ATTACHMENT A

INTERVIEW SUMMARIES

(79 pages)

Interview: **Michael S. Mitchell, Ramp Agent**
Represented by: **J. Mark Hansen, Senior Counsel FedEx**
Time/Date: **0830/July 27, 2002**
Location: **Federal Express Ramp Office, Tallahassee**
Present: **Ivey, Brenner, Bramble, Swanson, Sparks**

Mr. Mitchell was hired by FedEx on June 6, 1988. He had worked for FedEx since 1993. Mr. Mitchell was assigned to the third shift. The day before the accident, he started work at 2045, worked until 0230, took a break, and went back to work at 0500.

The scheduled arrival for flight 1478 was 0537. Mr. Mitchell saw the plane in the distance before the crew in-range call 30 minutes out because the night was very clear. His job is to set up the ramp for aircraft arrival. At 0500, it was dark. The aircraft called in at 0515. The ramp agent grabbed his trackers and went out at 0505.

Mr. Mitchell stated that there were no lights in the national forest and it was very dark. He said he could pick up the flicker of the airplane lights in the distance.

According to Mr. Mitchell, another FedEx ramp agent named Dennis Wayt was monitoring the ramp and tower frequencies on radios inside the FedEx ramp office that morning. Mr. Wayt called all the other ramp agents, and said the plane was 25 to 30 minutes out. Mr. Wayt said to prepare the ramp. The ramp agents heard this call on the handheld radios used for communication. Mr. Wayt made no other remarks about the aircraft at that point, but he did make one more call to the ramp agents just before the crash.

The FedEx ramp had a broken airplane in gate one, where they normally park. Mr. Wayt called to ask if ground power was available at gate two. The aircraft called at about the same time and the crew said they were 5 minutes out. They wanted to know if the ramp had power at gate two. Mr. Mitchell said they did. Mr. Mitchell said there were no other issues or problems mentioned about the flight during this call. It was a very normal conversation with the flight crew. When asked if there were any maintenance issues mentioned during the call, he said no. Mr. Mitchell reported that during non-tower operations, pilots are typically very diligent about calling turns, etc.

The next contact Mr. Mitchell had with Mr. Wayt was a brief conversation when the aircraft made its turn toward runway nine. Mr. Wayt wanted once again to confirm that ground power was available. He suggested that since the crew was coming in on runway 9, the ramp agents would have a few minutes to set up. Mr. Mitchell said, "they'll be here before you know it." That was very close to the time of impact.

Mr. Mitchell said to Mr. Wayt that the flight would be on the ground in 15 seconds or so. Mr. Mitchell was watching the approach and he thought it was different than he had seen before. He had been watching these approaches for the last nine years or so and it was different from what he had seen. It was very clear that morning. There

was no cloud cover, no fog, no anything. Mr. Mitchell commented to one of the gentlemen out there that they could see the flight. It's the only jet that comes in that time of the day, and the ramp agents know where to look for it on the horizon.

The approach they're used to seeing is the approach to runway 27. The crews will usually take an approach over the field and dogleg back to runway 27. Or they'll loop all the way around the field and come back on runway 27. Mr. Wayt told him on the radio that the crew was going to set up an approach to runway 9. Mr. Mitchell had seen that approach a few times, but never that low. His only perspective was how high the flight was relative to the tree line. There were times when he could not see the flight above the tree line.

When presented a sketch of the runway layout, Mr. Mitchell was able describe the approach of Flight 1478. [The flight approached from the right to his left and made a left turn in.]

Mr. Mitchell stated that he saw the aircraft lights during the approach. As the aircraft got closer he definitely saw strobe lights and landing lights. The only time he had a frontal view of the airplane was when it turned final for runway 9. Mr. Mitchell stated that the B-727-200s have a double strobe. He saw the strobe and the red beacon on the bottom of the aircraft. He did not remember seeing the beacon on top of the aircraft. He thought aircraft lighting for the approach looked normal.

Mr. Mitchell said he could not tell if the aircraft had any rocking motion. He did not notice anything remarkable about the approach as the flight traversed above the tree line from right to left. He couldn't tell exactly how long he saw the aircraft. He didn't pay attention to that. He couldn't tell exactly what position the airplane was in relative to the runway during the approach. It was lower than he'd ever seen before, but he didn't know it was going to be in that much danger.

Mr. Mitchell said the approach may have been a little flat. He never noticed a high sink rate, or any changes in aircraft lights as they started to face him. It looked like a normal descent. If anything, it may have looked a little bit flat.

Mr. Wayt made the comment that the ramp agents would have a little time because the aircraft was going to runway 9. He was referring to the long taxi. Mr. Mitchell said no, it'll be on the ground in 15 seconds because it was that close. Mr. Mitchell turned to say something to one of the other people on the ramp. At that point he heard what sounded like reverse thrust – like a roaring sound, it was very loud as it went through the trees. The whole night sky just went red. There was one large mushroom cloud of fire and there were other multiple explosions in rapid succession – boom, boom, boom.

At that point, Mr. Mitchell grabbed his handheld radio. He told Mr. Wayt to call 911 and said "1478's crashed." He made several statements to the other employees to get them under control. He then jumped on the tug. The FedEx ramp office has emergency

response procedures. These procedures are called the Emergency Response Plan. Mr. Mitchell went inside and the FedEx personnel in the office began to follow their procedures. Mr. Wayt was the one making contact with 911. They also began making contacts within FedEx immediately.

Mr. Mitchell remained at the ramp office briefly. Four FedEx employees were on the shift that morning. One of the other ramp agents, Doug Evitt, was very concerned about the flight crew. After he contacted Global Operations Center, Mr. Evitt jumped on a tug and went over to check on the condition of the flight crew. He called the ramp office and said he saw the flight crew and that they were alive. He was with emergency response people at the time. The firefighters had received the Dangerous Goods Loading form (Part A), which is dangerous goods information from the flight crew, and they provided that to Mr. Evitt.

The firefighters didn't get Part Bs off the aircraft. Those forms contained quantities and emergency contact numbers. The ramp personnel had that information on their dispatch sheets, however. Mr. Mitchell grabbed that paperwork and provided it to emergency response personnel. He stayed with the handheld and provided them with specific information as needed – he would call Mr. Wayt, Mr. Wayt would call Memphis and relay back an answer.

Mr. Mitchell rode a tug to the fire department, where things were chaotic. He could not get anybody to transport him to the crash site, which was about 500 yards from the fire department, so he ran to the site. Multiple emergency vehicles arrived after Mr. Mitchell got there.

When asked to estimate the time between the appearance of the fireball and his arrival at the fire department, Mr. Mitchell said it was between 20 and 25 minutes.

When he first arrived at the scent, Mr. Mitchell could not see the flight crew. He stopped at a grouping of emergency response vehicles. When he reached them, there was still more distance to the scene. He did not see the flight crew specifically, Mr. Evitt did.

When he reached the crash site, there wasn't a lot of burn-down at that point. It looked to him like the fire crews were "just treating it with water." There were two rescue people standing with him at the gate. A fire truck was coming through. A fireman leaned out and said he couldn't keep the fire down. He would knock it down and it would come right back up. Mr. Mitchell thought the firefighter said either [fire truck] 51 or 53 was not working.

Mr. Mitchell said, "Doug, why aren't they using the foam truck." Some time later, the foam truck showed up and when they hit it with the foam, the fire went right down. He said it seemed like it was a long time before the foam truck arrived. When investigators asked for clarification on the timing of these events, Mitchell stated that the foam truck arrived after he arrived at the scene and after he asked Mr. Evitt the question

about the why they weren't using foam. Mr. Mitchell did not remember Mr. Evitt's response to his question.

Mr. Mitchell reported that fire rescue personnel were strongly interested in the characteristics of the dangerous goods on board the aircraft. They wanted to know if the goods were water soluble. The fire crews were concerned that if they put water on the materials and it washed down, it might endanger people around the scene or create a smoke cloud that might drift. Mr. Evitt noticed "a definite pullback when there was nothing going on with that aircraft." This occurred prior to the arrival of the foam truck.

The foam truck that eventually arrived was based at the airport. Mr. Mitchell could not estimate how many trucks were at the scene prior to the arrival of the foam truck.

Mr. Mitchell was asked to further describe the pullback. He stated that at one point, he noticed that a truck ran out of water and left. He said, "It didn't seem like there was any urgency. I just didn't feel it. I felt like, it didn't seem like there was an urgency to preserve that aircraft and that may have been rooted to a fear of that aircraft and what was on it."

When asked whether he heard about any statements made by the flight crew to FedEx personnel, Mr. Mitchell stated that Doug Evitt did share one thing with him. Mr. Evitt said that as the crew came out of the wreckage the captain was bringing the first and second officer out. He said "I got 'em out I got 'em out, they were still strapped in." Mr. Evitt reported to Mr. Mitchell that he had asked one of the flight crew what happened, and the crewmember replied, "I don't know, we were on approach and started hitting things."

Mr. Mitchell said that the first time he noticed something different about the flight was when Mr. Wayt reported that the flight was 30 minutes out. Mr. Mitchell commented on how low the flight was. That was approximately 30 minutes prior to the accident.

During the interview, Mr. Mitchell offered to take investigators out to the ramp area and point out where he saw the aircraft flying around the field. When asked how long he watched the flight after the 30-minute call, Mitchell stated that he never left the ramp. He stated, "I can't say I didn't take my eyes off it, but I was constantly looking at the jet."

Mitchell stated that the approach seemed lower than normal, than what he had seen before. It was odd for Tallahassee that it was such a clear day – no clouds and no haze.

When asked how often crews land on runway 9, Mitchell said he didn't know, but it was very infrequently, 3 or 4 times in the last 2 years. He sees over a hundred approaches a year.

When asked how the flight looked when he observed it and whether it looked low all the way in, Mitchell stated, "yes." He didn't know how to judge distance exactly, but it looked low from far out.

The approach was not straight in. The aircraft made a hard bank to runway nine. When asked how far out the aircraft made the hard bank, Mitchell said he didn't know.

When asked to confirm that the he saw the airplane prior to the in-range call, Mitchell said "yes," and said he could have this confirmed. A FedEx driver named Chris Becker was out there and he could see the aircraft too. When asked if he commented on the approach of flight 1478, Mitchell stated that he made a comment to Mr. Becker.

Flight 1478 was not supposed to have an immediate crew change. It was supposed to have a layover, and it was the next scheduled outbound airplane. There was no crew waiting for the flight. The hotel shuttle was waiting at the ramp office to pick up the crew on board flight 1478. Another airplane was parked at the FedEx ramp. Its crew was already at the hotel.

When asked to further describe the sound of the aircraft prior to impact, Mr. Mitchell said the sound was a loud roar like reverse thrust, but sounded different than reverse thrust. He could not see the airplane on the ground immediately after the crash because it was blocked by fire. Mr. Mitchell believed there were some FedEx personnel who continued to watch the crash site, but he came in to make phone calls.

When asked about ambient noise on the ramp prior to the crash, Mr. Mitchell stated that the ramp has a new GPU and they kept it idling. It was very quiet. From where he was, he didn't even notice it. He said the ramp office had contract maintenance and they took care of the GPU. No loud vehicles were in operation on the ramp. The FedEx ramp agents were the only personnel conducting operations on the ramp at the time. When asked again to describe the sound of impact, Mitchell described it as, "one big thud boom combination." When asked about subsequent sounds, he added, there were several minor explosions right afterward.

Mr. Mitchell said the aircraft's nose gear was separated and lying in a field. He walked past it to get to the scene. He approached the crash site from the right rear side of the aircraft. He asked Mr. Evitt how the crew got out and Mr. Evitt said they got out through the main door.

Mr. Mitchell could not smell anything, stating that he had had seven sinus surgeries.

When asked whether anyone was monitoring emergency response times, Mitchell stated that Wes Hollington did this.

Mitchell said there was one security camera on FedEx property, and one in an adjacent area. The cameras rotate, but he thought they would not have been pointing at the crash site.

Interview: **Dennis H. Wayt, Ramp Agent**
Represented by: **J. Mark Hansen, Senior Counsel Federal Express**
Time/Date: **10:05/July 27, 2002**
Location: **Federal Express Ramp Office, Tallahassee**
Present: **Ivey, Brenner, Bramble, Swanson, Sparks**

Mr. Wayt was hired by FedEx on November 27, 1985. He has been based in Tallahassee since May, 1989.

On July 26 Mr. Wayt was working at the FedEx ramp office. He came to work at 0300.

Mr. Wayt's first contact with flight 1478 occurred between 0515 and 0517. The flight was twenty minutes out.

Mr. Wayt said when flight crews first contact the ramp, they are usually given parking assignments and notified regarding anything out of the ordinary, such as a broken ground power unit (GPU). These calls are referred to as "in range" calls. They are not recorded.

Based on their estimated arrival time, Mr. Wayt attempted to use the FedEx company radio to respond to flight 1478, but he thought they were a little far away from the airport and probably couldn't hear him well. He switched to a second radio, which was more powerful so they could hear him better.

The crewmember with whom Mr. Wayt spoke said they had a good aircraft and were about 25 minutes out. Mr. Wayt told him they were assigned parking space two on the ramp and that ground power was available and would call the shuttle.

When asked to clarify his comments about the first radio, Mr. Wayt said that 25 minutes out is about the range of the FedEx radio. The second radio is kept on the tower frequency and it is more powerful. Ramp office personnel monitor both radios in the morning because the airport is a non-tower operation then.

When asked by NTSB investigators, Mr. Wayt didn't recall the frequency that was initially dialed into the second radio. He said it was normally on the tower frequency. Mr. Wayt had not heard any other transmission that morning prior to the first radio call from 1478. Even when the frequency on the second radio is changed for some reasons, ramp office personnel "automatically put it back on tower." Mr. Wayt confirmed that he was monitoring the tower frequency and that there had been no other transmissions since 0300.

Mr. Wayt indicated that he thought the crewmember he spoke with on flight 1478 was the second officer, because it was usually the second officer speaking. The crewmember's voice sounded "pretty normal, nothing out of the ordinary."

The crewmember on the radio called back and said "Tallahassee Ops, 1478, we're 5 out and I just wanted to confirm the ground power." Mr. Wayt thought perhaps the crewmember did not hear or understand his first transmission. He radioed back and said, "That is affirmative, we do have ground power and we're standing by." Mr. Wayt repeated the assignment of flight 1478 to the second parking spot. The flight crew member replied, "Okay, we'll see you on the ground." That was the last radio transmission from the flight crew.

Mr. Wayt said there was nothing unusual about the last transmission, such as sounds, background noises. In fact, he had recently experienced a scuba diving accident with resulting ear injuries and his hearing was so bad he didn't even hear the crash.

Next, Mr. Wayt heard ramp agents on the radio saying they didn't have the GPU out yet. He told them that he had already told the crew that the ground power was out, adding, "We better get it out there. We've got 15 minutes." A ramp agent said, they said no, we've got about 15 seconds until they're on the ground. Shortly thereafter, the ramp agents called and said there had been a crash. Mr. Wayt grabbed the ramp office's "911 screen" printout and started going down it, making calls, etc.

Three or four guys were yelling on the radio. He didn't hear the crash. The last thing he heard them talking about was moving the GPU. He thought maybe someone had hit something with the tug and the GPU. Then Doug came in and said there had been a crash.

Mr. Wayt was asked if dialing 911 connected them to the Tallahassee authorities. He said they had a direct numbers to the Tallahassee fire department, but he dialed 911 because he thought it would alert the police, fire, ambulances, and other emergency services. There was no "hot button" notification system, but the ramp office personnel had a list of emergency phone numbers.

Mr. Wayt did not participate in any on-scene activity after that. He never went outside. He felt it was better for him "to stay detached from everything."

When asked to describe the weather, Mr. Wayt said after he called 911, his next call was to Global Operations Control. They asked for the visibility. Mr. Wayt said the ASOS said 9 miles. As far as wind, dew point, etc., he didn't know. He just saw the visibility – that was 3 minutes after the crash

When asked how the ramp office personnel know that the radios are tuned to the appropriate frequency, he said he does a systems check every time he comes in. Normally, they keep the radios on both frequencies. The only time the radios would be tuned to a different frequency would be if one wasn't working.

Mr. Wayt was asked to clarify what was meant by the call from flight 1478 indicating "five out." He said they just said "five out." He interpreted that as five minutes out.

Mr. Wayt was in earshot the whole time. After the accident, he stayed at the ramp office until four o'clock. He said he "tried to keep it uncongested in here."

When asked if the five minute call occurred about five minutes before the impact, Mr. Wayt said yes. He heard a flight crew member on the tower radio say "1478 ten miles out setting up for a left base for runway 9."

Mr. Wayt commented to investigators, "I have to say it is not normal to land on runway 9."

The last transmission he heard from the flight crew was "1478 final runway 9."

Mr. Wayt heard nothing other than normal radio calls from the aircraft.

Mr. Wayt said he did not hear the ATIS the morning of the accident. He said they obtain current weather information on the phone. They prefer to get it that way so it doesn't take the radios off the frequencies normally being monitored.

When aircraft call in on the approach, Mr. Wayt said ramp office personnel do not enter information into the computer to send to Memphis about the aircraft's progress. Information is not entered until the ramp office gets the block time for the flight.

Mr. Wayt was asked how often FedEx planes land on runway 9. He said he had seen FedEx planes land on runway 9 maybe half a dozen times, and he had seen a thousand or so landings in his thirteen years there. When asked what advantages might be associated with landing on runway 9. He said he didn't know. It looks closer to him if you're coming in from the south.

Interview: **Douglas L. Evitt, Lead Ramp Agent, FedEx**
Represented by: **J. Mark Hansen, Senior Counsel Federal Express**
Time/Date: **1050/July 27, 2002**
Location: **Federal Express Ramp Office, Tallahassee**
Present: **Ivey, Brenner, Bramble, Swanson, Sparks**

He stated that his date of hire at FedEx was January 22, 1990, and that he was located at Tallahassee the whole time.

He was hired first at the local station as a courier, and then was assigned to the ramp in 1992.

He was a current commercial single-engine pilot and owned a Cessna 182 airplane. He stated his total pilot time was about 800 hours.

He began work at 0325 on July 26, 2002. As lead ramp agent, he held a work group meeting at 0355 that included his giving out work assignments. Everything seemed to be normal. The local sort was finished around 0530, and the airplane was scheduled to arrive at 0536. The local sort consisted of the processing of P-2 freight [second day] for truck delivery.

At 0515, he was standing in the ramp office when flight 1478 made an in-range call. stating that they were 25-30 minutes out with the airplane in the green [i.e. with no maintenance write-ups]. The aircraft was a little far out for good radio transmission so Doug [the ramp agent working in the office] changed to the second radio, which had a higher antenna making reception clearer. The radio was programmed to receive tower frequency, ATIS, etc. The in-range report seemed normal, and the flight engineer said there were no problems with the airplane. Then Evitt returned to the sort until it ended.

At 0530 he gave a few more assignments and instructions to his loading crew. Then he stepped out of the bay door, onto the outer ball mat of the bay, to wait for the airplane to arrive. At first he saw the airplane approaching from the northwest around Seminole VOR and he viewed the airplane enter the traffic pattern for a visual approach to runway 9. He said, "It was pretty clear and decent weather." Visibility was 9-10 plus miles. He was not sure what the winds were, but they seemed calm at the ramp. He did not report the weather to the flight crew or listen to ASOS. He was trained on weather observation to report weather to the crews.

