ATTACHMENT D

Human Performance Group Interview Summaries

(17 pages)

Interview:	**Michael D. Taylor, Lead Instructor, Crew Resource Management Training**
Time/Date:	**1205/ September 4, 2002**
Location:	**Federal Express Flight Training Facility, Memphis, TN**
Present:	**Brenner, Bramble, Groves, Nesthus, Welch**

Captain Taylor stated that FedEx hired him in February, 1994. He began working in the Training Department in 1995 as a simulator instructor and check airman. Previous to that, he was a 727 Captain. He estimated his total pilot time to be about 6,000-7,000 hours. With his current job he rotated from duties in the shop to flying the line. He estimated that he had two flying days a month and on average flew the line 3-4 times a year.

Captain Taylor said he did not know any of the three accident flight crew members personally.

Asked about the history of CFIT training at FedEx, he stated that the training department started the training in 1999 at the request of the assistant chief pilot. The company had just completed a mediated debrief concerning a flight event at Toluca, Mexico (that involved CFIT issues). In addition, one member of the training office was attending the OSU symposium on aviation psychology and saw a presentation by Continental Airlines on its CFIT training program. The FedEx CRM training office embarked on an intensive research program on CFIT and obtained a lot of information from the Flight Safety Foundation. The training office developed a CFIT module for recurrent training and delivered it to simulator instructors to teach. After the recurrent module timed out, the training office dovetailed the salient points of CFIT into the CRM baseline course. They discussed risk of CFIT awareness, etc. The individual simulator instructor provided the actual instruction.

1996-1997 was the time that the company changed from standup training of recurrent to the current format with individual simulator instructors providing the recurrent training. Before then, crews would come to MEM for recurrent ground school and receive standup presentations. The training department instructors would present that material personally with case studies and interactive format and provide a handout book. The last recurrent class he taught through standup instruction was on the black hole approach in 1995-1996.

When asked to compare the earlier training format with the later one, Captain Taylor stated that the instructors always had better standardization and quality control when they taught the material themselves and that the people who prepared the material should deliver it. He felt that the quality of the product was better when the people who developed the material delivered it in a standup format. Asked whether the company might return to the earlier standup format, he said it had been discussed. They had discussed going to standup for the previous year's recurrent training, on threat & error management. However, close to the deadline, their direction had changed and the department had to scramble to get the training material ready for the sim instructors to deliver instead. The department developed slides with an audio/visual presentation so the instruction was stand-alone and self-narrating.

Previous topics for recurrent training included fatigue, conflict management, hurry up syndrome, black hole approaches (1995-1996), situational awareness (1996-97, with separate training versions developed for round dial vs. glass airplane crews), decision making in critical situations (1997-98), mediated debriefs, CFIT, flight deck distractions, and monitoring and challenging. CFIT was a hot topic that year because of a near miss at Toluca. Distractions. Fatigue was introduced in 1991 then integrated into initial training.

Asked about the response of the pilots to the CFIT training, Captain Taylor indicated that the response was very favorable. There were prior misconceptions about what CFIT entailed. Some check airmen gave ways to improve the CFIT card that figured in subsequent revisions. They showed the training to local FAA representatives, flight safety foundation people, management, different instructor groups and the responses were all very favorable.

Asked to compare the CFIT training at FedEx to comparable training in the rest of the industry, Captain Taylor said he could only compare it to Continental Airlines, which provided a prototype for the FedEx instruction. FedEx developed a summary card in Jeppesen format, showed the CFIT program to Continental Airlines said Continental said it was great. FedEx presented their material at the ATA quarterly meeting at NASA Ames and it was very favorably received – other airlines wanted copies. In response to a question, Captain Taylor indicated that he believed FedEx was the first airline in the industry to develop a CFIT training program in terms of putting out systematic info on their flight releases. He had the impression that FedEx was the first to take this step based on his attendance at the ATA HF meeting. Continental Airlines used a threat & error approach, but had not developed a card like that at FedEx. For the card, the training department developed a Jeppesen-size prototype that they wanted to give to the pilots because they thought training books might disappear after awhile when students came back to review the material. Subsequently they developed a similar card for fatigue training. They also added CFIT information to the salmon sheet, which was already being used, to the APLC, and to the flight release to make sure the information was widely available.

