for a job to open at Chitaqua. Corporate was fun and the training was OK, but he left because of money. The St. Louis base seemed to have morale issues.

Fatigue was an issue among the pilots. Most of the overnights during the week were short, about 5 hours. The hotels were often shabby, the flying could involve hard IMC, the schedules involved getting up regularly at 0400, and it led to fatigue.

Attachment 13 Interview Summary

Interview: Carol Golder
Date: January 18, 2005
Location: telephone interview
Time: 1445 EST

Operations Group members present were: David Tew, Malcolm Brenner, NTSB,

During the interview, Ms. Golder stated the following information:

She flew with Kim Sasse when he was a new-hire first officer in April and May, 2001. She was a check airman. They also flew together later somewhat regularly (although never a full month together), perhaps less than 50 hours total.

Sasse was a great person who really enjoyed flying. He gave up a lucrative career in computers because he really enjoyed flying. He was interested in learning and doing everything right. He was something of a perfectionist. When she performed his IOE as first officer, she could see in his face that he got very concerned and upset with himself about any negative comments. All first officers miss radio calls, and he took seriously any comments, tried hard to improve, and did.

His strengths: he was good with communications, with CRM in the cockpit, and with checklists.

She worked for Corporate from August 1999 until August 2004. She left the company to spend time at home with her family. [She had remained extra time at the company because of rumors that the company would expand to Raleigh, NC (her home), but left the company when it became clear that the rumors were incorrect].

She has about 6500 to 7000 hours of flight time.

Corporate was a good company and she enjoyed working there. Gripes from the pilots centered on issues of communications, where pilots would hear rumors of things happening and become frustrated because they would not hear clarification from the company. At the same time, she could understand the company hesitating to discuss possibilities before they became definite. Overall, however, there was not enough positive communication between company and pilots.

The schedules were great compared to other airlines because they allowed pilots to commute to work. They were constructed so pilots could work on the day they commuted into the base, and commute back home on the last day of the trip. This was unusual for an airline and she appreciated it.

The airplanes were good. Any time she had a mechanical problem, the mechanics would address her write-ups right away. She could discuss problems with the mechanics and never had difficulties with them.

Flying out of the St. Louis base, she encountered bad weather perhaps 30% of the time. She very seldom got to minimums without seeing the airport environment. She never had to discontinue an approach into St. Louis, seldom had to discontinue an approach into an out-station, and never had to divert. She was lucky in terms of weather.

She did not recall the weather conditions when she flew with Kim Sasse. Once they experienced misty weather with low ceiling on an approach into Quincy but they did not have to execute a missed approach.

The sleep facilities in the crew room were fair to poor. It was dark, dirty, and small. The furniture was old, and most furniture was supplied by pilots rather than the company.

Fatigue could be an issue on the schedules, as with any airline. During transition, flying 6 days in a row rather than 4 days. Schedules during the week had back-to-back 8 leg days, which could be tiring in low IFR or when flying with someone new and taking on more responsibilities. However, this was true of all airlines. The company did not pressure pilots to fly if they did not feel rested. She knew of instances where pilots called in fatigued and were replaced. It happened perhaps 3 times during her career and there were no repercussions.

The company did not pressure pilots to land at airports despite adverse weather. All her experiences in dealing with company dispatch, and every experience she had heard over the radio between pilots and dispatchers, involved a team effort and discussion about whether to get into an airport.

Her flight time includes about 3000 hours of flight time. As check airman, she performed IOE and line checks but did not do training.

Procedure for setting minimums: you would set the decision height in the radar altimeter based on the height above the ground. Some pilots would also dial the actual altitude of the MDA in the standby mode of the ADF just as a reference. If the MDA was 400 feet agl she would dial this into

the radar altimeter and dial the actual altitude into the standby ADF. There was no bug on the altimeter, just an LED display in the lower right corner where you would dial in the height above ground. You would hear a “minimums-minimums” warning over the headset based on the data entry in the radar altimeter.

She never flew into Kirksville in IFR conditions down to minimums.

Regarding her training for performing a non-precision localizer approach, she did not recall a specific required rate of descent. On an IOE, she taught pilots to fly a stabilized approach. As flying pilot, her main responsibility would be to fly the approach although she might look up at the runway on occasion. The non-flying pilot would have a primary responsibility for calling the field in sight but would also be responsible to call 100 feet above MDA and call “minimums” and to also look in the cockpit. The non-flying pilot would call out the descent rate if he felt uncomfortable. At minimums, the flying pilot should discontinue the approach if there is no callout or if there is a callout of “minimums, no runway.”