The airplane entered the traffic pattern and there was nothing unusual, but as the airplane turned to final, it seemed a little low. At first the traffic pattern looked normal. He didn't notice anything unusual until the airplane was on final. Evitt had previously seen airplanes land on runway 18 and they also seemed to be low. It depended on perspective and viewing angle. He said he made a comment to somebody that "it was a little low – lower than usual." He lost view of the airplane on short final because it went behind a building on the ramp used for maintenance. Then he heard the impact and saw the ball of fire. He immediately realized that flight 1478 had crashed. He ran to a ramp

agent, Dennis, and directed him to call 911 and to declare an emergency on runway 9. That was about 0540. About 0541, he called GOC [Global Operations Control Center] and told them that flight 1478 had just crashed at the approach end of Runway 9. Both he and the ramp agent Mike Mitchell, pulled up the 911 emergency plans screen with all the emergency numbers. Then Evitt jumped on a tug and headed to the crash site.

In response to a question, Evitt said that he had very seldom seen FedEx airplanes land on runway 9 because there was no approach lighting and it required a long taxi. He said he had seen airplanes land on runway 9 probably 7-10 times in the 10-11 years he had worked at TLH. It was very rare, maybe based on the prevailing winds. Evitt himself had landed on runway 9 on July 25 in his airplane. He thought that runway 18-36 was still closed. He was returning from the practice area where he had done some flying. Asked whether there was anything remarkable about the approach, he said that there was a hump in the runway.

Evitt said he took it upon himself to head to the crash site. He was worried about the crewmembers. Prior to leaving, he quickly asked how many people were on board. There were 1 or 2 fire trucks already set up when he arrived on the scene. To his surprise, standing there by the fence, coming around the corner of a fire truck, was the captain escorted by a firefighter. The time was about 0553 on his watch.

According to his watch, the first liquid sprayed by the fire trucks was at 0550. He did not know whether the liquid was foam or water. The trucks were already there, they were setting up and there was one spraying just as he arrived. One truck was spraying and several others were positioning and not yet spraying.

At 0553, he was standing at the gate and the captain came around the corner escorted by a firefighter. As they approached, Evitt, talked with them a bit. The captain stated that he didn't know what happened, just knew that "he had to get his flight crew out." He said this several times. The captain was OK. Evitt told the captain he would communicate with Memphis to advise the captain's family that he was alive. The fireman said that they needed to get the captain to the hospital.

Right behind the captain were the other two flight members. Evitt first approached the flight engineer who was holding one of his hands which was badly injured. The flight engineer was very quiet, and appeared to be in good shape. Evitt said to the flight engineer that he was glad to see the crew members were alive and that he would contact Memphis and notify his family. The flight engineer acknowledged. The flight engineer's hand was really swollen and banged up pretty badly.

The first officer seemed more banged up and a little confused when the paramedics were talking to him. Evitt briefly had a conversation with him. The first officer said, "Am I in Tallahassee?" Evitt said he was. The paramedic asked what year it was and the first officer said 2002 and I am in Tallahassee, Florida. Evitt told the first officer that they were in the process of contacting Memphis to notify his family.

The Chief of the Fire Department approached Evitt with the Part A dangerous goods form that he had obtained from the flight engineer. Evitt was a dangerous goods (DG) specialist. The fire chief inquired about the quantities and types of dangerous goods on board the aircraft. Evitt looked at the part A form and started explaining it to the firefighters. At that time he did know what they had and where it was. He did not know the quantities. He started communicating with the ramp immediately and Mike began feeding him information from the Flight Dispatch Report [FDR] and what was on the airplane. Evitt began coordinating between the ramp and the firefighters. Much later, Mike brought him a printout of the dangerous goods load.

Evitt remained on the crash site. It seemed to be getting more organized. He was able to stay with the fire department and just assist with the crash site because they weren't letting anybody else into the site.

There was a problem with some of the firefighting equipment. One of the trucks had run over something. At one point the firefighters quit fighting the fire because they didn't have dangerous goods quantities. They stopped fighting the fire for at least 10-15 minutes. They wanted to know about flashpoints, the 1.4 S that was on board before they got their people any closer. Once they got the foam truck out and let loose foam on the fire it was quickly extinguished. Evitt was standing at the gate when he heard the driver of a fire truck say that he couldn't get his pumper to work. He might have been referring to truck 53. About 15 minutes later, another pumper came. The first truck might have been a foam truck.

In response to questions, Evitt said that the flight engineer sounded normal when he called on the radio. He did not recognize the voice of the flight engineer. The flight engineer sounded alert; he provided the exact information they needed.

Evitt indicated he did not observe whether the PAPI was operating when he landed on the day before on runway 9 prior to the accident. He said he was landing a small airplane on an 8,000 foot runway and did not use it.

Evitt was in the presence of the flightcrew for 5-10 minutes from the time they came around the truck until they got into the ambulance. The captain stood back. The flight engineer had severe hand damage but seemed alert and quiet. Evitt was wearing a FedEx uniform and approached each pilot. He asked whether they were OK and said he would have Memphis contact their family. The captain said he didn't know what happened. Evitt did not talk to any paramedics about what conditions they were in.

Evitt indicated that there were no altitude changes on short final. The airplane was a little nose high but not more than normal. Evitt indicated he could see all lights illuminated on the airplane, but said that he focused more on side light and could not tell whether nose gear lights and taxi light were on. Evitt indicated that he did not hear tug noise. His first indication that something was wrong was the fireball, which was orange and accompanied by smoke. He also heard a boom/bang, then saw the fireball. He did not hear any explosions following the boom.

Evitt indicated that the captain had blood on his forehead and shirt. The flight engineer was holding his hand; the first officer was brought in and sat by the ambulance. He looked like he was in pain. Evitt graduated from a firefighting academy in 1990 and received some medical training there. He said all crewmembers looked pretty shocked.

Evitt indicated that he told the firefighters that he had a Part A form and that all hazmat was in one container in position 1. He told them that the container was accessible to the crew in position 1, and the firefighters said they were concentrating on that. At one time they pulled back, for whatever reason; until they got an idea of the quantity they were dealing with.

Evitt indicated he had given firefighters a tour of the FedEx ramp facility for training purposes and discussed hazmat issues with them.

Evitt indicated that hazmat had to be accessible to crewmembers in position 1, in a sealed can with fire extinguishers attached to it. The firefighters were more concerned about the 1.4S and the car batteries and detonating cord. After discussion, they understood where it was located. Evitt said he made it clear where hazmat was and where they should concentrate. The fire department used him for this purpose.

Interview: **John Wesley Hollington, FedEx Ramp Agent**
Represented by: **J. Mark Hansen, Sr. Counsel FedEx Express**
Time/Date: **1200/July 27, 2002**
Location: **FedEx Ramp Office TLH**
Present: **Ivey, Swanson, Sparks**

Mr. Hollington stated that FedEx hired him on April 29, 1999. He has been stationed at TLH continuously since 1999.

On the day before the accident, he started a split shift and came on duty at 2045. He remained at work until 2400, took a break, and returned to work at 0345.

His first contact with the accident airplane was at 0525 when he was in the ramp agents' office and heard the in-range call. He said it was a normal call but did not recall the ramp agents' response. There was nothing remarkable about the communication.

He saw the accident airplane swing around for the approach to runway 9. The visibility was 9 miles but he said he learned of that visibility after the accident. It was clear and easy to see the airplane.

He saw wing lights and could not remember whether or not there were any lights flashing. He saw a red light, white lights, and later a green light. He believes he saw the nose light on, but was not sure.

When asked if he had seen landings on runway 9 before he stated five times or less. Mostly the landings were on runway 27.

He said he watched the airplane continuously and was able to see him at all times. He may have taken his eyes off the airplane but he was always able to quickly pick it back up visually. It looked like he was descending slowly. The turn to final and the approach was normal, steady and descending.

He said, "It was as if he hit the tree tops, the wing was torn off, and explosions continued until it came to rest." He heard a series of explosions that sounded like thunder. Because of the continuous fire from the impact, he thought the wing came off.

He screamed on the radio to call 911 and to declare an emergency. He watched from impact until the fire department arrived. He noted on his watch that the impact was at 0538. Two crash fire and rescue (CFR) trucks arrived at 0545 by his watch. Then he returned to the ramp office to provide assistance there.

The ramp was quiet. He did not hear the engines on the airplane add power. The airplane made a smooth, normal descent.

Interview:	**David J. Mendez, FedEx Second Officer, B-727**
Represented by:	**Darrell J. Green, Senior Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1507/July 27, 2002**
Location:	**Tallahassee Memorial Hospital**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks**

He stated his date of birth was [redacted] 1969, and his date of hire at FedEx was September 3, 2001.

Mr. Mendez reported his total flight time as 2,600 hours.

Asked whether he was subject to any medication at the time of the interview, he indicated that he was taking Vicodin and took morphine yesterday afternoon. His last dose of Vicodin was around 1000 that morning.

Mendez indicated that he was currently a pilot in the Naval Reserve flying P-3's with the rank of lieutenant commander. His B-727 time as a second officer was about 300 hours. He learned to fly in the U.S. Navy and got his wings on June 17, 1994.

With FedEx, Mendez was based at Memphis (MEM) since he was hired. He had been a B-727 second officer the entire time of his employment. He had flown previously with the captain of the accident flight, one time, but not with the first officer. He could not recall details of his previous trip with the captain. Asked to describe the captain as a person, Mendez said the captain was approachable, open communication, that anyone in the crew could talk to him, and that he was not quiet but just spoke what he had to say and no more. Asked to describe the captain's flying skills, he said professional. When the captain was not flying, his crew resource management skills were good and he was a solid copilot. Mendez indicated that he did not have a basis to characterize the captain's systems knowledge.

Asked to characterize the personality of the first officer (with whom he was flying for the first time), he said friendly. Asked to characterize the first officer's flying skills, he said that the first officer was professional as a pilot and did what he had to do and when he had to do it. Mendez said that they flew with the autopilot engaged, so his basis for judging pilot skills was limited.

All of his aviation experience was military and FedEx, except for 5.7 hours in a Seminole airplane that he used to get the ATP rating.

This month he held a R24 line. He was on reserve with a basket of pilots. Both the captain and first officer were also reserve line pilots. The accident leg was part of a hub turn following a previous trip with a different crew. He came from Ottawa [Canada] Thursday night, landed in Memphis around midnight Friday morning, and hub turned to this trip. Scheduled departure was 0312, but the flight departed a little late. Asked

whether the other two pilots seemed tired or fully rested, Mendez said that, from what he could tell, both seemed to be fully rested. Memphis show time was 0212. He started preparing, and getting his paperwork for this flight at 0135. He saw the captain in the flight operations center, but did not talk with him or the first officer until they met in the airplane. The airplane was already at the gate when they arrived. They did not see the crew who flew the airplane in, and no one else was on the airplane. No mechanic came on board before departure. There was a maintenance write-up for the captain's turn rate needle being inoperative. There was nothing remarkable about the preflight outside or inside the airplane. The cargo was loaded after they arrived. The cargo was delayed by a loading problem before it came to the airplane and this delayed the departure (one pallet of hazardous material exceeded weight requirements and had to be reloaded). Mendez did not visually inspect the cargo loading. It was routine and he was aware of what was being done.

Pushback and engine start were normal. Taxi, takeoff, and rotation were routine. The first officer was the flying pilot. The trip was scheduled to fly to TLH and, following a 17-hour layover, return to MEM. This was his first trip to TLH. The captain had been to TLH before and he did not know whether the first officer had been there or not. There was nothing remarkable in the departure, climb to FL 290 (as indicated on the flight plan) or enroute. They flew on autopilot and it operated normally.

During descent, he got the ATIS information. When he dialed the ATIS frequency the tower was reported out of service. The captain showed him another frequency from his salmon sheet. He dialed in the new frequency and obtained ATIS for TLH from a weather briefer. Winds were minimal, perhaps 5 knots from a direction he could not remember, and visibility was 8 to 9 miles. There were numerous cloud layers reported. He thought the temperature/dew point were exactly the same; 22^0C. He asked the weather person for the altimeter setting and received it. He wrote all the information down on his card. The weather report made him wonder whether they would be able to get into the airport, but when they actually approached the field it was clear with no clouds. He could not remember whether there was any discussion in the cockpit about the possibility of fog.

The order of checklists was in-range, approach, and landing. When asked what was on the in-range checklist, he mentioned altimeter, and EPR bugs. The captain set in the appropriate altimeter setting, the first officer followed and then called for the "in range checklist."

The first officer completed an approach briefing initially for runway 27. Mendez then borrowed the captain's approach plate, wrote the appropriate information on his grease board for the approach, and gave the approach plate back to the captain. Then, as they were coming in, the first officer discussed landing on runway nine. When the air traffic cleared them for the airport, Mendez asked whether he should do the approach checklist. The first officer asked the captain if he wanted to do runway 27 or runway 9, and the captain said, "Runway 9 is fine." Then the first officer called for the approach checklist. Asked why the first officer wanted to land on runway 9, Mendez said that, given the

direction they were heading, the first officer believed that it would be easiest to come around and, under non-towered operations, they would not have to be running around out there. Asked whether the captain agreed, Mendez said that someone, he did not recall who, brought up that the winds were minimal and were okay for runway 9. Mendez indicated that he checked the APLC [laptop computer], and that runways 27 and 9 were listed as acceptable for landing.

When asked what he wrote on the TOLD card, he stated he entered all the V speeds, gross weight, go around EPR, minimum and medium braking distances. He did not add anything to the remarks section other than the brake cooling which was 44 minutes. He stated the maximum landing weight was 161,000 pounds and he believed the landing weight was less than 161,000 pounds, about 159,000 pounds based upon 18,000 pounds of fuel on board. Landing flaps was 30 degrees.

The computer contains all the information – you can flip it on.

Mendez said he had no idea whether the captain or first officer had ever landed previously on runway 9. The airport was not readily visible as they approached. When they first approached, they had a general direction through navigation aids. Mendez was asked whether this was one of those pilot-monitored runways where the pilot clicked the lights up. The captain said that he had the runway and the first officer said he had the runway as well. It turned out that the first officer did not see the runway but rather something else. Coming in, the captain clicked the mike several more times, the first officer was still intercepting the left base, then Mendez spotted the runway and the first officer said "oh that's the runway." Mendez also saw a PAPI system on the left hand side of the runway – a white, a pink, and two reds. The first officer indicated that he was mistaken when he first thought he saw the runway, but he saw the correct runway and readjusted. Mendez and the first officer first saw the correct runway when they were setting up for left base, at all altitude he estimated as 3,000 feet because they had been cleared down to this altitude. The spacing looked fine. The PAPI has four lights and indicated they were slightly low.

Regarding airport lighting, Mendez thought he heard someone, maybe the captain, say he saw an airport beacon but Mendez did not see it. As they neared runway 9, the runway lights were "plain as day including the PAPI." The cloud layers never materialized. Everybody saw the field.

Flap extension was made while they were on left base. They were not rushed. He believed the sequence was 2, 5, 15, gear down, and then flaps 30. Mendez had to wait for flaps 30 to finish the checklist. The checklist was complete; all lights were on for the landing. They were looking good at 1,000 feet. At that time, he checked the fuel panel. He also took this time to scan everything, turn the right pack off, to make sure his pack doors were open, temps, hydraulics, and electrical panel. All the "electricals" looked good. He heard the mechanical callout of one thousand feet and they were looking good. Then, he started feeling like they were in turbulence. Somebody said in a calm voice, oh my god, or what is going on. He looked outside and all he saw was lights and that they

were going to run into something. He thought "I'm going to die" and that was the last thing he remembered until he was outside the airplane and the ambulances pulled up. The voice was calm, but Mendez knew something was wrong. When he turned around, they were going to hit something. He was going through everything, it looked normal, he turned around and that was it. He knew they were not supposed to see the headlights and suddenly he was seeing lights. The last thing he remembered was saying to himself that he was going to die. After the crash, Bill was pretty out of it. Bill had no idea what happened at that point in time, he was just in shock.

Mendez said he was wearing his 5-point harness but may not have attached the crotch strap. He believed the captain and first officer had theirs on, since this was a checklist item and he verified that both had lap and shoulder straps on.

The turbulence was a bumpy motion. He looked outside and they had a slight right wing down attitude. Pitch seemed normal as if they were still on the approach. He did not feel light in the seat. He never saw PAPI lights indicate they were really low on the approach. He never saw all reds. The first time he saw the PAPI lights was on base when they were turning toward final. Throughout the approach, he was scanning his instruments, and looking outside to make sure there was no traffic. When asked if it was a typical dark hole approach he said it was a dark hole, but you could see the runway edge lights and the PAPI. He did not remember runway centerline lights or approach lighting.

After the accident, everyone was pretty confused. Mendez asked the captain what happened and the captain said he didn't know. Since then, Mendez had only talked with the captain and first officer to ask how they were doing.

Mendez said that his activities in Memphis before the flight included getting fingerprinted for security, e-mailing his wife, and relaxing in a recliner chair for a half hour to an hour. He rested with closed eyes, but probably did not sleep. He felt pretty rested when he began the trip. He got six and half hours sleep in Ottawa and TLH was a short leg.

Regarding his activities in Ottawa, Mendez said he had an 1845 pickup time. There was a two-hour delay in Ottawa waiting for a shipment. The takeoff was between 1000 to 1030 and the Ottawa to Memphis leg was fine. They even got runway 27 in Memphis. In Ottawa, he slept most of the day. He ate Chinese food for dinner, General Chou's chicken. Asked whether it was good, he said it did not make him sick. He slept from 0900 to 1530 in the hotel at Ottawa and said that his sleep was pretty solid. After waking, he saw that he was scheduled for the Tallahassee trip. He called Simone to reschedule his interview for a line check airman position, which had been scheduled for the next day. In response to a question, Mendez indicated that it was an honor to have this interview. He said that he studied all the time with index cards on the airplane. The interview was originally scheduled for Friday at 1100, and rescheduled for the following Thursday when he was not on reserve.

Mendez indicated that he lived in Albany, New York. On Monday and Tuesday he was relaxing at home. His back hurt. By Wednesday he was feeling better. On Wednesday, from 1000 to 1200, he went boating with the kids. He took a nap with his six-year-old son from 1400 to 1650, made dinner and cleaned up. He had a 2200 show time at the airport for a deadhead trip to Memphis. He got a half hour sleep on the airplane, and arrived 2330 in Memphis. The trip to Ottawa had a 0230 show time. He got a recliner in the locker room and got one to one and a half hours sleep before departing on the Ottawa trip. The trip was Memphis – Buffalo– Ottawa. They arrived at Ottawa between 0830 to 0840 and he was in the hotel around 0900.

Mendez said that, when he had no work demands, he normally went to bed at night around 2230 and awoke around 0630 in the morning. He went to bed early on Monday night about 2045 because his back hurt. He awoke Tuesday morning between 1000 to 1030. He went to bed on Tuesday night around 2300 and awoke Wednesday morning about 0900.
He usually took a nap every day in the afternoon (around 1400 – 1630) for about one hour.

Mendez said that he had experienced no previous aviation accidents but numerous emergencies on the Navy P-3. These included an engine shut down after chip light illumination, shut down one engine for fuel and had trouble restarting. Last week had a hydraulics malfunction. Once he lost a blade cuff on the number two engine while on a PAR approach. He had already shut down the number one engine while flying to the airport.

Asked whether he had received commendation for his flying performance, Mendez noted that he was an instructor pilot in the Navy and was being interviewed as a check pilot for FedEx.

Mendez indicated that there had been no major changes in his health in the 12 months before the accident. Changes in his personal life during this period included getting out of the military and a job change, and plans in the next month to close on a house. He had been married to his wife for 12 years and they had three children. In the past 12 months there had been no major changes in his financial situation other than the general drop in the stock market that affected everyone. He indicated that his vision was good and that he did not use corrective lenses for vision. He characterized his hearing as good. His last use of alcohol was on Sunday, when he drank a couple of beers while watching sports on television. He did not take prescription medication, and said that in the 72 hours before the accident he did not take any drugs, prescription or nonprescription, that would have affected his performance.