Asked about other training changes that resulted from accidents, Captain Taylor indicated that many accidents had been instrumental in determining how the training department built modules. They used the American Airlines accident at Little Rock as a case study in monitoring/challenging. They used many other case studies to illustrate different points. Asked whether there were training changes as a result of the FedEx Subic Bay accident involving airspeed discrepancies, Captain Taylor indicated he was not aware of specific changes. However, after the CFIT training, the company had other approach and landing type situations so they had the opportunity to really look at how they operated. In fall, 1999, they incorporated a list of recommendations and briefed them to all airmen from Standards and Training. They made 14 recommendations for CFIT related changes in training and operations (copy provided). Captain Taylor indicated the recommendations did not go very far. Stabilized approach criteria were more clearly defined –that was the only recommendation that got a response.

Asked about fatigue training, Captain Taylor said that one of the training department people involved in CRM - Mark Clair - had done fatigue research with Mark Rose kind at NASA-Ames. Also, a FedEx team participated in a NASA sleep study in the early 1990s. Fatigue was first taught as a recurrent topic in 1991 and was then incorporated in basic indoctrination. Captain Taylor said he first experienced the fatigue training when he was a line pilot and he was very impressed. Several years ago the basic indoctrination and fatigue training were combined into one two-day training course. Fatigue training was well established when he joined the training department and was one of the last modules that he was qualified to teach because there was so much information to learn.

Captain Taylor said that the feedback from pilots had been very good. The only criticism they received was that some pilots wished the training occurred closer to when they actually started flying. It would be more operationally useful if it were closer to the time the crews actually went out. Asked whether fatigue training would be good for crews that have actually been out on the line for a while, Captain Taylor said that there were discussions about reintroducing fatigue as a recurrent topic and that this might happen in the future.

Told that the flight engineer in the TLH accident had stated to the other crewmembers that TLH involved moderate CFIT, and asked how the crew should have responded, Captain Taylor said that the crew should have determined what factors caused TLH to have a moderate CFIT rating and should have had comprehensive briefing about how to mitigate the threat. "Black hole" is one of the factors listed on the card as a moderate CFIT threat. The training was designed to create a shared mental model of the game plan.

Asked about possible training changes that might be responsive to the TLH accident, Captain Taylor suggested that it might be useful to revisit the "black hole" approach concept. What are the characteristics of airports that fit that profile.

Asked why only one CFIT training recommendation out of 14 had been approved, Captain Taylor indicated he did not know the answer to that. He stated that the training department had asked on more than one occasion to have a LOSA audit at FedEx. It would show issues below the tip of the iceberg. He said the LOSA audit was something he had felt strongly about for a long time.

Asked whether economic issues were involved in the reluctance for standup instruction, Captain Taylor indicated he did not know. He said there was an effort in 1996-97 to streamline and make the training footprint more efficient, to do more with less. The Director of Training and Standards told them to make the change as part of a focus on AQP and a one-time visit.

Captain Taylor stated that the overall training program was very good. He was happy with the content, describing it as good and timely. The training department worked hard to dispel any touchy-feely image for human performance material and make it operationally oriented. Feedback had been good. As a pilot, he would judge the training by whether it was useful to him and, yes, it was good stuff that would give him some extra tools to be aware of what was out there if he used them.

Asked about unfavorable reviews of the training, Captain Taylor stated that they did not really concern the content. There were complaints about the teaching styles of particular instructors, such as not really holding interest or talking to the screen too much. The content was very well received. The two biggest groups of tough customers were the check airmen and the captains and they received favorable comments from both groups. He said that you would expect good comments from new hires because they were glad to be there and reluctant to say anything negative. However, at almost every check airman course someone will say that they wished every check airman would get the training.