Attachment 14 Interview Summary

Interview: Adam C. Huskins,
Director of Operations
Corporate Airlines

Date: March 3, 2005

Location: telephone interview

Time: 1200 EST

Operations Group members present were: Malcolm Brenner, Dave Tew, Chris Hardee

During the interview, Mr. Huskins stated the following information:

He was hired by the company in May 1998 and became Director of Operations in December 2004. At the time of the accident he was Chief Pilot.

After graduating from college with an aviation degree, he flew as a commercial pilot in a check hauling operation for three and a half years and was then hired by Corporate Airways. He joined the training department in January 1999, became Chief Pilot in May 2001 and Director of Operations in December 2004. He has about 6,000 flight hours as a pilot.

The accident captain Kim Sasse ("Kim") was a good person who loved flying and quit a \$100,000 job to be a pilot. He was very conscientious and smart. Captain Huskins may have flown with Kim but had no specific memories about it. Kim was not subject to discipline or commendations. There were no complaints from other pilots regarding him. He came to work and did his job. He was very tall and would cover the entire couch in the crew room at St. Louis when he was resting. You knew Kim was there when you saw a big coat covering the sofa. Capt. Huskins last saw Kim about one month before the accident.

Captain Huskins described the accident first officer Jon Palmer ("Jon") as extremely enthusiastic. Jon was always very upbeat and clearly loved the work. He was a hard worker and always had a ready joke. He was not subject to discipline or commendations. There were no complaints from other pilots about Jon. Jon had only worked for the company for several months, so if he did not meet standards the chief pilot would have heard quickly. Captain Huskins interviewed Jon for the job. Jon had worked previously for a B-727 operator and was tired of being furloughed and rehired. He was very excited to have something stable.

As Director of Operations, Captain Huskins has operational control of the airline and oversees pilots, dispatchers, and schedulers. His duties and responsibilities tend to be more than what is specified in the manual.

Asked about his responsibility to “maintain sufficient pilots to adequately crew all scheduled flights” (as stated in the Operations Manual), he stated that it was a challenge. The environment for hiring pilots was very competitive, especially if another regional airline had a growth spurt. Pilots left the company to make more money and fly jets.

Captain Huskins characterized new hire-pilot quality as good. He believed that the best candidates were often flight instructors recently out of college with about 1,500 flight hours. They absorbed new material well and became good functioning crewmembers. Older pilots, who had been around the industry, were less promising and typically slower on the uptake. The training program was difficult and candidates had to be sharp to complete it

Captain Huskins characterized pay as directly on par with everyone else. Competitors who operated jet offered higher pay in the second year but required a much longer period for a junior pilot to upgrade to captain. At Corporate, pilots could make captain in one to two years compared to six years at competitors with jets. Pilots knew they would learn to fly airplanes.

Captain Huskins characterized morale as having ups and downs, perhaps being average now. It was difficult to please pilots. Their major concerns were pay and days off-duty. Pilots who commuted to work wanted to fly extensively while they were at the base and did not like down time sitting around.

Captain Huskins characterized company schedules as legal and as safe as he could make them. Schedules were a balancing act between what the crews wanted and what the company needed. Crews wanted as much flight time per day because, when they commuted to the base, they wanted to complete their assigned flight hours rapidly to maximize their days off. He did not like to extend the flight time beyond eight hours per day, although he was willing to extend to eight and one half hours. He instructed schedulers and dispatchers that they were allowed to continue a schedule if the pilots were close to eight hours and if the weather was good. The legal limit is 8 hours of scheduled flight time, but paragraph G allows pilots to extend beyond this limit to complete the day. Pilots were guaranteed 75 hours of flight time per month. If he assigned 5 day trips per week with 4 hours of flying each day the pilots were unhappy, while if he assigned 3 day trips with long hours per day the pilots were pleased.

At the STL base, 70% of the pilots commuted from homes in other locations. New hire pilots were more apt to live locally at their base than older pilots.

Captain Huskins did not want pilots to fly if they felt fatigued. As chief pilot, he never questioned pilots who removed themselves from the schedule for fatigue. This did not happen often, however, with only three calls received from pilots concerning fatigue during his tenure. None of these calls came from a pilot positioned at an outstation.

Regarding pilot rest facilities, there were four sofas and a cable television in a crew facility at the STL base. Many pilots sprawled out on the sofa to rest. Captain Huskins wished this facility were larger since it could get cramped during busy times. He was not the right person to determine whether it would be worthwhile for the company to open a dedicated rest facility.

Captain Huskins characterized pilot turnover as probably higher than industry average, noting that Corporate Airlines was typically a pilot's first airline job. The company lost about 3 pilots per month out of a base of 75 to 89 pilots. The company addressed this turnover through training. If pilots want to leave, he assisted them and was glad to write recommendation letters.