Mendez said that the captain provided a briefing at the start of the flight. He introduced himself and each of the crewmembers, said what they would be doing, and said to stay focused and back each other up. The captain asked the first officer what leg he wanted to fly, and the first officer said he'd do something different and fly the first leg.

Mendez said that he received fatigue training, mostly at FedEx. It talked about the sleep bank and other issues. As a result of this training, he began taking naps. The training said to speak up if you're tired, to stretch, and to have the captain turn on the lights. The fatigue training was one day long. Asked whether he stretched or had the captain turn on the lights during the accident flight, Mendez indicated that it was a short trip and he did not. He indicated that he had never turned down a trip because of fatigue.

Mendez said that he had CFIT training in the Navy and at FedEx. The CFIT training covered topics such as rate of descent and what airports were susceptible to CFIT. The CFIT rating for TLH was moderate. This rating might be because of the black hole effect, although he did not know the reason. He did not know when the first officer began hand flying the airplane. Asked whether an approach briefing was given for runway 9, Mendez said that there was a brief, but not as thorough as that for runway 27. He did not know if there was any published approach to runway 9. He did not know whether the runway was any narrower or wider than usual.

Asked whether he had anything to add that could help understand the accident, he indicated that he did not know how they went from everything being just fine to hitting the ground and asked whether there might have been a microburst. He said that the weather radar was off. He said there was no indication of a rapid change in power indication that he was aware of.

Interview:	**William Russell Walsh, FedEx Captain, B-727**
Represented by:	**Darrell J. Green, Senior Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1033/July 28, 2002**
Location:	**Tallahassee Memorial Hospital**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks**

The interview took place at Captain Walsh's bedside. When asked what medication he was currently taking, Captain Walsh reported that he was being administered morphine through an I.V. drip. He was also taking occasional Excedrin. The last time he took Excedrin was the night before the interview.

When asked if it was true that he had decided to exclude the Boeing Company representative and the FAA representative from the interview, Captain Walsh said "yes."

Captain Walsh reported his date of birth as [redacted] 1947. His date of hire with FedEx was April 10, 1989.

Captain Walsh reported his total flying time as 13,000 to 14,000 hours. Approximately 2,200 of these hours were Boeing 727 time. Of the Boeing 727 hours, approximately 900 were acquired as captain, 240 were acquired as first officer, and the remainder was acquired as second officer.

When asked if he had flown any other airplanes with FedEx, Captain Walsh reported that he had flown the DC-10 as a first officer. His time in that aircraft was approximately 700 to 800 hours.

He had also flown FedEx corporate aircraft for three and a half years. This was a combination of flying company people, customers; a range of activities. The type of corporate aircraft he had flown included the Challenger CL 600, CL 601, Citation 501, and Citation 550, all as an aircraft captain.

Prior to flying for FedEx, the Captain flew a Citation 501 for Amaca Buildings. Before that, he flew a Canadair Challenger for W.R. Grace Chemical Company. Before that he flew for a photo mapping company in a Cessna 180, Twin Comanche, Cessna 310, Piper Navajo, Cessna 320, and Cessna 206 aircraft.

Captain Walsh estimated that he had approximately five to six thousand hours total time with FedEx.

Captain Walsh reported that he was in the Air Force, but he didn't fly for the Air Force – he belonged to aero clubs in the military.

When asked if he had flown with the first officer before the accident trip, Captain Walsh said no. When asked if he had known the first officer before the accident trip he said no. When asked if he had known or flown with the second officer prior to the

accident trip, Captain Walsh said he knew the second officer and had flown with him one trip prior to the accident. He did not remember the date of trip, nor how many legs were flown.

The captain was a reserve captain for the trip on which the accident occurred. Captain Walsh's reserve line was RA. When asked if the first officer or second officer were on the same reserve line, he said "no sir, not that I know of." He believed the first officer was on reserve line R24, but he did not recall the reserve line of the second officer.

Captain Walsh's flight 1478 was scheduled for a departure the morning of the Friday, the 26th. Showtime was 0212. The scheduled departure was 0312. The flight was to consist of one leg from Memphis to Tallahassee, with a layover of approximately 17 hours 50 minutes, followed by a leg back to Memphis.

The Captain was based in Memphis and lived in Cordova, Tennessee, just east of Memphis.

Captain Walsh was asked to describe the physical condition of the first officer when he met him the morning of the accident. He said the first officer seemed "pretty normal," but he was a little quiet. He added that he "thought [the first officer] might be a little tired, but that's hard to judge."

Investigators asked Captain Walsh if the first officer had reported anything that might be going on in his life either positive or negative that could explain why he might have been tired. Captain Walsh stated that the first officer, "indicated that he was somewhat irritated about the way he was being treated on his R24 regarding scheduling." However, the first officer did not mention anything about having been awake for a long time. Captain Walsh did not know what the first officer's immediate schedule was before the trip. Captain Walsh said he would classify the first officer's flying skills as normal.

Regarding the second officer's physical state, Captain Walsh said he had not met the second officer prior to seeing him on the airplane, but he seemed fine. In Captain Walsh's experience with him, the second officer's ability as a pilot was "excellent, absolutely no problem."

Captain Walsh was asked if there were any maintenance or loading issues or other problems at the beginning of the flight. He stated that the captain's turn indicator was "inop." That was a Minimum Equipment List [MEL] item, it was MEL'd in the logbook. In addition, Captain Walsh remembered that the ramp agent said they loaded too much in one of the cargo containers and it was too heavy. They had to rearrange the container and there was a slight delay. Flight 1478 was a few minutes late departing, but he didn't know exactly how late.

Captain Walsh reported that pushback, engine start, taxi, and takeoff were all normal.

The first officer was the pilot flying. Captain Walsh said usually when he gets on the airplane he likes to ask the first officer which leg they would like to fly. There was no company procedure for determining this. It is up to the captain to decide, based on the weather and other circumstances. Most captains like them to fly the leg to Memphis. Captain Walsh said he likes to ask them which leg they'd prefer – to fly up or fly back. That is how the determination was made to have the first officer serve as the pilot flying for flight 1478.

During the takeoff roll, Captain Walsh did not note anything remarkable about the airplane in terms of acceleration, weight/balance, sensitivity, or unusual early rotation. The aircraft encountered no turbulence or weather during the climb. Climb was normal. Captain Walsh remembered climbing continuously to their cruise altitude, flight level 290 with no intermediate level-off. Flight level 290 was maintained until the beginning of the descent into Tallahassee. He said the autopilot was used during part of the climb and all systems were normal.

Captain Walsh was asked to provide his recollection of events starting with the descent to Tallahassee. He said he wasn't sure, but he thought the flight was still on the Atlanta ATC frequency. He believed the initial clearance was "descend 9,000 pilot's discretion." The first officer initiated the descent approximately 75 to 80 miles north of the Seminole VOR. At some point during the descent, the captain thought they might have been handed off to Jacksonville center, but he wasn't sure. The flight was cleared to descent to 2,000 feet. The crew descended to 2,000 feet, and leveled off. The crew requested direct Tallahassee and was cleared direct..

At 2,000 feet, 16 miles from the airport, Captain Walsh asked the first officer if he knew where the airport was. Captain Walsh pointed at the lights south of town and said to look for the beacon. The first officer stated that he saw it.

The crew began to configure the aircraft for landing, setting the flaps at five, then fifteen degrees. As the crew continued, the first officer realized that the airport was somewhere different from where he thought it was. Captain Walsh asked, "Do you have the airport?" The first officer said yes. Captain Walsh asked, "Do you want to call it." The first officer said yes. The flight crew told Jacksonville Center that they had the airport in sight. Jacksonville Center cleared the flight crew to the airport and advised them that runway 18/36 was closed. Captain Walsh stated, "I said yes we were landing on runway 9. Jacksonville Center said roger, contact advisory frequency, be sure to close your flight plan when you're on the ground."

The crew continued on the base leg. At approximately 10 miles out, the crew selected flaps 15 and started seeing the PAPI. The crew continued the approach and started turning on the final. The landing gear were extended, and the before landing checklist was initiated. The first officer called for "flaps 25."

Captain Walsh stated, "We had the PAPI initially showing white over pink, or white pink, then white white, then white pink." The Captain said, "Do you want flaps thirty." The first officer said "Roger flaps 30."

Captain Walsh stated:

> "That was about 800 feet on the radio altimeter. At that point we were established on final. The PAPI was showing white pink going to white red, or the PAPI, at that point, we started picking up a few little wispy, I want to say clouds or mist, but it didn't obscure the airport. We continued on with the – my last recollection was white red, and we started feeling a little bumping, and the rest of it I don't recall. We started feeling a little bumping, and the rest of it I don't recall. I mean I recall some of it, but not visually, just what I saw in the cockpit, but outside I don't recall, seeing anything. There were a couple of little bumps; felt like turbulence, then it started shaking pretty violently; seemed like the lights went off. There was some little light was on, I don't know which ones, and once we impacted the ground, I heard a steady horn going off, don't know what it was. Sounded like maybe an altitude advisory horn. I didn't notice that the first officer and the second officer were unconscious. I said 'someone silence horn.' The first officer was making a noise, I don't know what. The fuselage was rolled over to the left. I got out and was standing on the ground. I could see there was a fire in the back of the fuselage and yelled for the first officer and second officer to get out and they didn't respond. I kept yelling and yelling and reached in. Finally the first officer woke up and he was pretty groggy or unaware of where he was, but he finally climbed over to the window and I helped him out. The second officer was leaned over in his seat and he wasn't moving at all. So I started climbing up in the window again at that point he started moving and started unbuckling his harness. I grabbed him by both shoulders and helped pull him out. He kind of landed on the back of his head and from there we walked away from the airplane and waited for the emergency vehicles.

Captain Walsh stated, "My last recollection of being on final was everything visually looked normal, based on the runway and that's why I was somewhat shocked when I felt the thumping and the…."

Captain Walsh again confirmed that all three flight crew members crawled out the captain's window on the left side of the cockpit. When the crew first got out of the airplane, they didn't see any fire trucks coming, but they heard them coming soon afterwards.

Captain Walsh was asked whether the crew got the ATIS information during the descent. He responded yes, that the flight engineer got the ATIS information. When asked about the weather report, he stated "winds were 120 at 6, clear, and 10 miles." He could not recall the altimeter setting, but he thought the flight engineer did get it.

Captain Walsh had flown into Tallahassee before. He recalled a trip once before in the same month as the accident, but he did not recall the day. He estimated that he had flown into Tallahassee "maybe a dozen times over several years," since being hired by FedEx. He stated that he did not know if the first officer had been into Tallahassee before.

When asked if there was any delay in getting the ATIS during the descent, Captain Walsh said no.

Captain Walsh was asked to estimate how far out you could see the town. He said, "I'm just guessing, 30 to 40 miles out." He added that he could see the beacon also at about that distance. He said it was a clear night.

Captain Walsh said that the In Range checklist was initiated at around 18,000 feet. When he was asked if he recalled whether the first officer or the captain called for the checklist, Captain Walsh stated that the pilot flying calls for the checklist. In this case, it was the first officer.

Investigators asked when the first officer called for the checklist. Captain Walsh stated, "right at 18,000 feet."

Captain Walsh was asked to recall the items on the In Range checklist. He listed some items on the checklist including setting the altimeters and turning on the inboard landing lights. When asked if he was sure if the first officer set his altimeter, Captain Walsh said, "I'm pretty sure he did, but I can't confirm that." However, Captain Walsh confirmed that he had set his own altimeter.

Captain Walsh was asked if, as part of the In Range checklist when he set his altimeter, if there was a verbal exchange with the second officer. He stated, "Yes, he presents the information on the card, as a courtesy, but he reads off the checklist. He has the card filled out with the landing data, sometimes presented with just ATIS information if it's early he hasn't had time to get all the information, but I believe this time he had it and he reads off the checklist." Captain confirmed that the card he referred to was the Takeoff Landing Data (TOLD) Card. The second officer completed the TOLD card and then read the checklist.

The In Range check includes setting the airspeed bugs, EPR bugs, and altimeter. Captain Walsh said he set the EPR bugs. He did not recall what the airspeed bugs were set to, but Captain Walsh set them also. Captain Walsh could not remember the EPR settings for certain; he said, "I could only guess – 2.08, 2.14, 2.14, engines 1, 2, and 3."

Captain Walsh asked if the first officer answered "altimeters set" during the checklist. He stated, "You read the numbers back, "Check set." For sure, we say check set, check set, at whatever it is. I think he has pressurization. He may read it off, but I don't remember."

Captain Walsh was asked if he specifically remembered the first officer making that statement. He replied, "I believe so, yes sir."

Captain Walsh said the crew maintained a sterile cockpit below ten thousand feet. He confirmed that that was FedEx policy.

When asked if the crew leveled at 9,000 based on their initial clearance for the descent, Captain Walsh said, I believe we were cleared to 2,000 prior to leveling.

Captain Walsh was asked to describe when the first officer performed the approach checklist. He stated, "In descent, the engineer mentioned, 'Are you ready for the approach checklist?' We were still trying to decide runway 9 or 27 and held off. We decided to land on nine and the first officer said the approach checklist." When asked if that occurred when they were setting up for runway 27, Captain Walsh said, "we were discussing, we weren't really setting up for runway 27." Captain Walsh was asked what was said in the discussion with the first officer about runway 27. He stated, "Initially, I said, 'let's plan on landing runway 27.' He said, 'winds were 120 at 6.' At the time, we were a little heavy, and he was concerned about landing with a little bit of a tailwind. I looked on the chart to see if there was a visual aid. Seeing that it was clear, I didn't see that there was a problem making a visual approach to runway nine. I said 'Do you want to land on runway nine.' He said, 'yeah.'"

After the crew agreed to land on runway 9, "the first officer called for the approach checklist, or shortly after that." Captain Walsh was asked to list the items on the approach checklist. He listed some items, including altimeters, seatbelts, harnesses, and minimums.

Captain Walsh was asked to recall if he remembered his response to the altimeter item. He said, "Yes sir, whatever the standard response, check set, whatever the altimeter was." When asked if the first officer made the standard altimeter response, he said, "it seemed like he did, but I can't say for absolute certain." Captain Walsh was, however, confident, that he had made the standard response himself.

Captain Walsh was asked what minimums there were for the approach. He said, "Basically about 200 feet above field elevation – 254, 256 or something like that. Really, in a visual approach to a visual runway there are no minimums. I believe that was set as just a reference for the approach." He confirmed again that he set his bug on the barometric altimeter to 254 or 256. He did not know for sure if the first officer set his. When asked if he sets the bugs on his radio altimeter, he said, "not for a visual approach, no." He confirmed that he did not set them for this particular approach.

Captain Walsh confirmed that an approach briefing is part of the approach checklist. When asked if an approach briefing was given, he said, "yes, basically, the briefing was complete for runway nine." When asked if a briefing was given, he continued, "Yes, in our discussion of planning to land on runway nine, I guess that was

the extent of our briefing. In electing to land on runway 9 and using visual guidance to land on runway 9." He confirmed that the approach briefing was part of the decision to land on runway nine. Captain Walsh confirmed that no approach briefing was ever given for runway 27. Captain Walsh was asked if any other information of a formal nature was given as part of the approach briefing. He said he could not recall.

Captain Walsh confirmed that there were no approach lights for runway 9. He also confirmed that the second officer used the APLC to determine landing criteria. Captain Walsh was asked if anyone mentioned any dangers, hazards, or restrictions relating to runway nine. He answered, "No sir, not that I recall."

Captain Walsh estimated that they were at four to five thousand feet when the first officer first thought he saw the airport. He stated that they were level at 2,000 feet when the first officer actually saw the airport. At that point they were approximately 8 to 10 miles from the airport. Distance to the airport during the turn to final was estimated at approximately 6 miles. This was at 2,000 feet. The Captain was able to see the PAPI.

When asked to describe the PAPI indications during the approach, the Captain said, "First white pink, white white for a short time, then it went white pink, stayed there a little while then mist, white red, stayed at white red, stayed at white red and that's the last I remember."

Captain Walsh said that once the crew rolled out on final and saw white pink, the first officer had the airplane configured for landing, except for flaps which were either at 25 or going to 25. The gear was down. He added, "He may have been a little bit closer in when we went to flaps 25, but I recall seeing about 800 on the radio altimeter and I asked, 'Do you want flaps thirty,' and he said 'yes, I want flaps 30.' We were fully configured at about 700."

Captain Walsh said gear down was called as part of the Before Landing checklist, and the second officer read that item. All the checklist items were accomplished at that time except flaps 30, which may have been delayed at some point after that.

Captain Walsh was asked if the rate of descent was set up once the final turn was made. He said, "yeah, descent following the visual lights." When asked if he remembered what the descent rate was, he said, "No sir."

The captain was asked if there was ever any discussion among any of the crewmembers about the PAPI indication from the time they rolled onto final approach. He said, "No sir, not that I recall." He said he did not recall any discussion about having to change pitch or power to track.

Captain Walsh was asked if FedEx had a stabilized approach criteria. He replied, "Yes. If cleared for instrument approach – it has to be spooled up, fully configured, on glide path, at 1,000 feet. For a visual approach – spooled up, fully configured, on glide path at 500 feet."

Captain Walsh was asked if the first officer pulled the power back to idle upon leaving 2,000 feet. He replied, "No, I don't believe he pulled the power back to idle. He may have had some reduction in power, but I don't believe he pulled the power back to idle."

Captain Walsh was asked if altitude callouts are associated with the final approach checklist. He stated, "Yes, on visual approach – at 500 feet, the PNF will call stable or non-stable, go around." He did not recall if there was a thousand foot callout for a visual approach. He knew there as such a callout for an instrument approach. He knew there was a 500-foot callout for a visual approach.

Captain Walsh was asked if any automated altitude announcements are made on the airplane. He said, "Yes, I believe the altitude alerter calls out, 1,000, 500, 100, 50, 40, 30, 20, 10." He said he assumed that the callouts were based on the radio altimeter. When asked if he heard the automated 1,000 foot callout from the radio altimeter, he replied, "I can't say." When asked if he heard the 500 foot annunciation, he said, "I can't recall, no, I can't say." When asked about hearing the 100 foot announcement, he said, "I can't recall." He did not hear the 50, 40, 30, 20, or 10 foot altitude announcements either. When asked if he ever heard a GPWS warning of any kind, he said, "no sir, not that I recall."

Captain Walsh was asked to clarify the callouts required by the PNF when reaching 500 feet during a visual approach. He stated, "500 feet, either 'stable' or 'unstable go around.'" When asked if he made that 500 foot call, he stated, "I believe I did." When asked what he said, Captain Walsh said, "It would have been stable, if I made the call, it would have been stable, because visual indications are that we would have been stable on the approach."

Captain Walsh was asked to confirm that the aircraft was fully configured for landing and the engines were spooled up at 500 feet. He said yes. When asked if he was sure, Captain Walsh said, "Fairly certain, but I can't say I'm absolutely sure. I didn't detect an major reduction in power at any point prior to that." When asked how he could tell, he said he didn't hear any change. When asked if he would know by looking at his instruments, he stated, "Well, there are many ways to know, using your senses."

Captain Walsh was asked to describe what determines an engine being spooled up, according to FedEx policy. He said, "I'd say, I can't give you the exact FedEx definition."

Captain Walsh was asked if he could provide the rates of descent he would have seen on his VSI. Captain Walsh stated, "just from frequently, occasionally, glancing, it was somewhere from a thousand to around the 600 foot range." He was asked if the vertical speed limit ever exceed 1,000 feet, and replied, "I can't answer, I don't know."

Investigators asked what the airspeed was supposed to be on the stabilized approach below 500 feet. Captain Walsh answered, "What we call the bug speed? Vref plus 10." Captain Walsh was asked to recall the actual airspeed at 500 feet. He said, "To my recollection it was stable on bug speed."

Captain Walsh was asked to recall what the PAPI indicated at 500 feet. He said, "It was either, I think it was white red." When asked how many lights were on the PAPI, Captain Walsh said, "I believe there are three or four." He added, "Yes sir, maybe four, in each color."