Captain Taylor said that overall training, not just CRM, was very good. His most recent training was on the Airbus and it was conceptually the best training he ever had. It was a methodical building block approach. Study, talk about, do the CMI, actually punch the buttons & reinforce it. He felt that, overall, training was one of the company's strengths.

Captain Taylor stated that the department received feedback from the line to get more human performance integrated into the operations. They receive feedback through critiques filled out at the end of the courses. Sometimes they would receive detailed feedback from pilots who were well versed and knowledgeable in the area. One of the values of standup instruction was that it was interactive and increased the ability to obtain feedback. One thing he has heard is that pilots really like the LOFT format as opposed to "hair on fire" format.

Asked why "black hole" was missing as a CFIT factor for TLH, Captain Taylor stated that TLH was not considered black hole because there was a PAPI. He said that they really belabored over these issues when they revised this card – they tried to not have every airport be a moderate CFIT risk.

A recommendation is to be made to make the approach briefing done prior to the top of descent (cruise flight). FSF data indicate that crews make 60% more errors when they brief during the descent.

When Captain Taylor was asked if he would like to see human factors be a recognized department with a manager on par with the training manager, he said yes. This would give more credibility to the department. Now, the program did not exist on anyone's organizational chart – they were just a group of instructors. A department would give them a greater sense of legitimacy and importance – a seat at the table during checklist and procedure reviews, etc. It would integrate human factors into the process better. Now, they were not routinely part of the process. Sometimes they were invited to talk about HF at meetings of other company groups, but usually they were not invited to meetings or were invited as an afterthought (such as meetings about issues such as modifying checklist procedures).

New CRM classes had been initiated as follows. A one-day Baseline CRM course was first given as a recurrent in 1989 and added to the Basic Indoctrination class for new hires in subsequent years. The two-hour course on sleep and fatigue was developed as a recurrent course in 1990 and was added to the BI course in 1991. A two-day CRM presentation was added to an existing course for new line check airmen and instructors during the years 1993-1994. The Captain's two-day course, including CRM, was initiated in 1997-1998.

The CRM shop was working on the development of a "Second in Command" course, but did not yet have a time frame for implementation. This would be a one-day course. Presentations would be made by the chief pilot, a representative of flight standards, a representative of flight safety, FedEx's ATC liaison, the duty officer, senior captains and the CRM shop. The course would focus on what it means to be second in command. It had been approved, but decisions had yet to be made as to where it would go in training.

Taylor said that the CRM shop had been lobbying for changing the term "pilot not flying" to "pilot monitoring." This change was first recommended as a Flight Operations Manual revision two years ago. This recommendation died, but recently they had resubmitted it. They were seeking the change because they wanted pilots to think more about the importance of their monitoring role. When asked if the name change was related to any prior accidents or incidents, Taylor said no. A presentation by US Airways at a meeting of the ATA Human Factors DC generated the idea. It was Taylor's idea.

Taylor had just attended another ATA conference and saw Southwest's procedures and forwarded some additional recommendations up the chain. Southwest had decided to require that the whole taxi checklist be performed before pushback. This change was being implemented to short-circuit the "go-go mentality." They said, on average, it added 20 to 45 seconds to the process.

When asked to whom he would submit recommendations based on things learned at ATA meetings, Taylor said he would submit them to his boss, the Senior Manager of Training. His boss would look at them and might send them up to the director of standards.

Regarding union feedback on the development and quality of CRM training, Taylor said they had received very little. He said when they were doing the fatigue card they were considering a proposal for LOSA. One of the CRM staff went to the head of the ALPA safety committee at FedEx MEC and briefed him on what they were doing with the fatigue card. There had been some other informal discussions as well.

When asked if the union had been supportive of the CRM training contained in the Captain's upgrade course, Taylor said he could not say.