He wanted every pilot to spend at least 1,000 hours as first officer before upgrading to captain. There were some pilots based in STL who had been with the company over five years.

Regarding the absence of autopilots on the Jetstream airplanes, Captain Huskins stated that the airplane was not originally designed with an autopilot. American Eagle was the largest customer of the Jetstream 32 and it came without an autopilot. He personally would welcome a retrofit autopilot but did not know whether it is necessary.

Captain Huskins was asked how frequently pilots flew approaches down to minimums in the company's route structure. He indicated that this almost never happened in the summertime, and happened perhaps 15% to 20% of the time in January and February (the months with the lowest weather ceilings). Three airports had non-precision approaches out of the 13 airports in the route structure. These were Ft. Leonardwood, Kirksville, and Marion, IL. Very few pilots were forced to abort the landing and return to STL, perhaps 1% to 2%. There was no requirement to fill out forms since they were in constant touch with dispatch. Pilots did not complete a report for a missed approach.

There were no pilot complaints concerning the overnight hotel at Burlington, IO.

Pilot reported safety issues to the company, such as de-icing problems due to improper performance by contractors. Captain Huskins received reports on incidents, such a popped GPU door.

Captain Huskins reported to the Senior Director of Operations and Maintenance.

Captain Huskins was asked how he monitored “flight operations for adherence to operations specifications, federal regulations, and safe operating practices” to guarantee that pilots did not “duck under” the minimum altitude on approaches down to minimums. He answered that he monitored through line checks and line operation procedures and that the company culture strongly disapproved of such actions. There was no pressure on pilots to land rather than discontinue the approach.

Captain Huskins flew less often than he would like, perhaps ten hours or less per month. He had about 2,000 total flight hours on the Jetstream 3201 airplane and about 1,600 of those hours were as pilot in command.

For a Localizer approach, he trained to use a descent rate of 1,200 feet per minute (FPM) to 2,000 FPM. Using a constant rate descent would have the pilot arrive at the minimum descent altitude (MDA) at about the missed approach point (MAP) and he did not do that.

He taught that a 650 FPM descent rate at 130 KIAS would give a pilot about a three-degree glideslope. From MDA to 100 feet above TDZE, he instructed pilots to use about a 300 FPM descent rate.

Corporate Airlines pilots did not use the descent rate graph on the Jeppesen approach plate for guidance to determine a descent rate for the approach.

If the approach lights were in sight, a pilot could descend below the MDA, but only if the airplane was continuously in a position to land using normal maneuvering procedures. The decision to descend below a MDA was the pilot’s decision.

If a pilot had computed a visual descent point (VDP), he could descend from the MDA, but if the pilot saw VASI indicators, he could not go below the VASI signal under any circumstances. Corporate pilots were trained to compute a VDP if it was needed on a non-precision approach. If a VDP using distance could not be computed, the pilot could use time to determine the VDP. He would fly an approach at 130 KIAS and would know the time to the MAP.

Corporate pilots were aware of the distance versus altitude guidance information in the flight manual.

From the final approach fix (FAF), the FP should be monitoring the flight instruments and should not be looking outside the airplane cockpit. If the FP looked “up” or outside the airplane during simulator training, he would get a “thump” from the instructor. From the FAF, the NFP should alternate monitoring the flight instruments and looking outside the airplane.

The NFP should callout "100 feet above minimums". The NFP pilot should also callout "minimums" [MDA]. When the NFP called out "minimums", the FP pilot should level the airplane at the MDA. If the NFP observed the approach lights, he would announce it. The FP should remain at the MDA if a VDP had not been previously briefed or a descent point had not been briefed. When the NFP called "runway", the FP could then look outside and descend on the VASI. If the FP descended below the MDA before the NFP announced "approach lights" or "runway" in sight, the NFP should callout "you are below MDA".

He wished every runway had an instrument landing system (ILS).

There were no changes in operational procedures as a result of the IRK accident. Since the accident, the company has increased stressing pilot duties during approaches in training.

Attachment 15 Interview Summary

Interview: Joe C. Travis
Senior Director of Operations
Corporate Airlines

Date: March 3, 2005

Location: telephone interview

Time: 1400 EST

Operations Group members present were: Malcolm Brenner, Dave Tew, Chris Hardee

During the interview, Mr. Travis stated the following information:

He was hired by the company about 3 years ago, was Director of Safety at the time of the accident, and was promoted to his current position about three months ago. He worked a series of airline management positions with the following chronology:

- Owner of Midwest Airlines
- Assistant Director of Operations and Maintenance at GulfAir
- Vice-President of Operations at Metro Airlines
- Executive Vice-President of Operations at GulfAir
- Senior Director of Operations at Northwest Airlines AirlinK
- Private consultant on regulatory Compliance (for four years)
- Director of Safety at Pace Airlines
- Director of Safety at Corporate Airlines
- Senior Director of Operations at Corporate Airlines

He reported directly to the company president in his current position and in his former position as Director of Safety.