Captain Walsh again confirmed that he made the stabilized approach callout at 500 feet, saying, "I believe so, sir." He also confirmed again that he did not detect any changes made by the first officer regarding power or pitch at the 500 foot mark. He confirmed that the next thing that happened was the crew encountered a mist, explaining, "Yeah, just a very little thin layer. I don't know exactly what you'd call it. It was like a translucent layer of moisture." When asked if it obstructed visibility to the airport at all, he said, "No sir, not at all." He continued, "We passed through most of it, but I can still recall seeing the runway and the PAPI – all the way down. I never recall not seeing the runway or the PAPI." Neither of the other two crewmembers remarked about not seeing the runway or PAPI when passing through the mist layer, either.

The captain was asked to describe again what happened next. He said, "I started feeling turbulence, sound, and pretty severe shaking and thumping of the aircraft. At that point I was inside the cockpit and basically hanging on trying to figure out in my mind what happened, shook and thumped around for a while. Most of the lights were off, and when we came to a stop there was a steady horn blowing." Captain Walsh was asked if the first officer had his shoulder harness on, and stated that he couldn't say. He thought the second officer had his shoulder harness on because he remembered the second officer reaching to unfasten something when he got out of the aircraft.

When asked to elaborate on his evacuation of the aircraft, Captain Walsh confirmed that he egressed through his side window. He said, "My first statement, I said, 'Silence the horn.' Then I realized the other two appeared to be unconscious, I was able to unfasten my seatbelt and harness and I climbed out the window. I looked down and saw that that rear of the fuselage was on fire. I kept yelling, 'Get out! Get out!' and the first officer came to, and began unfastening, and he climbed out. I looked in and saw that the flight engineer was still unconscious and I climbed part way back in and I remember touching him, I think on the shoulder, and he began unfastening. I grabbed him by both shoulders and he began climbing out upside down on his back. I pulled him out and we kind of both fell back."

The Captain was asked when he liked to go to bed when he was not working. He stated that he liked to go to bed between 10 and 10:30 PM and get up at 7 or 7:30 AM.

The Captain was asked to recall the events of the previous Monday. He said, "Monday, they called me early in the morning, I think I went to bed Sunday night about

nine o'clock and they called me, it seemed like it was about 4 something, 4:30 in the morning. It was a deadhead on Northwest down to Shreveport for a layover and then fly back. They actually called me about two and a half hours before showtime. I don't know why they called so early. Since I was awake, I just got dressed and went out to the airport." The flight to Shreveport was scheduled to depart between 8 and 8:20 in the morning. Captain Walsh slept part of the day in Shreveport and engaged in routine activities. He ate lunch and dinner in the restaurant and stayed in his room until showtime.

Showtime was 9:10 in the lobby. He had a standby period. Captain Walsh reported sleeping from about 11:00 until 1:30 or 2:00. Captain Walsh was asked why he was sent out so early in the morning rather than being allowed to rest at home. He replied, "I don't know, I guess they wanted to have crew rest, I don't know. Wait, wait, this was Tuesday morning I'm talking about."

When asked to describe his activities on Monday, Captain Walsh said, "I don't know."

Speaking again about his showtime at 9:10 in the lobby, Captain Walsh stated, "I showed up at the airport, had a one hour standby, and then reviewed our flight plan and the weather. We were actually down there to pick up an airplane that had been broken and repaired and we brought it back there to Memphis." He didn't recall the flight time exactly, perhaps 11:30 or ten minutes earlier. The flight departed Memphis around midnight or ten after. There was some adverse weather, resulting in a small delay.

Captain Walsh was asked about his activities on Wednesday. He said, "I was released and went home. Stayed up a couple hours, maybe an hour and a half. I say I stayed up – one of our dogs is fifteen years old and not doing well, so one of us would have to stay down and stay there on the couch with him and my wife had been with him and so I stayed down there and slept on the couch with the dog. He was real restless, kept getting up."

When asked what times he slept, Captain Walsh said, "I think I got up about three times to let the dog out. That was until about 7:30 in the morning. He characterized the quality of the sleep as "not good."

Wednesday, Captain Walsh said he engaged in routine activities with his wife during the day. He said, "I went to bed fairly early… 9, 9:30 because I was going to be on reserve again Thursday. And then again I slept downstairs on the couch." When asked until what time he slept, Captain Walsh said, "about the same thing, same pattern. Until 7, 7:30, getting up a couple of times in the morning." He characterized the quality of his sleep as "Marginal. Not really good."

Thursday morning, Captain Walsh was on reserve at 7, 7:30. When describing his activities Thursday, Captain Walsh said, "Our dog took a turn for the worse. Thursday and Thursday morning we decided we had to take her in and have her put to sleep." They

brought the dog in and had it euthanized between 10 and 11 o'clock in the morning. They had owned the dog for fifteen and a half years. The rest of the day, Captain Walsh and his wife engaged in routine activities at home. When asked how his wife reacted to the situation with the dog, he said, "it bothered her, but she took it okay." When asked how he reacted, he said, "Same thing. Little upset, but I knew it was time." Captain Walsh said he and his wife owned another dog, a collie.

Thursday evening, Captain Walsh checked his computer and received a notification of the trip to Tallahassee. This took place after dinner around 6 or 6:30. Showtime for the flight was 0212 local time.

That day, Captain Walsh walked his dog, packed his bags, and went to bed about 8:45. He slept from about 9:00 to 12:30. When asked about his sleep quality, he said, "It was pretty good. I slept until the alarm went off." After he woke up at 12:30, Captain Walsh got up, showered, took his bags, and headed to the airport. Captain Walsh was asked how rested he felt, and he answered, "I felt okay. I didn't feel fatigued."

Captain Walsh was asked about his past experience with emergencies in his flying experience. He answered, "No accidents, nothing significant in way of emergencies. Many many years ago I had a partial engine failure on a twin Comanche."

When asked if he had received any commendations for his flying performance, he said, "Just Bravo Zulu from FedEx." This is a FedEx award for good performance. He had never received any disciplinary action.

When Captain Walsh was asked if he had experienced any personal changes, other than the dog getting sick, he said, "No, pretty stable."

Captain Walsh had been married for 29 years. He had one child, a son, who did not presently live at home with Captain Walsh and his wife.

He had not experienced any significant changes in health. He characterized his health as "good." He characterized his finances as "pretty stable." He stated that he wore corrective lenses for distant and close vision. He said he was wearing them at the time of the accident.

His vision doctor was Dr. Crackell in Cordova.

His hearing was good but probably had some hearing loss over the years. He drank alcohol occasionally, noting his last drink was a glass of beer the Saturday before the accident.

He had not taken any medication prior to the flight. He said he took a couple of Excederin for headaches 72 hours before the accident.

Regarding the second officer, his performance was very good seemed to be alert, had good CRM skills, panel performance was good from what he saw. Nothing stood out that made him think he was anything less than very competent.

As an example, he was communicative when he first met him. He introduced himself, gave me a briefing on the airplane, and seemed to be on top of everything.

He said that the first officer seemed tired, but maybe it was just his personality; he seemed not as communicative and not as alert. He may have been preoccupied. On the bus from the operations center to the airplane he seemed normal.

Regarding the first officer's flying personality, he said he was okay. He was normal, and had good CRM skills.

There was nothing formal as to training on fatigue issues. He had received flyers but could did not recall any formal training. He said he had never turned down a trip because of fatigue. He stated that he did not know anyone personally that had turned down a trip however he had heard of it happening.

He had no knowledge of sanctions for turning down a trip for fatigue. He said there wasn't any encouragement.

The CFIT training he received was 30 minutes of computer management instruction. He had received other training on CFIT over the years. He did not recall his latest training. He thought the training was okay. It was good educational material that made you aware of the potential of the possibility of encountering that situation.

In the initial approach phase of the flight, he said there were no CFIT issues that he could visually see.

He had never turned down a trip for personal issues, only for sickness. He did not know of any other pilot who had either.

He stated his injuries were a compression fracture of number 12 vertebrae, laceration of the right leg below the knee, a laceration on his hand, several bruises on his arms, part of his body, and under my right eye and on my face. The laceration on his hand required sutures but did not know how many.

When asked what might help solve this accident, he replied the alignment of the PAPI lights might be a factor. He clarified that on final he was talking about the two left lights of the PAPI in his description. He stated the cockpit window was about chest high when he exited the airplane. He had never landed on runway 9 and the first officer not seeing the runway initially did not cause a problem as they were on an extended base leg. Regarding his landings at TLH, they were all at night.

When asked if he made his 500-foot stable call from the altimeter, he said, no, he made the call when he heard the 500-foot call from the GPWS. So it is possible he did hear the mechanical call.

Interview:	**Jason T. Frankl, FedEx First Officer B-727**
Represented by:	**Eric Iverson, Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**0800/August 1, 2002**
Location:	**FedEx Aviation Operations Center**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks, Rugarber, Moore**

First Officer Frankl was hired February 19, 2001. He reported 6,500 hours total time with 3,000 hours in the Boeing 727. Of his 3,000 hours in the 727, 2000 were obtained as flight engineer; 1,000 were obtained as first officer. At FedEx, First Officer Frankl had acquired 400 hours as a flight engineer and 200 hours as a first officer.

First Officer Frankl was not acquainted with the flight engineer or the first officer of Flight 1478. He was familiar with the captain. First Officer Frankl first met the captain when he flew with him on Tuesday, July 23, 2002. He met the captain in the late call parking lot and they rode the bus over to the passenger terminal. Both pilots deadheaded from Memphis to Shreveport on Northwest Airlines. They had a ten-hour layover. They then flew a B-727 back to Memphis. Departure time was 2345.

When asked if he sat with Captain Walsh on the deadhead, he said no. He did not have much opportunity to speak with him on the way down to Shreveport. He got a call at five o'clock in the morning and he and Walsh met in the parking lot. The two pilots checked in a normal fashion. They visited some at the AOC operations center, then they took the bus over to the Memphis passenger terminal and arrived at the gate perhaps an hour early. They sat at the gate and talked for a little, while getting acquainted, "He even bought me a cup of coffee." First Officer Frankl did not recall Captain Walsh mentioning any significant positive or negative events with regard to his family. It was just normal talk.

On the flight to Memphis, First Officer Frankl was the pilot not flying. The decision about who would fly was not discussed until they got in the airplane. During the departure brief, the captain said it would be his leg to fly. It was the captain's choice.

Before coming to FedEx, First Officer Frankl worked for Sun Country Airlines in Minneapolis.

When asked to describe Captain Walsh's flying ability, First Officer Frankl stated that it was only one hour of flight time. From what he could see in that short time, Captain Walsh was as competent or standardized as anyone he had ever flown with. Walsh was probably no different than any other captains he had flown with that month.

The only thing non-routine that came up during the flight from Shreveport to Memphis was the need to deviate around some thunderstorms. First Officer Frankl and Captain Walsh discussed it at the time. First Officer Frankl felt that Captain Walsh was very conscientious. The crew was told they would have to hold on arrival in Memphis.

Captain Walsh knowing that he had thunderstorms in the area, slowed to the turbulence penetration airspeed, rather than waiting until they were in them.

Captain Walsh gave the approach briefing. When asked to recall the style and content of the briefing, First Officer Frankl said, "I know we did the things that were required by the approach briefing. I can't recall the specifics other than that it was done." The approach was made in visual conditions. They were supposed to begin the approach from the north. The runway was 35 or 36 right. The crew had a one-hour airport standby period prior to departing for Memphis.

The approach back into Memphis was a visual approach backed up by an ILS. When asked if he remembered when Captain Walsh called to configure the airplane, First Officer Frankl said he did not.

First Officer Frankl was asked what altitude callouts are supposed to be made on a visual approach, he said, there was a 500-foot call that is supposed to be made, when the radar altimeter is at 500 feet. This call was made by the nonflying pilot, and First Officer Frankl made it. He thought they were fully configured on approach by 1,000 feet.

When asked if there was anything remarkable or unusual about how Captain Walsh flew the approach or how his operation worked, he said Captain Walsh flew the way FedEx wants it. First Officer Frankl said FedEx was the most standardized company he had ever flown for. He thought if there would have been something out of the ordinary he would have remembered.

First Officer Frankl was asked if he had ever heard any managers tell the pilots to call in if they're fatigued. He said fatigue was discussed a lot. New hires go through basic indoctrination on company policies. FedEx has a one-hour class that talks about general strategies for combating fatigue. It talks about things like how to get rest during the day.

First Officer Frankl was asked to describe the different kinds of reserve assignments, and he said that if a pilot is on RA they are on reserve from 0130 to 1330. Show time can fall within that window for the trip. RB is the other twelve hours – 1330 to 0130. You can be assigned a trip in that window, and they can call you up to an hour and a half earlier. The RB notification window, therefore, begins at noon and ends at midnight.

When asked if he knew anyone who had called in for fatigue, First Officer Frankl said no, but he had heard of it happening.

First Officer Frankl was asked how he recognized the captain when he met him in the parking lot before the trip. First Officer Frankl said they pulled into the late call parking lot at the same time. I got out of my car and said, "Are you going to Shreveport, and he said yeah."

First Officer Frankl received the call for this trip at 0530. Show time was 0845. He had an hour and forty-five minutes to get there. When asked how often he got a one and a half hour callout, First Officer Frankl said it varies. In July it seemed like it had been happening a lot. He did not know when the captain had been called in for the trip.

He thought the captain looked normal when he first saw him. The first thing they talked about was being called in for the trip. He asked Captain Walsh if he was on reserve or if this was his normal trip. He happened to look at Captain Walsh's employee number on his badge. It surprised him that Captain Walsh would be on reserve because of his relatively high seniority. He asked if Captain Walsh bid reserve on purpose. Captain Walsh said he lived in Memphis and he wanted to be on reserve this month. He said he thought he might not have to fly as much because reserve pilots had not been used very much in the previous month.

When asked about Captain Walsh's mood, First Officer Frankl thought it was very upbeat considering the time of the morning. Captain Walsh bought him a cup of coffee at the airport. There was no discussion about it being an early hour of the morning. By that time it was 0745. First Officer Frankl thought Captain Walsh seemed alert. Captain Walsh did not mention how much he had slept on layover in Shreveport.

When asked to characterize Captain Walsh as person, First Officer Frankl said he was very upbeat; he did a very good job of trying to make everybody feel comfortable. First Officer Frankl could not recall much about Captain Walsh's CRM briefing other than that he knew they had completed it. It was just a short and basic brief. He said that if First Officer Frankl saw something he did not like, to bring it up. First Officer Frankl remembered when they were sitting on the ramp and they were getting close to shutting the door, the second officer mentioned that they had not gotten their hazmat paperwork yet. Captain Walsh said "good catch."

First Officer Frankl did not notice anything abnormal about the captain's health.

When asked to comment on Captain Walsh's voice or manner of speaking, he said, "the only thing that strikes me is it seemed he had a very good sense of humor. He was maybe even a little more upbeat than average.

First Officer Frankl said the flight from Shreveport to Memphis was at night. When asked if Captain Walsh had any trouble locating the airport, First Officer Frankl said no.

First Officer Frankl was asked to characterize Captain Walsh's style as a captain. He stated that Captain Walsh's style was very normal, a standard cockpit style with good CRM skills. He considered him very cooperative, but there was no doubt that he was the captain. In First Officer Frankl's opinion, it was a very normal cockpit.

Regarding the approach briefing, First Officer Frankl said that Captain Walsh briefed a visual approach with an ILS backup. In his experience, captains do not brief

CFIT risk during an approach brief. CFIT risk also typically has no bearing on selection of the pilot flying. When asked, First Officer Frankl said he had never experienced a situation where the Captain chose to fly a leg when it was the first officer's turn because of high levels of CFIT risk at a destination airport.

According to First Officer Frankl, his average flying time per month on reserve varies from month to month. An average month is approximately 30-40 hours flying time.

When asked which flight and duty time regulations FedEx works under, First Officer Frankl said they operate under supplemental rules. He could not recall the details of those rules, saying he usually refers to the collective bargaining agreement for duty time information.

When asked if FedEx pilots talk about being tired during hub turn flights, he said that it is discussed on every flight, except on day flights. He stated, "I'm not going to hold anything back about fatigue. Fatigue is a big issue. It's probably the biggest stress that we have in this job."

First Officer Frankl was asked about response times when being on call. He stated that the crews are not required to carry beepers. They are simply required to call back within 15 minutes. He stated that time on call is not considered duty time. When asked how long he could legally fly if he got a notification to fly at 1130 while on an RA schedule. He said, "I'd have to look at what the contract says in that scenario."

First Officer Frankl characterized the maintenance on his airplanes as excellent.

When asked if he had ever flown with a pilot who had terrible CRM skills and alienated the flight crew, he said, "there are some that are worse than others, obviously." When asked if he had ever run across pilots like that at FedEx, he said, some were worse than others, but the CRM at FedEx was better than what he had experienced at other companies. He had not encountered any pilots he could not deal with safely. When asked if he had noticed any errors made on his flight with the captain. He said, "Nothing that I can recall." When asked whether he would remember if Bill Walsh's CRM performance was anything other than standard, he replied "yes."

First Officer Frankl was asked if he had looked at the airport diagram for TLH after the accident, he said he had. When asked if he would have known that TLH was a moderate CFIT airport before the accident, he said he probably would have because he knew it was sometimes an uncontrolled airport. When asked if he thought CFIT training was glossed over at FedEx, he said he could not recall the specifics but he knew what CFIT was and knew they had talked about it. When asked if he could ever remember a flight engineer putting CFIT risk information on a Takeoff and Landing Data (TOLD) card, he said he could not recall.

Interview:	**Dana L. Criswell, FedEx First Officer, B-727**
Represented by:	**Eric Iverson, Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**0905/August 1, 2002**
Location:	**FedEx Aviation Operations Center**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks, Rugarber, Moore**

First Officer Criswell is a Fedx B-727 First Officer. His date of hire is May 12, 2002. He estimated he had 5,500 total flight hours and 300 flight hours in the B-727. This includes 100 hours as First Officer, and 200 hours as a Second officer.

First Officer Criswell did not know the First officer or Second officer involved in the accident flight. However, he had flown with the Captain Walsh on July 19 or 20th, 2002. First officer Criswell met Captain Walsh at the crew room on the 19 or 20th of July 2002. The departure was at 0400. Captain Walsh flew with First officer Criswell on the 20th of July 2002, from Memphis (MEM) to Rochester (RST) then to Duluth (DLK). The trip had a layover in Duluth returning, through Rochester and terminating in Memphis.

First officer Criswell had normal discussions with Captain Walsh, and nothing stood out as abnormal. First Officer Criswell is new to the company and has not gotten many landings. Captain Walsh said "I an going to make the first landing due to fog". Fog was forecast at the Rochester airport. Captain Walsh said he would give all the landings he could to the First officer Criswell. Captain Walsh transferred the control of the airplane to him so he could discuss options with the second officer and GOC. We were holding and I heard the discussion about the fuel situation. Captain Walsh changed the alternate airport to MSP due to fuel. We flew a Monitored approach to Rochester and broke out above minimums. "I did the flying while the Captain looked out". First Officer Criswell stated that on Monitored approaches the First officer flies and the Captain makes the landing.

Nothing stood out about the Captain; he used standard procedures and normal call-outs. First officer Criswell said that Captain Walsh's piloting skills were nothing special.

During the layover, did you socialize with the Captain? "I did not socialize with the Second officer or Captain". The Board asked what they did on the layover? He replied, "ate and slept." Criswell stated he did not know if Captain Walsh was well-rested or had a good rest.

Captain Walsh did the landing in Duluth (DLK) and he let me make all the rest of the landings. The rest of the legs were visual approaches. "I tell every Captain that I am new with less than 100 hours". Captain Walsh had no negative comments about his visual landings.