When asked if the CFIT presentation presented to NTSB staff on the day of the interview was the same CFIT presentation the crew members of Flight 1478 would have received, Taylor said the crew got the same baseline information. The only thing different was when they received the baseline, it would have been before CFIT training was developed. They would have received it during recurrent. When asked if any of the Flight 1478 crew had received any of the CRM shop's other training in person, he said he did not remember.

When asked what percent of airports used by FedEx had a moderate or high CFIT rating, Taylor said he did not know. He provided paperwork that listed the ratings for all the airports, however (this paperwork indicated that the percentage of moderate risk CFIT airports was 35 percent, the percentage of high risk CFIT airports was 10.9 percent).

Taylor said the ATA Human Factors Committee met quarterly. Taylor was the Vice Chairman of the committee. Another member of the CRM shop was a member of the ATA Automation Committee. When asked if FedEx had presented at the these meetings, he said yes. FedEx had presented at the last meeting, held at NASA Ames. During a period of the meeting called "hot swap" he showed the other members distractions and risk management. US Airways showed a presentation on monitoring and challenging. Taylor said FedEx had made presentations on at least three occasions at these meetings.

Interview:	**Earl M. "Sonny" Thompson, Flex Instructor, CRM/Human Factors**
Time/Date:	**1320/ September 4, 2002**
Location:	**Federal Express Flight Training Facility, Memphis, TN**
Present:	**Brenner, Bramble, Groves, Nesthus, Welch**

Captain Thompson's date of hire with FedEx was November 6, 1978. He had been a human factors instructor since spring 1998.

In 1978, he was a DA-20 Falcon First Officer for about 15 months. Then he upgraded to Falcon Captain, and served for about 4 years. He was selected as Falcon/DA-20 Flight Manager/Check Airman around 1984. He did that until the Falcon /DA-20 was retired by FedEx in 1985. At that time, he transitioned to a position as a Boeing 727 Flight Manager/Check Airman. After a re-organization of flight operations, he became the Senior Manager of Flight Operations and Administration, this was during the pre-contract period. He was responsible for administering the Flight Crewmember Handbook (FCH). He held this position until fall 1988. From 1988 till 1992 he was a Line Check Airman on the 727. He was selected as System Chief Pilot in 1992 and worked in that position until December 1997. During that time he also served as the Director of Flight Operations and was the Interim VP of Flight Operations for a period.

He had approximately 6,000 flight hours under FAR Part 121.

When asked why he sought to become a CRM Flex Instructor, Thompson said he did not want to be a technical instructor in the school, but wanted to seek an instructor position that dealt more with the human aspects of training. He felt at the time that his experiences in dealing with people under different circumstances lent itself to doing this type of work.

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When asked how well CRM had been received at FedEx, he said it was hard to judge. Course evaluations indicated it was received very well. However, he did not believe they were "getting to" all the crew force. They were doing a real fine job working with the new hires. They did a pretty good job getting to check airman and simulator instructors. They would love to put in place an upgrade FO course, which they had mostly prepared but not yet incorporated into a syllabus because they had not been given the go-head. They had reached most, but not all captains in Captain's Course. They taught leadership, attitude, and risk assessment in that course.

In terms of the reception of CRM training, Thompson felt they did not always reach those individuals who did not have a heart for the profession, those who were not truly dedicated. In addition, they did not get to that "small percent of the crew force, which all airlines have – those who think 'it's not for me.' Their perception of CRM is that it is a bunch of sissy stuff. There is that small percentage that still doesn't know what CRM skills consists of."

The company introduce CRM before Thompson was involved in the shop. FedEx started it because a few airlines were involved in CRM training. FedEx saw that there was an airline culture that was not particularly friendly toward the open discussion of pilot error. Thompson was not sure that had changed too much. Human factors-related accidents were still happening.