He did not personally know either accident pilot.

The Safety Department has a self-auditing structure. It included quarterly meetings of the Safety Council (of which the Director of Safety was chair), employee reports of safety issues, and a database for tracking safety issues. The company will prepare an overview of the Safety Department and its activities for inclusion in the docket.

Fatigue was not cited in pilot reports as a safety issue. If pilots were tired they did not fly.

“Ducking under” the minimum altitude on approaches to minimums was not cited in pilot reports as a safety factor. There was no company incentive to do this. Pilots got paid an hourly salary that would not be affected if they canceled due to weather.

Mr. Travis characterized pay as being in the lower tier of the industry average.

Mr. Travis characterized morale as pretty good. Pilots were enthusiastic about their career progression. They received good training and, while Corporate might not be their last job, they could see where they would progress.

Mr. Travis characterized the schedules as efficient, sometimes reaching the maximum hours allowed by regulations.

Mr. Travis characterized the size of the pilot workforce as adequate. He noted that the company cancelled trips when the pilot numbers were too low, such as during the past summer.

Mr. Travis characterized pilot turnover as no more than at any comparable airline. Pilots looked for other opportunities, and moved because of better pay or larger equipment.

Regarding the absence of autopilots on the Jetstream airplanes, Mr. Travis indicated that the airplane was designed and built without autopilots. He was not aware of pilot complaints concerning the lack of autopilots.

Mr. Travis characterized the turnover of managers as becoming stable. The company just lost a Director of Operations.

Mr. Travis characterized the financial condition of the company as adequate to the situation. It was neither profit rich nor cash strapped. Operations had been scaled back during the last two years because the company had a code share operation with Midway Airlines which ceased operations.

Mr. Travis was not aware that any disciplinary actions had been taken against pilots.

Mr. Travis characterized relations with the FAA as good, noting that FAA representatives visited the company on a regular basis.

Mr. Travis was not aware of any complaints concerning the overnight hotel at Burlington, IO. He felt that all the overnight hotels were based on small-town standards and should be better. The STL base had a rest area for pilots, with the back area of the room having dimmed lights and a recliner chair.

Mr. Travis was not a pilot.

Attachment 16
RegionsAir, Inc.
Safety Program Description

[Prepared by Safety Director Bill Ross and received by NTSB on 3/27/05]

RegionsAir has in place a safety program. This program centers around an Internal Self-Audit Program. The RegionsAir Internal Self-Audits are conducted on an annual basis. This audit is detailed in content to items of company operations including Flight, Training, Dispatch, Maintenance and Ground Handling. Each department head is responsible for utilizing the Safety Department's provided Internal Audit Checklist to assess the individual items that are listed on the Audit Checklist. The data derived from each Department's Internal Audit is forwarded to the Director of Safety.

The Director of Safety then reviews the Audit in detail and clarifies as necessary any item(s) of concern that is/are discovered and identified as a result of the Audit. The Director of Safety subsequently compiles a condensed report of the Safety Health of the airline and forwards the Report to the Company President for his review.

Additionally, a Station's Safety Meeting is conducted and minutes developed by each local manager on a quarterly basis. Specific areas of safety are addressed as well as open forum discussion of any safety concerns. The Station Managers forwards the minutes to the Director of Airline Services. The Director of Airline Services assesses and then compiles the information to present during the RegionsAir Safety Council Team quarterly meeting.

Subsequently, the RegionsAir Safety Program includes a Safety Council Team made up of the Director of Airline Services, Director of Operations, Director of Training, Director of Maintenance, Director of Quality Assurance, Chief Pilot, and the Director of Safety. Each of these managers is responsible for a specific area of safety. The Safety Council Team meet on a quarterly basis, subsequent to the Station managers Safety meetings, to review, discuss, and develop resolutions to any safety issues that may be identified and highlighted during the quarterly stations (departmental) safety meetings

The results of this Safety Council Team Meeting is compiled by the Director of Safety and forwarded to the President for his review and signature and then the Safety Council Meeting Report is posted to all Company Bulletin Boards.

Finally, all employees have available to them a Safety Report Form where they can address any concerns of safety that they care to note. These reports are individually investigated and resolved through means as necessary including utilizing Department Managers. Resolutions to these reports are overseen by the Director of Safety who ensures that any corrective action required is taken on a timely basis. These reports are compiled into a graphed data base to track events in an effort to establish any trend of

safety concerns. These reports are used to construct a trend analysis graph so as to provide an analysis risk assessment and react as necessary.