Criswell said he had received CFIT training but did not remember if it was briefed in RST or DLH. He said he saw a video on CFIT in the new hire training.

Criswell said he could not recall the details of training received on Fatigue management during new hire training.

First Officer Criswell said, "I can't recall the radio skills of the Captain". Criswell said he made a night landing in Rochester and did not have any difficulty locating the airport.

Criswell estimated there were about 4,200 pilots at FedEx. How would you describe the culture and attitude at Federal Express? "No major issues between management and the pilots. Most guys are glad to be here rather than at American Airlines". What is the general attitude of the pilots? "Good Spirits".

Do Captain's brief CFIT? "Generally, the Captain briefs the CFIT on the approach or departure briefing". Did you get CFIT training in the simulator? "Can't remember". What are the definitions of "Rest time, and Reserve? " ""Can't remember".

What line are you on? "He was on an RA line that started at midnight to noon. You could fly trips from 0130 to 1330. He is not familiar with flight time limitations. He has heard pilots talked about rest, but has not been around long enough to know if this is common talk.

"Maintenance is good". "Not many open items, few MEL open items".

Criswell stated he has not flown with anyone that had bad CRM skills that alienated the crew. Anyone can call for a go-around but a pilot would probably initiate it.

Criswell believed visual approaches were backed up by an ILS, if available.

"He never called in fatigued," but understands disciplinary action is not taken. Criswell did not know if the Tallahassee airport was a CFIT airport. He did not know if there was a requirement for second officers to write CFIT data on the TOLD card, but he did when he was a second officer. First Officer Criswell was a B-727 second officer ground school instructor. He taught systems to all pilots and second officers in ground schools and FTD's. He was an instructor for three years.

Criswell stated if required callouts were missed, "The Second officer should make it." He didn't recall what callouts were required from 3,000 feet to landing. He was aware the requirement for the second officer to face forward on landing, but did not know when they should. When asked if there was anything as on the final checklist that required a lot of attention to the flight engineer's panel from 3000 feet down to landing, he replied, "Not that I know of."

Interview:	**Richard J Mayer, FedEx Captain, B-727**
Represented by:	**Eric Iverson, Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1000/August 1, 2002**
Location:	**FedEx Aviation Operations Center**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks, Rugarber, Moore**

Captain Mayer is a Fedx B-727 Captain. His date of hire is March 1, 1995. He estimated he had 15,000 total flight hours and 2,500 flight hours in the B-727. This includes 500 hours as Captain, 1,500 hours as a first officer, and the remaining 500 hours as a second officer.

Captain Mayer did not know the captain or second officer involved in the crash. However he had flown with the first officer Bill Frye on July 16, 2002. As he recalled the show time was 0400 and the scheduled route of flight was Memphis-Buffalo-Ottawa, Canada. The layover in Ottawa was only nine and one half hours with a return to Memphis via the same route that evening.

Captain Mayer kept a ledger separate from his logbook. He mentioned that, "nothing stood out" about first officer Frye. He would have noted in his ledger anything that might have been unusual, "everything looked good". He mentioned Bill was a nice guy and lives in Portland, Maine.

They traded flight legs and had noted that Frye had been the pilot flying for the Ottawa leg and last leg back to Memphis. The weather had been good for all four flights and was a nice relaxed trip.

The arrival in Ottawa was a visual approach with an ILS backup. Nothing stood out about his flying skills," they were good or better". He didn't recall Frye having to demonstrate his system knowledge.

As an aside, Captain Mayer mentioned he had flown to Tallahassee on July 18, 2002. He had received a line check on that flight. He explained the hash lines on the side of the salmon page (10-10) indicated one or more special procedures for that airport. They might indicate a special qualification airport, noise abatement procedure, non-tower operations. The APLC will display nonstandard flap retraction altitudes, and special engine out procedures that are on the green page (10-12).

If the crew is flying into a CFIT moderate or high risk airport, the second officer is required to write that down in the remarks section of the TOLD card. During his flight to Tallahassee he remembers that he was surprised that Tallahassee was a CFIT moderate airport. He did not brief that Tallahassee was a CFIT moderate airport during his approach briefing.

Captain Mayer says that the most difficult airport that he had flown into was Casper, Wyoming. It has no NAV aids. Even in VMC conditions seeing the airport is quite difficult since, "there is no needle to the center of the airfield".

If he were flying into TLH he would set the altitude bug at 1,500 feet above field elevation. He doesn't set the radio altimeter alert bug for a visual approach, only on a CAT II & CAT III approach.

Going back to the trip to Ottawa with Bill Frye, he mentioned there was also a second officer line check airman on board conducting IOE with the second officer. The line check airmen's name was Bob Stumpf.

The board asked Captain Mayer if he had been aware the first officer had called in sick after the trip. He replied "No". Frye carried his own bags on and off the aircraft and did not have any trouble walking or breathing. He didn't know if he smoked. Frye seemed proficient on the radios. He did not have any observations about his color blindness. Very few first and second officers wear the noise canceling headsets and he can't recall if Bill used his on headset. If he had a question about duty limitations he would contact the duty officer. It is usually not a factor with the B-727 trips.

He felt maintenance was good on the B-727's, "they do a good job fixing airplanes". The MELs usually average well less that one per flight.

He has flown with pilots who have had bad CRM skills. When asked if someone on the jump seat said Go-Around he would, unless "two (engines) were out and one coughing". He was told by his wing commander in the Air Force, there are two rules to flying

One: "Never be too proud to Go-Around"

Two: "Let your silver tongue fix something that your golden hands can't."

If Bill had been non-standard in any way he would have remembered. "You put three guys together and they fly well together due to standardization."

He had fatigue training in new hire introduction and has read articles in "Straight in Approach" dealing with fatigue issues. When he fly's into the morning sun he turns the cockpit lights on to help overcome fatigue.

When asked if he had any suggestions on how to prevent this type of accident from reoccurring he said to install VOR, DME and VASI at all airports.

Interview:	**Sean M. Patrick, FedEx Captain, B-727**
Represented by:	**Eric Iverson, Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1130/August 1, 2002**
Location:	**FedEx Aviation Operations Center, Memphis**
Present:	**Ivey, Brenner, Bramble, Swanson, Sparks, Moore, Rugarber**

Captain Patrick stated his date of hire as March 22, 1995. He estimated his total flying time as about 4,200 hours. His total time at FedEx was 2,000 hours. He had about 175 hours as a second officer on the B-727, 1,750 hours as a first officer on the MD-11 and about 150 hours as captain on the B-727.

Capt Patrick stated that he did not know the flight engineer or captain of the accident flight. He flew with F/O Bill Frye one time on July 23, 2002. They were both on reserve and were assigned trip # 183, an out and back, which went MEM-IAD-ROC MEM. They first met at approximately 0230, which was the show time for the trip. He said that Frye lived in Maine and had three children. He looked fine. Capt Patrick did not recall when Frye had arrived in Memphis for the trip but that he had already been assigned another trip the following day. Weather at IAD and MEM was VMC. There were thunderstorms and rain at ROC. Mr. Frye flew the leg from IAD to ROC.

Capt. Patrick stated that Fry's flying skills were solid. He did a nice job of circumnavigating enroute weather. He flew a nice ILS approach and made a good landing. He was right at the top in flying skills. His performance as a pilot not flying was very good and he had normal radio skills. There was nothing unusual about the flight and he was not aware that Frye had been out sick. His speech, walk, and breathing was normal and Capt Patrick assumed that he was a non-smoker.

Capt. Patrick flew a visual approach with an ILS back up into IAD. He set his altimeter bug at ILS CAT 1 minimums and put 1,500 ft. in the altitude alert window. He had never flown a visual approach to a runway that did not have an instrument approach as a back up, but said that if he was required to, he would set his altimeter bug to 200 ft. above touchdown zone elevation. He does not set his radar altimeter bug unless he is conducting a CAT II or CAT III approach. Standard call outs for an approach are: LOC alive, GS alive, approaching minimums, and stable at either 1,000 or 500 ft. Parameters for a stable approach are: airspeed + or – 5 knots, engines spooled, fully configured, and rate of descent as required. He said that anyone on the crew could call a go around.

Capt Patrick stated that he had never turned down a trip because he was fatigued but knew a friend that had. When asked what happened as a result, he said, "nothing." He did not believe that there was a written policy on fatigue in the flight operations manual.

Capt. Patrick had an R24 reserve line, which required a 24-hour notification prior to any assigned trip. He assumed that his duty time would start at show time for the trip. He believes that R24 is designed for commuters.

Capt. Patrick stated that he would remember if Frye had been non-standard, had any flying or personal problems or been different in any way.

Capt Patrick described FedEx maintenance as excellent. He very seldom had an airplane with an open write up. He had received CFIT training during initial ground school and during recurrent computer managed instruction (CMI). He gets further information from the salmon pages and practices the GPWS escape maneuver during simulator sessions. He believed that TLH was a CFIT airport because it had non-tower operations. He does include CFIT information such as terrain, non-tower operations and available approaches in his approach briefing if CFIT category is moderate or above.

Interview:	**Danny Alvin Chambers, FedEx Captain, B-727**
Represented by:	**Eric Iverson, Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1300/August 1, 2002**
Location:	**FedEx Flight Training Facility, Memphis, TN**
Present:	**Ivey, Brenner, Bramble, Moore, Rugarber, Swanson, Sparks**

He stated his date of hire at FedEx was October 18, 1995.

Chambers reported his total flight time as about 6,000 hours of which about 1,200 hours were in the B-727 airplane. He had about 73 hours as B-727 captain, 450 hours as B-727 first officer, and about 700 hours as B-727 second officer.

He indicated he did not know the captain or first officer of the accident flight. He flew recently with Second Officer Mendez. He first met the second officer on Thursday morning, July 25, about 0415 for a scheduled departure of 0448 on a trip leg MEM-BUF-YOW with a layover at YOW. They were scheduled to return through BUF but this was revised to go directly back to MEM. The flight was delayed for freight.

Chambers described the second officer as very professional, courteous, a former Navy P-3 pilot, with good CRM skills, and personable.

While they were waiting on the return flight, the second officer said he was going to be interviewed for a line check airman position as flight engineer. Mendez lived in upstate New York and had three children. Weather was visual in MEM, BUF and YOW. They made a daybreak landing at BUF. It was a visual approach to Runway 5 with an ILS backup. The first officer flew coupled to check CAT II equipment. YOW was a visual straight-in approach.

Chambers was a new captain. The second officer pointed out a radio call that he had missed. Mendez turned his seat forward below 2,000 feet on the approach. Chambers said that Mendez knew his job, was proactive, and had a good orientation. It was a short leg and Mendez was aware, above average, and ahead of the game. Chambers said, any member of the crew can call a go-around.

They arrived in MEM at 1259. Chambers told Mendez that he did a great job and that he looked forward to flying with Mendez again. Mendez had checked his computer prior to returning to MEM and learned that he was going to TLH.

When asked how rested Mendez looked at the end of the trip, Chambers said he looked fine. However, Mendez made a comment in YOW that he might arrive too late to get a sleep room in MEM and would probably have to rest in a recliner.

Chambers could not recall whether he ever turned down a trip due to fatigue. He indicated he could not say that the company encouraged turning down trips, but indicated there were no penalties for this. Chambers turned lights on in the cockpit for maybe 25

minutes at the top of climb but this was more for eating than fatigue. He did not feel that anyone was especially fatigued. The second officer walked around for catering and a toilet break.

A second officer will read the before landing checklist. He backs up pilots on the approach. The second officer had to turn one pack off, and then usually faced forward by 3,000-4,000 feet.

They arrived at YOW at 0814. The second officer went straight to his room, and then got up later for lunch or dinner. Scheduling would not have telephoned him because he was on crew rest, but Mendez carried a computer and probably learned about the TLH trip by computer. Mendez was on Schedule A reserve and did not expect a trip because of his upcoming interview. The company does not consider the sleep room as rest.

Chambers would recommend Mendez as a check airman.

Chambers received CFIT training in the simulator for GPWS escape. He did not recall classroom CFIT training. He received fatigue training as a new hire. He flew once into TLH when he was first hired but did not recall the runway. He looked at the TLH approach plate and saw it was CFIT due to non-tower operations and that not all runways had published approaches.

Interview:	**James A. Kerby, Senior Manager FedEx Crew Scheduling**
Also Present:	**Captain Jack Lewis, System Chief Pilot**
Time/Date:	**1345/August 1, 2002**
Location:	**FedEx Flight Operations Center, Memphis, TN**
Present:	**Ivey, Brenner, Bramble, Moore, Rugarber, Swanson, Sparks**

Jim Kerby stated that his position at FedEx is Senior Manager – Crew Scheduling. Mr. Kerby was asked to provide an overview of the crew scheduling system at FedEx, with emphasis on the procedures used to schedule reserve pilots. He stated that for crew scheduling purposes, FedEx complies with the FARs contained in Subpart S – Flight Time Limitations: Supplemental Operations. He also stated that FedEx is applying the Whitlow interpretation (applicable to Domestic Operations) to ensure that pilots do not exceed 16 hours of duty within any 24 consecutive hours. He stated that there are two exceptions where a pilot could be scheduled over 16 hours duty: 1) released to crew rest prior to showtime, and 2) assigned a trip which consists of all deadhead with a legal rest period to follow.

With respect to reserve pilots, Mr. Kerby described the system used at FedEx in detail and provided handouts that graphically describe the reserve system. Basic reserve periods (RA and RB) are set up for 12-hour periods and pilots are not scheduled for duty more than 4 hours beyond the assigned reserve period (RP). Mr. Kerby stated that an R24 reserve period was negotiated into the ALPA contract designed for the FedEx commuting pilots. R24 pilots must have 24-hour notice to report for a trip or report for RA or RB assignments. Mr. Kerby was asked if FedEx had written definitions of "reserve" and "rest". He was not able to confirm that written definitions of "reserve" and "rest" exist.

Mr. Kerby stated that FedEx uses a computer tracking system, originally developed by US Airways, for the purposes of tracking FAR legality with respect to Subpart S. The system is referred to as the CMS (Crew Management System). Mr. Kerby was asked to explain how the crew scheduling system prevents pilots from exceeding 16 hours of duty within any consecutive 24 hours. He stated that FedEx would not allow a pilot to exceed this limitation. However, Mr. Kerby did not confirm that the Crew Management System (CMS) would alert crew schedulers if a pilot were scheduled for more than 16 hours. Additionally, he could not confirm that the Crew Management System (CMS) has the capability to alert crew schedulers if a pilot's actual dynamic schedule would cause that pilot to exceed 16 hours of duty within any consecutive 24 hours (Whitlow interpretation).

With respect to the subject of pilot fatigue, Mr. Kerby was asked to describe how FedEx manages a pilot who calls in to turn down a trip due to fatigue. He stated that the company's policy is to remove the pilot from the trip without penalty. The trip is charged against the pilot's sick leave bank. He stated that fatigue is of higher concern during the winter due to weather patterns, which disrupt the schedule. When asked to estimate the number of fatigue trip calls that occur each month, he indicated 12 per month; however, Captain Lewis, the FedEx System Chief Pilot, indicated that the estimated number was

closer to 4-6 per month. Mr. Kerby and Captain Lewis indicated that FedEx does not have a written fatigue policy for pilots. However, Captain Lewis indicated that his policy, for all pilots, is "don't fly sick, don't fly tired, and if you are not ready for work – don't go."

When asked about the FedEx policy on Part 91 Ferry flights (commonly referred to as tail-end ferries), Captain Lewis indicated that the company, by contract, would not exceed 121.500 requirements, to include Part 91 Ferry flights. He stated the contract is more restrictive than the FARs. Captain Lewis stated that the DOD completed an audit about 7 months ago and found no findings with respect to crew scheduling and legality issues.

Interview: **John M. Lewis, II, FedEx System Chief Pilot**
Time/Date: **1530/August 1, 2002**
Location: **FedEx Aviation Operations Center**
Present: **Ivey, Brenner, Bramble, Swanson, Sparks, Rugarber, Moore**

Mr. Lewis's date of hire was June 16, 1986. He had been System Chief Pilot since October 1, 2001. His total flight time was approximately 10,000 hours. His total time in the Boeing 727 was approximately 7,000 hours. His time in that aircraft could be broken down as follows: 3,000 hours as captain, 2,000 hours as first officer, and 2,000 hours as flight engineer. Before his present position with the company, he served as a B-727 line check airman. He did not know any of the pilots on flight 1478 personally.

Mr. Lewis was asked if he had heard anything about them from a piloting or a personal standpoint since the accident. He said everything he heard was very positive. The curious part was that none of them had training failures or disciplinary action. They were a disciplined crew. All had plenty of flight experience in their respective positions. Prior to flying the line, the captain had been a corporate pilot for FedEx. The flight engineer had been selected to interview for a line check airman position. Everyone was wondering what made the "all-American crew" fail.

Mr. Lewis was asked if there had been any emphasis on CFIT training in his time with the company. He said the company had developed a program three or four years ago. That's when CFIT coding was incorporated onto the company-generated 10-10 airport pages. Every semi-annual simulator recurrent training session had one event where a pilot had to make an appropriate response to a Ground Proximity Warning. It is designed to make pilots response rapidly.

When asked why all B-727 pilots receive recurrent training twice a year, Mr. Lewis said the company went to Single Visit Training for a while to save money. However, a couple of things happened, that convinced them that semi-annual training was more effective. The Subic Bay accident really prompted that change. Mr. Lewis said it seemed that changes were sometimes made because of financial pressures, but the company kept coming back to what worked best. All fleets have recurrent training twice a year, except the Airbus A300, which is under AQP. The other fleets are under Appendices F.

Mr. Lewis was asked what kind of dialogue he had with the company's Principal Operating Inspector (POI) and Aircrew Program Manager (APM). When asked how often he interacts with the FAA at his facility, Mr. Lewis stated that he maintains a dialogue with the POI/APM. He keeps the POI informed by email. He converses with the POI, but the POI is not around as much as the APMs. The APMs are the FAA people overseeing the simulator training. The POI is tied in on broader issues.

Mr. Lewis said the POI and the company have a good relationship. Communication is easy and the company participates in a voluntary disclosure program

with the FAA. Mr. Lewis said sometimes the POI "holds our feet to the fire," but company managers feel they can discuss and be open with the POI and the APMs.

The FAA has one APM for the B-727 program, but he has several Assistant Aircrew Program Managers (AAPMs) working for him. FedEx has 135 Boeing 727s, about 440 B-727 captains, 400 first officers, and 380 flight engineers. The APM has a big fleet to manage.

FedEx's Boeing 727 fleet consists of around 45 100 models; the rest are 200 models. The 200 models are a mixed fleet equipped with model -15, model -17, and model Valsan -217 RE engines.

Mr. Lewis reported that around two years prior, the DOD conducted a CRAF inspection. When asked if there were any findings related to operations in that inspection, Mr. Lewis said, "it went real well." A concern during a previous inspection was that the company had no internal audit program. The company had gone to extensive lengths to get such a program in place and the inspectors were pleased with that.

Mr. Lewis was asked if any pilots had reported anything to him regarding CFIT issues at any airports that FedEx flies into. He stated that little problems are always being reported, but nothing specifically related to CFIT. No other airline flies like FedEx into as many weird places. Mr. Lewis suggested that flight standards might have more information on CFIT issues at specific airports.

When asked if the company had offered any formal fatigue training during the past five years, Mr. Lewis said he was not aware of any. The company had issued communications to pilots containing a few lines addressing fatigue, with messages such as, "If you're not ready to come into work, don't come in." There had been no formal training. There was a fatigue section in the contract that tells how fatigue should be handled, but there was no definition of fatigue in the contract. Mr. Lewis stated that the pilot's union talked about fatigue a lot.