When asked if CRM should be a department of it's own, Thompson said, "That depends on where FedEx wants to take it." In his opinion, there should be a side-by-side working group that reports directly to Senior Manager, Flight Training Systems. He did not think the company was ready for it to be attached to the Standards Department. It still belonged on the training side of the house, and was not mature enough to integrate human factors training and evaluation into standards. He thought there should be a fifth Flight Training Manager (Currently there were four Flight

Training Managers, for the B-727, DC-10, A300/310, and MD-11/10). Having its own Manager would help the CRM shop better integrate human factors training into the other departments.

Thompson did not know any of the accident crew members.

Several years ago, recurrent training had shifted from lecture to a more automated presentation format, Thompson was asked why that change was made. Thompson said he felt, at the time, that it was a cost savings issue, just like American Airlines had done, and so many others as well.
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FedEx's initial transition was to this was called Computer-Managed Instruction (CMI). It was computer-based ground instruction and, in some cases, it replaced annual recurrent training for some topics, like weather and physiology.

When asked how it worked out, Thompson said it eliminated the ability to ask a timely question and get real-time feedback.

When asked how FedEx crews liked the fatigue lecture, Thompson said it was taught as a recurrent human factors subject years ago. It was before he was in the human factors training office. The crews generally liked it a lot. The current problem was that it was being given primarily to new hires, and they could not fully appreciate the benefit of it until later when they were out on the line. At that point, they could not remember it as well. Thompson wished the new hires could get the subject after their initial operating experience (IOE) but it was almost impossible to teach them together as a class after IOE.

Suggestions had been made to change the timing of the class, but it just did not fit into the courseware arrangement yet. Once the pilots got out of ground school, they never received training as a class again. After IOE, they were off to the line within 24 hours.

When asked about crew reception to the CFIT training module, Thompson said he had gotten mixed reviews about that. Some of the more "cerebral" aircrews saw it as outstanding class. Most saw it as a good subject and good information, but didn't think it would ever happen to them. A small percent thought it was a bunch of trash – that only idiots would do crash an airplane like that. By and large it was received as good training. Like most training, it is taken to heart when your risk awareness or accident awareness is at a higher level. Currently, there was a lot of interest in Controlled Flight into Terrain (CFIT). A year and a half ago there was not as much interest in that topic.

When asked what changes he would like to see in response to the TLH accident, Thompson said he would like everyone from the CEO down to every crewmember to believe that human factors failures affect every single person, from the CEO to the most junior second officer. Human factors was not just those big items that cause airplanes to fly into ground – it was small things, middle-size things. Lots of little things happen on every flight. Line up a lot of little things, and you could have a human factors accident. Thompson wished all pilots understood that and could see learning about human factors as a way to avoid having those small things add up to a human factors accident. Maybe that would be benefit of the accident in Tallahassee.

When asked if there was a perception of CRM as "hot tub harmony," Thompson said, "That perception came about from Dr. Jerry Berlin – he stated, in his teaching here, that you should treat crewmembers as if you were sitting in a hot tub with them having a hot toddy. His teaching set back human factors at FedEx. He may have done irreparable harm for some check airmen. He made this statement in a meeting of check airman. The initial effort was trying to teach the

check airmen to disseminate human factors. Initially, the skills that were being taught were based on behavioral psychology. This initial CRM instruction was given in 1987. It came about after the accident in Tenerife, and after the FAA recommendation that those deficiencies noted in the KLM accident ought to be addressed. Some senior check airman actually got up and walked out of the class.

The next generation of CRM at FedEx was about trying to recover from the class taught by Dr. Berlin, and trying to teach skill sets that all crewmembers can use. Since 1988, CRM had focused on crewmember skill sets. They had tried to broach the LOFT approach with their instruction. They were currently focusing on teaching basic skill sets to new hires and on teaching good CRM evaluation skills to check airmen. They had had human factors failures during check rides that were debriefed as such. Thompson thought many technical deficiencies can be attributed to human factors failures. Quite often, failures in procedures, and checklists were human factors failures. He thought the industry still had a long way to go to recognize the role of human factors in the cockpit.