FedEx has a union-sponsored group called the scheduling improvement group. This group discussed fatigue issues and would make layover adjustments within financial considerations. The scheduling improvement group holds monthly meetings with a quarterly roundup meeting resulting in recommendations submitted to management. That group constructs the monthly schedules.

When asked if he had received any feedback from FedEx pilots containing information that might aid the investigation of the crash of flight 1478, Mr. Lewis said, "No, they're all over the board. Some guys presume it's pilot error; others think it was the runway; still others suspect the airplane."

Mr. Lewis was asked if he had ever landed a B-727 on a runway with just a PAPI for approach guidance. He said he had flown and landed on runway 9 at TLH. He added that company pilots sometimes fly into other places where the ILS may be out and they

have to fly a visual approach. When asked if he had flown such an approach to runway 9 at night, he said he had years ago. When asked if there was anything remarkable about coming in on runway 9, he said he did not remember anything, he just remembered that it was a "quick cut to use runway 9" and he had landed on it.

Mr. Lewis was asked if he thought the company had an innovative CFIT program. He stated the company's flight safety department was heavily involved in the program. The interest began when the Flying Tigers flew a B-747 into a mountain shortly after FedEx bought the company. When asked if any other airlines were imitating FedEx's program, he said he did not know. FedEx did a CFIT evaluation of all the airports two years ago.

If a crew was headed for an airport with a moderate CFIT rating, Mr. Lewis was asked what they should do differently. He said they should have a heightened awareness of the CFIT risk. He stated that it was important for FedEx flight training and standards personnel to talk up these issues. They also needed to make sure the information is on the company's 10-10 pages describing each airport. Mr. Lewis stated that they had a section in the FOM concerning CFIT awareness. Pilots should discuss CFIT risk in their approach briefing.

Mr. Lewis said he would characterize the quality of FedEx new hires as excellent. For the most part, he said, they have great qualifications, good attitudes, and they are smart. They are part of the digital generation.

When asked to compare pay to industry standards, Mr. Lewis said pay is low, but only in certain areas – hourly rates, and in certain airplanes. Retirement and benefits are very good. Duty rigs are part of the pay. Their international pay is not high enough. When asked about company morale, he said, "I don't think morale is terrific at the moment." He said this was due to a combination of a degraded company culture. There had been some nasty battles between the union and the company. He believed there was some fault on both sides. The union was new and it had seemed to want to play a bigger role too quickly. The pilots were getting caught in the middle. Mr. Lewis said he got along well with the head of the union. They trusted each other and had dinner together. He thought current relations were getting better.

Mr. Lewis thought growth was an issue the company was likely to struggle with for a while. The growth rate had been five or six percent for a while, but presently it was flat. Expenses had been based on an assumption of revenue growth and there had been some retrenching as a result of the flat growth. Mr. Lewis said that the overnight business had exploded in previous years and then the international business had picked up. Then UPS got into the international business as well and the system had gotten pretty mature. China was presently the only big growth area.

Mr. Lewis said primarily training issues were addressed as a result of the Subic Bay accident. The Senior Manager of Flight Standards and Flight Training could speak to that. The company reemphasized crew coordination and training for emergencies.

When asked about changes that had come about from other accidents, Mr. Lewis said, "This one will change a lot of things. It will make us rethink non-tower operations, CFIT airports, and technology on airplanes – looking at how we can better match aircraft technology to where we are flying." Mr. Lewis suggested that the accident involving Flight 1478 might also affect the company's approach to crew coordination. It might affect the types of approaches that are conducted – such as monitored versus non-monitored. It might affect the company's requirements for attempting a visual approach, and how pilots are required to use their radio altimeters. Mr. Lewis said the company would review issues from bottom to top, everything that could prevent this type of accident.

Mr. Lewis was asked if, when flying the line, he recalled seeing flight engineers put CFIT remarks on the TOLD card, he said yes. He added that that kind of information is displayed on the APLC. He said, "All the new guys are trained to do that."

Mr. Lewis said he hoped the Safety Board could come up with a good explanation for the accident involving Flight 1478. He added that the company had the most hazardous flying in the industry and our pilots work hard to do it safely. He said, flight 1478 seemed to have the perfect crew and the company had to figure out why this accident had happened so they could prevent it from happening again. They had to figure out how they could do things better.

Interview: **Brian J. Flax, FedEx Manager B-727 Flight Standards and Technical Support**
Time/Date: **0800/August 2, 2002**
Location: **FedEx Flight Training Facility, Memphis, TN**
Present: **Ivey, Brenner, Bramble, Moore, Rugarber, Swanson, Sparks**

Captain Flax was hired by Federal Express on October 23, 1983. He has a total of 11,000 hours of flight time. He has flown 5,200 hours at FedEx: 2,400 hours as a B-727 captain, 1,600 hours as a DC10 F/O, and 1,200 hours as a B-727 S/O. He supervised a team of FAA designees, line check airmen, and simulator proficiency check airmen in both the captain and flight engineer positions. They were responsible for conducting all orals, captain rating rides, F/O upgrade evaluations, initial S/O simulator evaluations, initial operating experience, and initial and recurrent line evaluations. Designees administer recurrent line and simulator evaluations to simulator and line check airmen and they periodically monitor training functions to assure quality assurance. Designees also administer re-checks after any evaluation failure. Flight Standards is responsible for maintaining the Company Flight Manual, Flight Operations Manual, and Minimum Equipment List and works with Flight Training to develop curriculums for ground school, simulator and upgrade training. They are an information resource for line crewmembers and act as a liaison to Boeing and the FAA.

Federal Express employs full time professional simulator instructors who conduct ground school training and initial and semiannual simulator training. They also have line holding proficiency check airmen (flex instructors) that conduct initial simulator training and administer recurrent proficiency checks. Capt. Flax has worked with training to create a seamless upgrade program designed to make training mirror line operations and prepare students for day to day flying.

Captain Flax stated that the second officer receives weather information and completes his landing data card approximately 25 minutes prior to arrival. The PNF then reads the airspeeds aloud and both pilots set their airspeed bugs. The in-range checklist is accomplished when descending through 18,000 feet or the transition level. The second officer reads the challenge and response portion and accomplishes some silent items.

When the landing runway has been assigned, the PF briefs the approach he intends to fly. Required briefing items are outlined in the CFM. They include approach chart page, date, and runway; approach frequency; final course; final approach fix crossing altitude; minimums; touchdown zone elevation; approach light configuration; missed approach procedures; landing distance if max braking is required; and any special procedures. If landing on runway 9 at TLH with no instrument approach available, Captain Flax would brief minimum safe altitude, traffic pattern altitude, runway lighting, visual guidance, and a planned missed approach. As a technique, he would set field elevation on his altimeter bug.

Federal Express has a requirement to be stable by 1,000 feet when conducting an instrument approach and 500 feet when conducting a visual approach. The stabilized parameters are: fully configured, engines spooled, approach airspeed + or – 5kts, and proper descent angle and rate of descent. If the PF has not met these requirements, the PNF will call "not stable-go around." The go around is mandatory. If sight of the runway is lost at any time during a visual approach, an immediate go around should be made. Crews are trained in techniques to help maintain a normal visual glide path. The approach lights should go under the nose at 300 ft. The middle marker is at 200 ft. The threshold should go under the nose at 100 ft. These guidelines are secondary to any electronic glideslope indicator. There is no written minimum distance from runway for turn to final. As a technique, three miles should be the minimum.

The before landing checklist is called for by the PF when the landing gear is extended and is read by the second officer. When the flaps are extended to 30 degrees and landing clearance is received, the second officer accomplishes silent items and calls the before landing checklist complete. At that point, he turns his seat forward for the final portion of the approach. The second officer is required to confirm that airspeed bugs, altimeter bugs, and approach frequencies are correct. In addition, he backs up all callouts and approach parameters.

Monitored approaches are flown in CAT II and CAT III or during an ILS when the weather and visibility is less than one mile. They strongly recommend monitored approaches. In a non-precision environment, there may be times when a monitored approach may not be useful. For example, when a crewmember is tired, or strong cross winds prevail where the crab angle may make it difficult for the captain to see the runway.

There is not a CFM or FOM statement regarding fatigue in the cockpit. The page in the FOM that provides information about stabilized approaches is page 6-13. The CFM makes reference to stabilized approaches through out the manual.

Mendez was to be interviewed by Flax the week of the accident. He was being interviewed for a second officer check airman position. If qualified and selected, he would have given line checks to flight engineers. His title would have been Flight Engineer Line Check Airman.

When asked to give the missed approach procedure, he stated, Max power, flaps 15, positive rate, gear up. At 1,000 feet reduce rate of climb and clean up the airplane, then level off at 1,500 feet above field elevation.

He stated the CFIT escape maneuver was executed when a GPWS alert sounded to firewall the power, pitch to minimum 15 degrees, speedbrakes stowed, autopilot off and escape. Most 200s have two radio altimeters and were powered from different sources. Some of the airplanes have only one radio altimeter.

The enhanced GPWS (EGPWS) knows where the runways were located and would predict a rate of descent for the runway. It will give a warning if attempting to land short of the runway. About 60% of the fleet has EGPWS.

The flight engineer check airmen for selection were given scenarios involving overbearing captains who were not following procedures and they were asked how they would handle the situations. Other examples given to test the candidate was to give an APLC problem to see how they would handle it.

Captain check airmen were given a very demanding simulator check to determine selection. Emphasis on visual approaches is given to line check airmen. There was a 5-day ground school for the selected applicants. If selected, they receive training in two simulator periods and then receive an FAA line check.

All pilots and flight engineers were trained and checked on the B-727 every six months.

Flax stated he had called in fatigued once himself. He lost a training flight with a student as a result of disruptions in the hotel that interrupted his sleep while on a layover.

He did not know if written guidance was contained in the FOM. It may be in the pilot's contract.

Curriculum development is very good between the ground school instructors and the simulator flight instructors.

Flight Standards has topics contained in the "Straight In Approach" magazine. There are no first officer instructors or check airmen on the B-727, only captains.

The ground school instructors teach systems in the FTDs and the training is related to system orals. They did not teach procedures.

Regarding the TOLD card, he stated there was no written procedures to write in the remarks section. The second officer is to state to the pilots if there is any CFIT information. During approach, the technique is for the flight engineer to face his seat forward or one notch to the right. At the completion of the before landing checklist, he is required to have his seat forward. This would be the very latest time for changing his seat.

He could not think why the flight engineers' attention would be diverted to the panel for a considerable amount of time to conduct his before landing checks. The delay for completing the checklist could have been due to the flaps not being in the final landing position and the flight engineer holding on the checklist.

He stated the Part 91 FARs required that if a pilot lost sight of the runway, that a go-around must be performed. He said that back in 1995, line check airmen complained

that crewmembers could fly an ILS but on a right base to a runway at night the crews could not get the airplane down. They started giving training to correct that. On every initial qualification for the captains and the first officers the check airmen detune the ILS, fail the DME and turn the VASI off. They intentionally placed the airplane high on a right or left base and asked the pilots to tell him when they think they are on a 3-degree glide slope. This exercise is given with a 20-25 knot cross wind. They turn the glide slope back on so the pilots can see where they are actually situated. If the pilots cannot accomplish the identification and cannot be stable at 500 feet and touchdown in the landing zone; they will not pass the check ride.

This segment is also accomplished during recurrent training. Verbiage in the manual strongly recommended monitored approaches.

He encouraged flight crews to turn off the radar if it was not needed. In the mountains, turn on the radar for a graphic display. If a pilot were flying in mountainous terrain, which was a high CFIT area and did not use the radar it would be strong debrief item for the crew.

If GPWS alerts occur during the day in VMC conditions with the ground in sight, a flight crew may disregard the warning. If at night or in IMC conditions a mandatory escape maneuver must be performed with firewall power.

The first airplanes equipped with EGPWS were installed on the South America, Latin America, and Europe airplanes.

The AIM and Jepp ATC selections of the manuals discuss the PAPI and the glide slope indications provided by the lights. He believed the white-white-red-red indication was on glide slope. Momentary deviations on glide path were permitted and acceptable. There should be corrections to white-white-red-red from white-pink-red-red indications.

Interview: Richard Leo Wieland, FAA B-727 Aircrew Program Manager
Represented By: Wayne Ira Williams, Professional Airways Systems Specialist (PASS) Representative
Time/Date: 1030/August 2, 2002
Location: FedEx Greenway Training Center
Present: Ivey, Brenner, Bramble, Moore, Rugarber, Swanson, Sparks

Mr. Wieland is an Aviation Safety Inspector for the Federal Aviation Administration. He is currently assigned to the Memphis Flight Standards District Office, FedEx Unit. His current position within the FedEx Unit is the B-727 Aircrew Program Manager.

The FAA hired Mr. Wieland on September 18, 1990. A brief summary of Mr. Wieland's experience and qualifications follows:

Total time: 20,000 hours
Type ratings: B-727, L-1011, L-382, CE-500
Total time as Captain: Approximately 4,500 hours

Mr. Wieland stated that he has been assigned to the FedEx certificate since June 1996. When asked about his relationship with FedEx, he indicated that the relationship was professional and congenial. He stated that he had a good working relationship with the company. He indicated that FedEx was very responsive to his suggestions. He stated that he receives lots of feedback from both management and line pilots regarding this good working relationship. When asked about his participation in the simulator program, he indicated that he usually observes training and checking 2 times per week and receives about 12 hours of training per quarter in all three B-727 flightcrew positions. Mr. Wieland stated that he has prior experience with Airline of the Americas and Capitol, both Part 121 air carriers. Mr. Wieland went through initial B-727 training at FedEx in 1996 or 1997 and maintains currency by attending FedEx recurrent training.

Mr. Wieland was asked if he has attended or observed any FedEx ground training recently. He said "no". He indicated that he has 1 Assistant Aircrew Program Manager (AAPM) who has observed ground school recently. He also stated that the FedEx Unit is authorized 2 AAPMs, but the FAA has not filled the vacant position. As a result, he indicated that from time to time he requests assistance from other FedEx Unit operations inspectors who may not be current on the B-727, but are current on other FedEx fleets.

Mr. Wieland indicated that most of his work time is devoted to certification demand events which include observation of new check airman (simulator or line check) for authorization purposes, certification and renewal of APDs, and IOEs. He stated that Second Officers have a higher failure rate on Oral examinations and Proficiency Checks than Captains and First Officers. He indicated that First Officers failed upgrade proficiency checks than captains.

When asked about his observations of CFIT training, he indicated that CFIT training comes in the simulator phase of initial training. He stated that instructors conduct a standup briefing on CFIT prior to the simulator training period. The briefing also includes a video presentation and is integrated with the CRM module. Mr. Wieland also indicated that CFIT training is conducted in recurrent training and was an emphasis item for recurrent training last year.

Mr. Wieland was asked to describe the FedEx stabilized approach criteria for visual approaches. He indicated that at 500 feet AGL the airspeed should be + or – 5 knots of target speed, not greater than 1,000 ft/min rate of descent on the vertical speed, aligned with the runway, and engines spooled up. He indicated the PNF would call go-around if the criteria were not met. Despite these criteria, Mr. Wieland indicated that he believes engines on the B-727 should be spooled up no later than 1,000 feet AGL regardless of the weather. He stated that it was mandatory for any crewmember to call "Unstable, Go-Around" if the aircraft is not within the stabilized approach criteria. Mr. Wieland was asked what a pilot should do if, on a visual approach, the pilot loses sight of the runway. He stated, without hesitation, that the pilot should accomplish an immediate go-around.

Mr. Wieland stated, when asked, that the Flight Engineer is required to be facing forward after the Before Landing Checklist is accomplished and must be actively involved in the approach loop. He believes there is a CRM statement to that effect in the FedEx training program or FOM. He stated that the sterile cockpit concept is observed below 10,000 feet and within 1,000 feet of a level off altitude. The 1,000-foot requirement is a FedEx procedure.

Mr. Wieland indicated, when asked, that FedEx pilots must satisfactorily demonstrate approaches and landings to runways with no navaids. Pilots must be able to indicate verbally when they are on the 3-degree glide slope without DME.

Mr. Wieland had just returned from an FAA CRM course in Oklahoma City. He indicated that this course was developed for Aviation Safety Inspectors (Operations), to include General Aviation inspectors. He stated that the course would be excellent for industry management pilots and believes that the course is available to industry.

Mr. Wieland indicated that the latest FAA inspection on FedEx was in 2000 and concentrated on the MD-11 fleet as a result of the Subic Bay crash.

When asked about the standardization of B-727 Check Airman, he indicated that they are well standardized.

Mr. Wieland indicated that he has accomplished Special Medical Flight tests in the past, but is not familiar with the Operational Experience block on the Statement of Demonstrated Ability.

Mr. Wieland indicated that the FedEx Unit has accomplished some focused inspections on Dispatch records, training records, and simulator maintenance, but did not provide the dates of the inspections.

When asked whether he knew Captain Walsh, Mr. Wieland indicated that he knew him professionally and described him as having an "excellent flight routine and a good reputation". He indicated that F/O Frye might have been his first officer partner when he attended the Single Visit recurrent training. He described the first officer as a good team player and good support pilot. He also indicated that he flew a good airplane.

When asked about fatigue training at FedEx, he described the training module as a good course. He believes FedEx has an innovative program. As a result of the Subic Bay accident, he stated that FedEx has placed emphasis in training on stabilized approach criteria.

When asked if he could recall any fatigue or rest legality issues at FedEx, he indicated that there were some issues in the past, but he believes the issues were resolved. He could not speak to specifics.

When asked if FedEx places emphasis on "on-time departures", Mr. Wieland indicated that the company does not place emphasis in this area as much now as it did in the past. He does not believe FedEx pilots cut corners to get an on-time departure. Mr. Wieland indicated that the company provides guidance on unusual attitude recovery and spacial disorientation throughout the training program, up to IOE.

Mr. Wieland stated that he believes FedEx pilots are very aware of the fact that they are subject to fatigue and take measures to counteract it.

He was asked what was his definition of "spooled-up engines" and he indicated that the engines should be at 70% N1.

Interview: **Donald N. Sogga, FedEx Manager Pilot Instruction**
Time/Date: **1315/August 2, 2002**
Location: **Federal Express Flight Training Facility, Memphis, TN**
Present: **Ivey, Brenner, Bramble, Swanson, Sparks, Moore, Rugaber**

Captain Sogga stated that FedEx hired him in September 1986. He was the manager of the B-727 pilot instruction and second officer training. He estimated his total time to be about 10,000 hours accruing about 4,000 hours with FedEx as a pilot. He was currently a captain on the B-727 and had about 800 hours. He had flown as a first officer and second officer on the B-727 and had accumulated 3,200 hours and 1,000 hours respectively.

He had been manager of the Pilot Instruction since February 1, 2001. He had been an assistant chief pilot prior to assuming this position. Management had not been happy with the current program. They wanted to make things better and wanted a new look and make a good program better. The existing curriculum was adequate, but the individual wasn't accommodating new ideas, or making things better. He was in a leadership role among the instructor group and was invited to think about the job. So he interviewed. There was sort of a mandate that they wanted to make some significant changes and was I up to it.

When he took over, he raised the training level. He tells all the new classes even to this day, that "I have good news and bad news. The bad news is the B-727 program is a bear. For the pilots, I've seen the program evolve from maneuvers standardization to a challenging checkride. When I made captain, the captain checkride was fairly easy. It has been enhanced to be a lot more challenging". When a captain checked out on a B-727, a first officer that was new and upgrading supported him. The second officer was a new hire with no experience. That was the bad news. He liked working with these pilots and second officers, because they were motivated. The good news was that a curriculum was developed that prepared pilots to operate these airplanes into places like Casper, Wyoming and Grand Junction, Colorado. The training was good, and was reinforced in proficiency training and recurrent training. FedEx, as a company, became involved with CFIT issues in 1995 to 1997 while meeting with American Airlines. They became very interested in CFIT. As the company grew, they would be flying into more places like Casper. Part of the good news was a good training program. Brian Flax (Flight Standards) and he worked together. He didn't do anything without his agreement.

Oversight of the training was provided by flight standards, and communication was excellent between his department and flight standards.

Some changes he implemented included a 2-day clinic on Jeppesen charts, and the Flight Operations Manual. Captains taught the clinic to all flight crewmembers. Another change was in the transition from second officer to first officer. They were having problems so he had captains start teaching necessary information to the second officers.

In the past, professional instructors who do not fly the line with FedEx have taught the courses. They had gained their experience from former airline employment.

He had developed a cadre of instructors that specialized in particular facets of training. Some taught preparation for a comprehensive oral examination, some were selected to teach pre-oral sessions. If a pilot needed extra time in the simulator, only certain instructors were selected to do that. He managed all that. All new-hire pilots received a 2-hour international briefing about CFIT related to Mexico, Latin American and South America. All crewmembers got generic CFIT information in that course material.

CFIT escape maneuvers were taught in the classroom and practiced in the simulator. He believed the maneuvers were practiced in every other simulator period as well as the checkride and reinforced in recurrent training.

He feels he made tremendous improvements to SIBA (Special International Bid Award) and international flying. He wanted only captains teaching SIBA, and international. He got the support of flight standards. Until recently the B-727 went into more international airports than any other airplane at FedEx. All the flight engineers got a two day international training period right after their check ride – whether they're going international or not. The reason was that while on reserve you could be called to fly to Canada or Mexico. If you were a SIBA pilot who bid international, you got a full day course on GPS, a briefing on the Andes, and CFIT. The flight engineers got the CFIT training as well. SIBA pilots got a special emphasis on escape maneuvers.

"CFIT at non towered airports is in their genes." One of the ingredients that made it a real strong area of interest for the pilots was because of the threat. Flight standards asked questions on non-tower operations. At least 30 minutes was spent on the subject, so that "set the tone." The pilots were very interested. The Jepp charts with salmon pages and chevrons on the side would alert you to one or more of the five threats.

"Threat and error; like a slam dunk [approach] is part of the new recurrent training that we are starting this week. Also the cross check and challenge on the Little Rock accident was featured in animation." They had unusual attitude training. He scripted a tape on CFIT in the Andes. Those guys laughed, but they got quiet when we talked about what happened to some of the planes in the Andes. We had one airplane that was +/- 8,000 feet and was in the clouds. Then we go into the simulator and practice. He added an additional simulator to bring the AST periods up to seven from six. He said "I didn't even get a blink from the company bean counters when I asked if we could add simulator sessions." He said his area of expertise is focused on all the training after the pilot's systems oral.

As a result of the Subic Bay accident the FAA's APM had a special inspection, Sogga took unilateral action to include material on black hole approaches, stabilized approaches and CFIT. Casper is all he talks about, although other check airmen have their own CFIT and non-tower approach ideas for the students. It was not always Casper, Wyoming.

When asked if simulator time was devoted to non-tower operations he said that there was time allowed in the briefing portion. He did not have a module in the simulator

where the tower is simulated closed. Regarding visual landing, they were accomplished in every AST simulator period.

"At the end of a check ride, both the captain and the first officer must demonstrate in the simulator, a visual no glide slope approach in a 29-knot crosswind. In the middle of the approach, the check airman will ask the pilot if he was high, low, or on glideslope. The pilot must pass as this was a check item and you don't leave until you get it right. Try an NDB approach with 10 knots of cross wind in the B-727-100 simulator. That was a tough one. I would be shocked if a pilot didn't get at least 5-6 visual landings per period." He said they don't let them out of training until they can do a crosswind landing with flaps 15 and hydraulics out. In recurrent training, they go to 29 knots; 25 knots without glideslope.

He defined stable on a visual approach as lined up with the runway, engines spooled up, on speed, and fully configured by 500 feet.

If IFR you must be stable at a thousand feet. It was in the FOM and was pretty clear. There was even more stability in a monitored approach. There had been a move to go to more non-precision monitored approaches. This was new about a year ago. The jury's still out on it. He described the escape maneuver as speed brake in, autopilot off, firewall power, rotate to 15 degrees of pitch.

When asked if the pilots would cut corners to meet departure times, he said no. He said he knew of no penalties for being 20 minutes late departing because a pilot showed up late. However,it would be noted. The company did not stress visual approaches over any other type for fuel and engine savings.

CFIT became an interest to flight operations during the 1995-1997 period as a result of American Airlines Cali, Colombia crash. Later non-tower airports became a concern. They presently operate into 16 non-tower controlled airports.

He was selected for the position as manager as a result of administrative problems, a lack of communication between flight training and flight standards, and administrative response times.

The computer based training included black hole approaches. Physiological processes related to spatial disorientation are reviewed annually. He said they provide training and checking to see whether pilots could fly an approach into an airport with no aids other than runway lights. It was not written in the curriculum to take the DME or glide slope away and train the pilots on an approach. Most of the time they take the DME away.

He said he would be amazed if someone went through here with glideslope on every approach during recurrent training.

First officers get the same training. The practical test guide is very nebulous. He would recommend that the FAA mandate that visual approaches be trained or checked in terms of a black hole concept for all 121 carriers.

Interview:	**Deborah Lynn Frye**
Represented by:	**Darrell J. Green, Senior Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1535/July 31, 2002**
Location:	**Tallahassee Memorial Hospital**
Present:	**Brenner, Bramble**

An interview was conducted with Mrs. Deborah Lynne Frye, the wife of First Officer (FO) William Frye, in the cafeteria of Tallahassee Memorial hospital.

Mrs. Frye was asked to describe the activities of her husband in the week before the accident. She stated that Friday the week before was part of a workweek for him. He flew that week and he was away some nights. Friday, July 19, however, was her birthday and he was home. He took her to dinner at a local restaurant.

Mrs. Frye stated that when her husband was not working, he generally went to bed between 9 and 11 in the evening. During the school year, one of them had to get up early to take one of their children to school. Things were a little more relaxed in the summer, but she had to be up early on the days she worked. When asked to provide a general idea of when they tended to get up, she said between 6 and 7 in the morning.

Mrs. Frye reported that she and her husband have two daughters, ages 15 and 19.

Friday night, July 19, Mrs. Frye said she didn't remember when her husband went to sleep. He was home over the weekend. He engaged in routine activities around the house that included mowing the lawn, cleaning the pool, and walking the dog. When asked if anything stood out about that weekend she said no.

When asked to characterize her husbands sleeping schedule, she said, "We go to bed at night and we get up in the morning."

Mrs. Frye stated that she was a nurse working in a hospital. Her work days varied. Generally, she worked the 7AM to 7 PM shift.

When asked when her husband was home Monday through Friday during the week of the accident, Mrs. Frye said she couldn't remember. She stated that she believed he went to work Monday night, traveling to Memphis on an airline jumpseat. Mrs. Frye worked Tuesday and Wednesday at the hospital. She didn't remember talking to her husband about what he was doing until Thursday.

Mrs. Frye was asked when her husband left the house to go to work. She said that he would leave for work generally around 7:45 PM, stating that it is a 35-40 minute drive to the airport. She also reported that the FO uses a "crash pad" in Memphis, but if he had a flight, he went straight to the flight. She didn't know which he did on Monday.

Mrs. Frye was asked the names of the FO's roommates at the apartment he used in Memphis. She stated that Clark Kluwe was one and that she could not remember the names of the other two.

Mrs. Frye stated that her husband called her on Thursday night at about eight o'clock. She stated, "He was just checking in, letting me know what he was doing. He had a flight out and back to Tallahassee. He thought he'd be home by Saturday morning and then he'd be able to come home and see me." She was not sure where her husband was physically located when he called her, but she assumed he was in Memphis.

When asked if Mr. Frye used any special techniques for dealing with his night work schedule, she stated that he often tried to nap in the afternoon before work. When he flew days in a row he came home, went to bed, and usually slept to 2 or 3 in the afternoon. She stated that his nap time varied and sometimes he did not take a nap. Mrs. Frye was asked how her husband sounded when he called her on Thursday night. She responded, "Fine." She noticed nothing out of the ordinary.

In the last twelve months, Mrs. Frye reported that there had been no significant changes in the FO's personal life, finances, or health.

Mrs. Frye characterized her husband's health as "healthy," adding, "He's athletic. He's on a softball team. He enjoys basketball, lifts weights, does cardiovascular stuff." She stated that he belonged to a gym and generally tried to stay fit. She said that he tried to exercise on trips, but was not always able to exercise. Mrs. Frye stated that her husband's personal physician was Dr. Nokomura at Tri-care in Martin's Point.

Mrs. Frye and her husband lived in Brunswick, Maine, and her husband was based in Memphis.

Mrs. Frye said her husband's eyesight was fine. He did not wear corrective lenses. His hearing was good.

Prior to the event he was not taking any prescription medication. He drank alcohol occasionally. She did not know when he had last consumed alcohol. Mrs. Frye said that her husband smoked tobacco. She stated that she did not know what kind he smoked. She added that he had not smoked in front of her since she was pregnant with their oldest child, but she knew that he still smoked because he took the dog out for walks very frequently and she could smell tobacco on his hair. She said every once in a while she had to remind him that she knew he smoked. When asked if she had any sense of how frequently he smoked, she said, "Very rarely when he's at home with me –maybe not even every day. I think when he's on the road he probably smokes a great deal more."

Mrs. Frye was asked whether she knew if, in the 72 hours before the accident, her husband had taken any drugs, either prescription or nonprescription that would have affected his performance. She said, "I wouldn't know."

Mrs. Frye was asked to describe the reason that her husband called in sick July 17-19, the week before the accident. She stated that he had hurt his knee playing basketball in Maine. He had sought medical help for treatment of his knee through his health plan. Mrs. Frye did not assist him with the treatment of his injury, other than telling him to ice it and take ibuprofen.

Mrs. Frye was asked about a waiver in her husband's FAA medical records indicating that her husband had a deficiency in color vision. Mrs. Frye stated that she vaguely remembered hearing about the issue, adding, "I recall this was way back when he was in training for the navy when this issue came up. I think it was like a blue/green problem…he was given a waiver for it." Mrs. Frye was asked if she or her daughters ever had to assist Mr. Frye in picking out matching articles of clothing, or if she ever noticed a problem with color vision ever affecting anything in his daily life. She responded, "No."

Mrs. Frye said that she didn't know how her husband became interested in aviation. He flew in the Navy.

She and her husband had been married for 23 years.

Mrs. Frye was asked if her husband had been involved in any aviation emergencies. She said no. She said he received numerous commendations for flying in the Navy. She was not aware of any commendations for his flying performance in civilian life.

Mrs. Frye was asked if she was aware of any medical conditions her husband had that could have affected his breathing. She said she was not aware of any.

Interview:	**Clark Kluwe, FedEx Captain, B-727**
Represented by:	**Darrell J. Green, Senior Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**0930/August 2, 2002**
Location:	**FedEx Flight Training Facility, Memphis, TN**
Present:	**Brenner, Bramble**

He stated his date of hire at FedEx was April 19, 1995.

Kluwe reported his total flight time as 8,000-9,000 hours of which about 1,800 hours were in the 727 airplane.

He indicated he did not know the captain or second officer of the accident flight. He knew the first officer William Frye ("Bill") from the Navy. Bill was his first training commander and, when Bill decided to leave the military, Kluwe helped him get hired by FedEx. Kluwe said he had known Bill for 18 years. He visited Bill's family whenever he was in the Portland, ME area. He and Bill had flown many hours together in Navy P-3 airplanes, but he did not recall flying together with Bill at FedEx. Kluwe lived in Pittsburgh, PA. He and Bill shared a crash pad in Memphis.

Kluwe spoke at length with Bill on Wednesday morning, July 24, at the crash pad after they both rested from trips. This was around 0930-1030 (local time), when they each woke up and drank coffee together on the porch. They talked about many things: what trips they just flew, union issues, scheduling, Bill's vacation, how reserve worked, and the next contract. They talked for about 45 minutes to one hour.

Regarding scheduling, Bill stated he had bid reserve that month to increase vacation time and that he did not like it. He was becoming tired of being called up. He preferred a regular schedule out of Portland, ME such as he had been flying in previous months. He hoped he would not be called that weekend so he could go home early. He preferred flying 4-5 trips in a row on a night schedule rather than reversing day and night sleep schedules on reserve.

Bill had previously flown reserves when he was low in seniority but, after that, he was able to fly trips out of Portland, ME for most of the year. In July, he tried bidding reserves again hoping to get more vacation time.

Bill just returned from a vacation during which he stayed home and worked on the yard using a new lawn tractor. The vacation was scheduled for 7 days and he worked it into 14-18 days. He completed the vacation on the previous Saturday or Sunday.

Regarding scheduling, Bill found that flipping in and out of night work schedules led to a difficult sleep pattern. He said he would rather fly a schedule, especially since he just came off a vacation (when he slept at night). Bill's window was coming up again and he did not know what sort of trip he might get. He planned to go back on a regular line. Kluwe thought that Bill finished reserve on Saturday or Sunday. FedEx usually did

not fly on Sunday, so Bill was hopeful that he might be able to go home early and recuperate. Bill knew at that time that he would go out on a trip that evening.

Kluwe said that Bill seemed normal and in a good mood.

Regarding sleep pattern, Bill liked to get a solid 7-8 hours of sleep in a row. When tired, he did go into the sleep room but there was always a danger of flip-flopping on a bed without being able to sleep. Bill would sleep as long as he could and, if required, go to the sleep room.

When asked whether he had even been scheduled for more that 16 hours of duty, Kluwe stated that it happened once and he was given an FAR extension.

Kluwe saw Bill again briefly that night at FedEx when Bill was leaving on his trip to Winnipeg. This was about 0230-0300, Thursday, July 25. They met in the smoking area outside the operations building after Bill met with the captain of the trip. Bill said he was flying to Winnipeg. Kluwe kidded him about the trip because it was a long leg, with a short turn, and Winnipeg was associated with winter. Kluwe indicated that he personally was tired of long trips after having flown many hours in a P-3, and that short legs allowed the pilot to earn more money with less flying. Bill's mood was good, and he laughed at the kidding.

Bill was a smoker, although he did not tell his wife about it. He smoked about a half pack per day of Marlboro reds (regular rather than light cigarettes). Bill never smoked on flights. The FedEx operations building had a smoking are at the end of the building across from one of the crew bus stops, about a 3-4 minute walk from the main operations area. Bill had smoked since the Navy. Kluwe could not tell whether Bill was rested, saying that at 0330 everyone was bleary-eyed.

Kluwe saw Bill briefly at FedEx on Friday, July 26, about 0330-0345 before the TLH trip when Bill was waiting for the captain at the crew bus stop. Kluwe suggested that Bill should change trips and fly as his first officer, since he was going to Reno, NV. The Reno trip had a 25-hour layover during which they could gamble. Bill countered that TLH was only a one-hour trip with 17 hours off, so why would he want to fly 3 ½ with Kluwe. The captain came and he and Bill got on the bus. Kluwe indicated that Bill appeared tired like other people at 0330, describing Bill as not overly sprite and happy and not overly down.

Kluwe said that he shared a crash pad with Bill for one year. According to Kluwe, Bill's personal life had undergone changes in the past 12 months that included a daughter going to college and arranging to buy a house for his mother to take greater care of her. According to Kluwe, Bill did not experience major changes in his financial situation or health in the past 12 months. According to Kluwe, Bill had recently hurt his knee playing basketball. On Wednesday morning, Bill pointed out that his knee was still causing problems. The knee did not cause problems in flying, and there were no crutches or cane. Regarding exercise, Bill worked out playing basketball and in the gym. He did

yard work, clearing out his yard by himself with a chainsaw. Kluwe did not know whether Bill exercised on layovers.

When Kluwe saw Bill before the accident flight, Bill's breathing was normal. Bill looked tired, like everyone else at 0330. When Kluwe saw Bill before the Winnipeg flight, Bill looked the same. When Kluwe saw Bill on Wednesday morning, Bill's health was normal. There was nothing wrong with him. Regarding color perception deficiencies noted on Bill's medical certificate, Kluwe indicated that he was not aware of it and that the Navy was pretty stringent on medical requirements for pilots. He indicated that there was nothing unusual about Bill's voice and that Bill did not have breathing problems.

Kluwe described Bill as a great person. Bill was competent, well liked, someone people liked to fly with. He said Bill was a good pilot and had flown out of Moffett Field NAS into some of the worse weather there was.

Interview: **Jerry Hull, FedEx Captain, B-727**
Represented by: **Declined**
Time/Date: **1015/August 2, 2002**
Location: **FedEx Flight Training Building**
Present: **Brenner, Bramble**

Hull stated his date of hire at FedEx was September 3, 2001.

Hull reported his total flight time as about 8,000 hours, of which about 900-1,000 hours were as captain in the 727 airplane.

He indicated he did not know the second officer but was friends with the captain of the accident flight.

Hull flew a trip with first officer William Frye ("Frye") just before the accident. Hull indicated it was the first time he met Frye. The trip consisted of a flight from Memphis to Winnipeg and, following a layover at Winnipeg, return to Memphis with a stop at Grand Forks. Show time for the trip in Memphis was about 0200-0230. He met Frye about one hour before launch in the crew lounge. The first officer brought the weather and flight release for his review, and Hull found all the paperwork in order. All was standard and routine. There were no weather or airplane problems for the trip. Frye knew what he was doing and seemed easygoing and professional. They agreed to meet at the bus stop in about 15-20 minutes. The second officer, a woman, was already at the airplane when they arrived and the airplane was ready. Hull said he and Frye completed the preflight and waited a few minutes for cargo. Bill indicated that he flew P-3's in the Navy.

Regarding fatigue, Hull said that Bill looked fine when they met and appeared as though he would have no trouble staying alert. Hull did not remember Frye complaining about being tired, and described him as well rested and ready to go.

On the flight to Winnipeg, they received a cell call to add Great Falls as an alternate. They discussed storms in the area and added it. It was the captain's leg and Hull said that Bill did his duties well. The weather was good, the storms were off their route, and the landing was easy. They arrived at Winnipeg about 0530.

Hull said he went to his hotel room and did not see the other crewmembers until they met in the hotel lobby for the return trip about 1900. The layover was about 12 hours, not particularly long. They met in the hotel lobby about 1900 and were taken to the ramp. Bill got the flight plan release and weather. They departed about 15-20 minutes later, and Bill flew the first leg. It was still daylight, the weather was good, and they performed a visual approach to runway 35L. Bill's briefing was good, and he briefed visual with ILS backup. The briefing covered all aspects to Hull's satisfaction. It was a short flight, all business. Bill had everything in order, and performed a good approach and landing.

Hull and Bill went inside the building. Another crew was there, and they sat and talked with them about baseball and other topics. The captain ate a sandwich he brought and thought that Bill might also have eaten a sandwich. Bill made a routine call on his cell phone. After about 45 minutes, it was time to launch.

The captain flew the last leg and Bill performed his duties routinely and kept up with the situation. Hull did not remember the weather on the leg. About midnight, Hull said goodbye to the other two crewmembers in the FedEx operations area in Memphis. He told them that they did a good job and he enjoyed flying with them. Bill indicated that he was scheduled to fly a reserve trip to TLH. Hull mentioned that the captain of the trip, Bill Walsh, was a friend of his. Bill's mood was good, and he seemed ready for his next duty. Hull said that Bill seemed rested. He said that Bill did not yawn a lot, did not complain of being tired, and did not miss anything. Hull described Bill as a very competent pilot. In response to questions, Hull indicated that he observed nothing unusual about Bill's walking, breathing, color perception or perceiving colors.

Regarding Captain Bill Walsh, Hull said that he met Walsh about 10 years before during basic indoctrination. Walsh was one or two classes ahead of him. Hull never flew with Walsh and never socialized with him outside work. Hull described Walsh as a nice person, levelheaded, and very courteous who seemed very professional and always had a good appearance. Hull said that Walsh was a good person to chat with between trips, whether about current events, company, flights, or layovers. Hull said he was impressed by Walsh's knowledge of procedures and techniques and helpfulness.

Hull said that he was never scheduled for more than 16 hours duty. He did not receive training on fatigue management although he read articles about it in company literature. He once removed himself from a trip due to fatigue, about 8-9 years earlier, and did not receive any negative consequences as a result (it was treated as sick leave with his supervisor's support). He had heard of other pilots who removed themselves from trips due to fatigue without receiving discipline. He received training on CFIT during biannual recurrent training. He thought that monitored approaches were universally accepted among pilots.

Interview:	**William Lee Frye, FedEx First Officer, B-727**
Represented by:	**Darrell J. Green, Senior Contract Administrator, FedEx Master Executive Council, Airline Pilots Association**
Time/Date:	**1315/August 26, 2002**
Location:	**50 Collins Brook Road, Brunswick, Maine**
Present:	**Ivey, Bramble, Swanson, Sparks**

William Frye was born [redacted] 1958. His date of hire with FedEx was in October 1997. His total time was roughly 7500 to 8500 hours, of which 2500 was in the 727. He was a pilot in the navy and flew P3's. He was in the navy for 15 years. He had about 5000 hours in the P3, of which 3500 hours were gained as pilot-in-command or as instructor pilot. Mr. Frye has been a first officer (F/O) in the 727 at FedEx for approximately one year. He upgraded to F/O in July or August of 2001. He estimated his flight experience as F/O at about 1,000 hours.

When asked what medication he was taking, Frye responded that he was on a painkiller, which he identified as Percocet. He was also taking blood thinners orally and by injection. He was also taking Tylenol and something for his bowels. His last dose of painkiller medication was taken at 1240. The other medications were taken once a day at around 1800. Frye said he was in pain, but was alright if he was sitting still.

Frye's last simulator check was in June, 2002. This was his recurrent training. It was a two-day training period that included a warm-up day in the simulator on day one and a proficiency check on day two in the simulator. He accomplished all required flight maneuvers including non-precision approaches. Frye received a computer managed instruction (CMI) session on physiology that included fatigue as a subset. He had no opinion about the instruction received.

He had bid an R24 reserve line for the month of July S/O he could have the week of July 4th off. As a result, the week of the accident, he flew a trip Tuesday morning, had a down day on Wednesday, flew a trip Thursday morning, and began the accident trip Friday morning, July 26. Tuesday's trip was a morning out and back trip (MEM – IAD – ROC – MEM), which departed at approximately 0330 and returned at 1100. He said, "It was bitch of a trip."

Frye began a trip Thursday morning at 0330, flew from MEM to Winnipeg, arrived in Winnipeg around 0830, had a short layover, and flew back to MEM, arrived in Memphis approximately 2200. When he arrived, he found that he had been assigned another trip to Tallahassee that morning. He said, "I didn't know it at the time, til I got to Memphis, but they had me hub turning to Tallahassee that morning."

Frye had never flown with the second officer (S/O). He said when he met him, he seemed very professional and "squared away." He did not know the Captain of the flight either, but he also seemed very professional. Frye and the captain went over the paperwork together and looked at the weather. They had standard conversation about

their backgrounds. He felt very comfortable with the captain. The captain seemed rested. There was absolutely no indication of anything out of the ordinary for either of the two other crew members. It was "just another hub turn."

Frye did not remember any mechanical problems or MELs on the aircraft.

The flight departed a few minutes late, but was very close to an on-time departure.

The captain offered him a choice of legs. He chose to fly to TLH because he wanted a change. He said usually he flew the leg into Memphis. Frye had never been to TLH, but the Captain had. He did not know if the S/O had been there. Frye said he was the pilot at the controls during the accident flight. Preflight, start, taxi, takeoff, climb, enroute, and initial descent were all normal and by the book – there was nothing out of the ordinary.

During descent the S/O got the ATIS. It reported VMC and light winds predominantly out of the east. He did not remember the temperature or dew point, and stated there was no danger of fog. He did not remember if there were any cloud layers reported.

Frye called for the in-range checklist while descending through 18000 feet. He said the important items on the in-range check were the airspeed bugs and altimeters. The airspeed bugs were set, and, based on his experience, the bug settings seemed correct. The altimeter setting was taken from the TOLD card. He said the only way to verify the altimeter setting on the TOLD card was to listen to the ATIS, which he always did, and he did it that time. The information written on the card was correct.

The approach briefing was given prior to beginning the approach checklist, and its completion was verified as part of the approach checklist. The crew fully briefed the ILS approach to runway 27, and discussed the possibility of landing on runway 9 because of wind. When asked what briefing is given for a runway with no approach, he stated that items to be covered were, how big is the field, minimum sector altitudes, lighting, and navigational aids. They briefed nine as a possibility because the location of the ramp made it equally convenient, and landing into the wind might be safer because that would be the direction of general aviation traffic at the uncontrolled field. Frye suggested landing on runway nine, but the captain made the final decision to land on nine.

Once the decision was made, they did not make a full "get out the chart brief" for runway nine. The PAPI was considered essential and was briefed for both runways. Runway nine had more than adequate lighting to be identified. If runway nine had not had a PAPI or glide slope guidance, Frye said he would not have flown the approach. When asked if he had landed on other runways without published approaches he said he had, giving Portland Maine, runway 18/36 as an example. He said he had flown into fields without published approaches he said he had several times.

Mr. Frye was asked to give an account of the flight from the in-range check up to the accident, in his own words. He said, "As I recall, everything was standard and by the book and nothing stood out. Everything was running exactly the way it was supposed to run. When we got down closer to the field and we had slowed down and the field was in sight. We picked up the latest weather and the wind was still running prevailing down runway nine. And that's when I mentioned once again, should we go ahead and land on runway nine, since that's where the wind is. [The captain] said okay, that's fine. We were kinda lined up that direction anyway. And the speed was well within parameters. I specifically remember talking about PAPI being on the left and where we'd be looking to get off the runway. I asked the controller and he said cleared visual to runway nine. Got the nose pointed to the airport, started slowing down, started dirtying up. Captain had me make a correction because I was slightly off. It was a 2 or 3 degree correction [to the right]. We rolled out on the centerline on the PAPI. At that point I remember specifically adding a touch of power because I recall rolling out on centerline but two knots slow and a hair under the bug. For the life of me, that's the last I can remember until afterwards. The next thing I remember was just a nightmare on the ground that wasn't even real. The last thing that I can remember that was even real to me was being in the hospital after that point."

Frye said the 2 or 3 degree correction to the right was made about 15 miles out. He said he saw the field beyond 15 miles away. Frye said the lights looked normal. The lights did not ever go out after they were initially activated. He did not remember an altitude or distance from the airport when he turned and lined up on the centerline. Frye said the PAPI initially indicated white next to red, on glide slope. When asked to describe the PAPI system, he said two white lights with two red lights next to each other. When asked if that indication ever changed, Frye said, "from the time I rolled out, I saw that I was on glide slope, added that power for the two knots, and it never changed. After that, since I have no memory of the remainder of the flight, I just can't say. I don't know where the rest of the flight went."

He did not remember if there were any intermediate level offs.

Frye said the additional power added was a "quarter of a knob." Adding the additional power was the last thing Frye remembered doing before the crash.

Frye could not describe the aircraft configuration at that point. He did not think the gear was down, but some flaps were extended.

Frye said he they did not have any difficulties with the ground-based ILS. The crew never got around to dialing it in, because they decided to land on runway nine.

Frye was asked to recall the last specific altitude he could remember in the airplane prior to the crash. He said he remembered the 18,000 foot call because he called for the in-range. He added, "Do I remember step downs? I don't specifically remember what they were. I know there was at least one when we were being set up for 27, but I don't recall what that one was."

Frye stated that fuel flow for a normal visual approach was 3000 to 3500 pounds per minute at 500 feet.

He wasn't sure, but he thought the captain activated the airport lighting system. He said the PAPI came on at the same time as the airport lighting system. Frye said he thought runway 9 had centerline lighting, but he didn't specifically remember. The crew did not discuss the possibility of fog, based on temperature-dew point spread.

Frye said FedEx does have stabilized approach criteria. For IFR, he said the criteria were, stable at 1000 feet, on glide slope, heading, power, rate of descent less than 1000 feet, airspeed plus or minus five knots, and on extended centerline. IF those criteria are not met, the pilot-not-flying is to call "unstable, go-around." For a VFR approach, the criteria were the same, except the call is made at 500 feet AGL. The callout was the same. It was "stable" or "unstable, go around."

Frye said he had a waiver of demonstrated ability for a color deficiency. Frye never had a problem in the Navy with respect to color vision. When he got his first civilian medical certificate, he was presented a book that contained many pages with shapes embedded in colored fields. There were three pages within the book for which he could see no shapes. The nurse who originally showed him the book brought in the doctor for the test and he missed the same three pages. After the doctor pointed out the shapes, he could make them out. But if the doctor didn't point them out Frye couldn't see them. The doctor also ran Frye through a test on his unfashionably multi-colored tie and Frye could distinguish those colors. The doctor filed some paperwork that granted him a waiver of demonstrated ability. Frye had been told that his color deficiency was between close shades of green and blue. Every time Frye has been back for an aviation medical exam since, he cannot see the shapes in the same three pages in the color vision test booklet, although now he knows where to look to pick them out, and he has to pull out his waiver. When asked if it seemed to him that he had a color deficiency or if it was just a paperwork mistake, he said, "I can say that with that book, until somebody pointed it out, I couldn't distinguish any shapes on those three pages." However, he said he never had any problems related to his color vision in his daily life.

Frye said he has an ATP, but no type ratings.

The only time he used the radio altimeter bug was for category two and three approaches. He recalled setting the barometric altimeter bug for runway 27 at the MDA for the ILS approach. He did not recall resetting that bug. Normally for a visual approach, he would set the bug to 200 feet above the touchdown zone elevation. This was a habit pattern for him, but he did not recall resetting the bug for the landing on runway nine.

Frye said he did not wear glasses. He had 20/20 vision. He used to have 20/10, but lately could not read the bottom line of the eye chart.

Frye said he thinks the company "abuses the hell out of R24 people." There was no continuity. One's sleep-wake cycle was constantly in flux. It was "just difficult on the body." Frye said he thought he was naïve when he bid the reserve schedule. He bid the R24 schedule to get some specific days off. The reserve schedule was not what he expected.

The aspect of reserve that surprised him was that he could be assigned a trip without 24 hour notice if he was already operating a trip. He said, "in theory they give you 24 hours advance notice prior to any flight. In reality it seems like you are on super-substitution because once they get hold of you they don't let you go. If they don't have something for you, then they would lose you for 34-36 hours [for example, the ten hour rest period plus the 24 hour notice]." The month of the accident was the first time Frye had been on reserve since he was a new hire.

When Frye came back to Memphis from Winnipeg, he found out he was assigned the Tallahassee trip and was scheduled to depart a few hours later. When asked how much notice he received for the Tallahassee trip, Frye said 4 or 5 hours from the point he checked VIPS upon arrival in Memphis.

Frye contacted the duty officer to clarify the legalities of the Tallahassee trip assignment. The duty officer said that he could legally be scheduled for the trip and pointed to the question and answer section of the union contract, which Frye read in his own copy. It stated that if a pilot was on a trip, the company could assign a trip without 24 hour notice. The company can "hub turn" on an R24. The notification while on a trip is placed in the VIPS computer system. If a pilot was at home, they would have to contact the pilot personally. Frye said he decided to fly the trip, and that he would file a grievance afterward. He said he had not gotten around to grieving it yet. The reason for the grievance would be for further clarification. Frye had never filed a grievance before. Frye said he had probably 3 or 4 hours on the ground in Memphis for the hub turn. He left on the Tallahassee trip about 0330.

With regard to his sleep schedule, Frye said Tuesday after work he went to his "crash pad" in Memphis, which he shares with some other pilots. He went to bed a little bit before noon – around 11 or 1130. He did not know how long he slept. He did wake up later in the day and go out for dinner. That night he slept again. He did not remember what time he went to sleep that evening or when he woke up on Wednesday.

During the day on Wednesday, he "puttered around, and didn't do much of anything." He did some reading and some computer work. That night he had dinner with his landlord. He laid down about 9 PM, and he got a couple hours sleep before going in to work. The sleep quality was "fine." Showtime for the trip was about 0230 on Thursday morning.

In Winnipeg, Frye got some sleep during the day, which he characterized as "standard day sleep." He stated, "if you get 5 or 6 hours sleep you feel good." Frye did

not recall exactly how many hours he slept. In terms of sleep quality, he said it was no better or worse than most day sleeps.

Thursday night after the return to Memphis, Frye got a sleep room and had approximately an hour and a half of good sleep. When he woke up, he felt like he needed some coffee. He said he usually wakes up 15 minutes early to get some coffee and he did that day. He said he felt no different that night than he would have during any other hub turn. When asked if he felt alert, he said, "I don't recall feeling alert. I didn't feel any better or any worse than any other hub turn I've ever done."

In terms of his meals, Frye said that after arriving in Winnipeg, he did not eat. He went straight to bed because it was a short layover. He said when you have a short layover, you "wake up, take a shower, get something to eat, time to get ready to go back to work. I don't remember what I had for dinner." He did eat dinner that evening, he just didn't remember what he ate. He thought he probably also had a snack later during the hub turn, but he did not have another meal.

Frye said his normal work schedule that he likes to bid is one week on, one week off, a same-city trip. Normally he likes to fly morning launches, but he has flown evening launches. He likes to fly short legs, although he will fly the long leg from Portland to Memphis. He could not recall the specifics of the last week on, week off schedule he had. Frye said a typical "AM launch" was a 0200-0300 departure, a flight out, a 12-14 hour layover, a flight back to Memphis late at night. The process would then be repeated. "That would be a traditional schedule, and that's the kind of stuff I'd like to bid."

Frye normally takes vacation in February and sometime in the summer. Like everyone, he bids Christmas, and like most people he doesn't get it. He likes to go skiing in the winter and swim in the summer. His most recent vacation was supposed to have taken place about the time of the interview. Frye added that the specific days he had tried to get off during July 4th week were not a vacation, they would have just been an off week.

When Frye is not working, he likes to go to bed a 9 PM and get up a 6 AM. He reads a book at 9, goes to sleep at ten, sleeps for 8 hours, and has coffee and a bagel. He agreed with the suggestion that he was a morning person, stating, "yeah, I like morning." When asked what he thought about working the reserve schedule, he said it was not what he expected.

Frye said he had never turned down a shift for fatigue. He did not know anyone else who had either. When asked if he thought turning down shifts for fatigue was discouraged, he said, "Do you want me to speak frankly? Nobody calls in fatigued. It's one of those unwritten no-no's." When asked if he thought there might be repercussions for calling in fatigued, he said, "I think there could be, yes."

Frye had not been involved in any previous accidents, incidents, or disciplinary action. He had not received any unusual awards or commendations for his flying.

With respect to his health, finances, and personal life, Frye said that he had experienced no major changes in the 12 months before the accident.

Frye's health prior to the accident was good. He summarized his injuries resulting from the crash as, "a busted up face, 7 or 8 broken ribs, a collapsed lung, and several lacerations." After he returned home to Maine, he found out about some additional problems, including an infection between his lung and chest cavity. He had to have surgery to treat the infection. After that, his doctors found that he had some blood clots in his lung, and a torn diaphragm. He still had tubes into his chest cavity at the time of the interview.

Frye said that Dr. Nokomura was his personal physician in Maine.

He confirmed that vision was good and his hearing was fine.

Prior to the accident, he was not taking any prescription medication.

With respect to alcohol, Frye said, he "had been known to tip a few – socially." Frye's last use of alcohol was the weekend before the accident.

Frye considered himself an occasional smoker. He smoked approximately half a pack a day of Marlboro Reds. He tended to smoke more at work. His last use of cigarettes was 3 hours before the accident. When asked if he ever experienced withdrawal symptoms at home, he said no, he did not smoke that much at work.

Frye said he did not have any medical conditions prior to the accident that would have affected his breathing or lungs.

When asked, whether, in the 72 hours before the accident, he had taken any drugs, prescription or non-prescription that might have affected his performance, Frye said, "No."

Frye reconfirmed that he had taken some fatigue management training, but could not remember its content.

Frye had taken some CFIT training during his last proficiency training [December 2001]. That training included the playing of some tapes from a South American accident where "the ILS was NOTAM'd down and they flew the ILS into the ground anyway." He thought the proficiency training was well done. The CFIT training was informative. Frye did not recall the FedEx CFIT rating for TLH, or the factors that would contribute to an airport CFIT rating on the company "salmon pages."

When asked if he saw anything unusual about the appearance of runway 9 during the approach to Tallahassee, Frye said everything looked normal and was done by the book up to the point where he could not remember anything. When asked to describe the appearance of the runway, he remembered seeing the runway, runway lighting, centerline lighting, PAPI. "Everything looked good, except I was two knots slow." Frye could not recall the layout of lights outside the field, except to say that everything looked fine.

Frye was told that, on the CVR, there were sounds captured by his microphone that suggested to some people that his breathing sounded labored in the 20 to 30 minutes leading up to the accident. He was asked if he had any trouble breathing during the last 20 or 30 minutes of the flight. He said he did not recall having trouble breathing.

Frye was told that, on the CVR, there were comments that to some people indicated that he had lost visual contact with the field. When asked if he could comment on this, Frye said those comments were associated with the small course correction, and that was the only comment he could make to that. When asked from that point on [after the small course correction] whether he continuously had the field in sight, Frye said yes.

Frye was told that statements captured on the CVR suggested that the landing checklist was not completed until the aircraft descended below 500 feet. He was asked if he could comment on this. Frye said he could not comment on that.

When asked if there were any obstructions to visibility, such as fog or clouds, during the final approach to TLH runway nine, he said, "not that I can remember."

Frye was told that flight data recorder specialists at the Board suggested that the throttles may have been rolled back during later stages of the approach. When asked if he could comment on this, Frye said, "All I can tell you is when I rolled final, I was on centerline, and I looked at the PAPI, and it looked alright. I added some power because we were slightly slow."

Frye was asked if there was anything else he could tell the interviewers that might help with the investigation, he said, "I wish I could."

Frye could not recall how he got out of the aircraft after the crash. He said, "They tell me the captain pulled me out."

When asked if he ever flew tired at FedEx, he said, "I've flown very tired. I've never flown where I felt it was unsafe."

When asked if he had ever flown with FedEx captains who had poor CRM skills, he said, "Certainly."

Frye thought the maintenance on FedEx airplanes was "pretty good," especially at the out stations.

Frye said he was not aware of any life changes on the part of the captain or S/O.

Frye said his definition of fatigue was, "fatigue means you're S/O tired that you might do something unsafe."

Frye was asked if he was about 15 miles out when he turned to final. He said, "I don't remember where that was at. It was a guess I made." He also did not recall his flap setting or descent rate when he turned on final and he did not recall the GPWS calling out 500 feet or any subsequent GPWS callouts.

When asked to re-clarify whether he added power about 15 miles out, he said, "That's my guess. Up until that time it was the proverbial flying along fat, dumb, and happy, and that's where everything [memory] seems to go away."

He said he had a normal rate of descent.

When asked to recall the details of the "nightmare" he remembered, Frye said he recalled bits and pieces of what felt like a nightmare - being at a crash site, being awake, and wondering what just happened. He said he remembered seeing people walking around and knowing it was a crash site and knowing there was no way in the world this could have happened to him. Then he woke up in the hospital and was told that his nightmare did happen. It was reality.

When asked if there was anything he would like to add to his statement that might be on his mind, Frye said he did not think S/O.