When asked what took place at other carriers, Thompson said he had limited observations in that regard. It was one thing to talk to other carriers, quite another to talk to their crews and see them in action. FedEx had done well incorporating these things in the cockpit, such as fatigue countermeasures, because they work on backside of clock. Flying to difficult international destinations demanded good coordination. FedEx's CRM was as good as anyone's and they were doing very well. They were as good or better than other carriers in the application of CRM skills. Thompson gave credit to the instructors and check airmen for that success.

Thompson did not know how FedEx's fatigue instruction compared to that of other airlines. His gut feeling was that FedEx's was a lot better. They gave the fatigue class, and letters about fatigue awareness and countermeasures were constantly being sent out.

When asked whether, as a pilot, he felt that the quality and quantity of CRM instruction was adequate, Thompson said, "I don't think you can have enough of it. No airline could give enough without over saturating the point – which might become negative training. I'd like to see more informal work done among the crews – realistic countermeasures. I'd like to see standup training on a recurrent basis – an hour or two of fatigue every year – i.e., 'this is what we know this year based info from last year.'"

When asked why only one of the 14 CFIT recommendations had been acted upon, Thompson said he did not know.

When asked whether FedEx was concerned more about cost than quality and quantity of training, Thompson said, "Overall, no. On the whole, we have taken some tremendously expensive approaches to fixing some issues – we were late in TCAS, but enhanced TCAS is coming down the road, GPWS, enhanced GPWS was expensive, but it's a good thing. We've spent a lot of money doing that kind of training. What they probably have in my opinion is a cost-benefit or risk ratio for not having a day of training to talk about hot topics. But unfortunately, accountants want to know about the cost benefit ratio."

When asked if a Management by Objectives management approach (bonus payouts upon completion of pre-specified objectives) might have resulted in cutbacks on training in certain areas, Thompson said "I am not aware of that happening at Managing Director or level or lower."

When asked if he felt tightening flight training tolerances would prevent future CFIT accidents, Thompson said, "Absolutely not. Appendix training is what it is. LOFT and AQP training is outstanding. Typical training is a check ride. Most Appendix training has been that right seat guys keep their mouth shut, not help, and are along for the ride in sim. That is different from how we expect people to perform on the line. If the captain needs too much of that, then it should be a human factors failure. I don't think a stricter adherence to appendix guidelines is going to do anything other than make crews more neurotic." When asked if he was aware of any movement toward the tightening of appendix training tolerances, Thompson said, "No, I am not aware of it."

When asked how he felt about the overall quality of pilots FedEx was hiring, Thompson said, "I can't say except other than what we see in our scenario-based interviews. In some cases – human factors, decision-making, crew utilization skills – the new pilots are better than 10 years ago, because they're getting training in that before they get here. In terms of stick and rudder skills – they're as good as they have ever been. We're getting glass cockpit guys and that helps them in our wide-body airplanes. What I don't see as much is a clearly dedicated attitude toward the profession, the company, or the union."

Thompson was asked what qualities a CRM Department Manager ought to have (if it were created), whether that person should be a line-holding pilot or not. He said, "I believe it would have benefits either way. I'd kind of like to have core cadre of instructors with different flying backgrounds. I'm not sure it if it wouldn't be a bad idea to have a Ph.D. in human factors to get the leading edge of what's going on. We struggle all the time in the shop to figure out what's going on in the brain when it comes to risk assessment, why crews trained the same way sometimes make poor decisions and sometimes don't."

Thompson thought company managers would probably react to the accident in Tallahassee by trying to instill a stronger sense of self-discipline on the part of each crewmember. His fear was that would be interpreted by Captains as "I have to be more of a control freak over my crew." He hoped it did not make FedEx pilots neurotic. Neurotic crews were not good.

When asked if he thought top management would micromanage training after the Tallahassee accident, Thompson said, I think they're happy to leave it to those on down the hierarchy who know the training, the requirements, etc.

When asked how the process of teaching non-precision approaches should be done from a human factors perspective, Thompson said the MD-11 group was in the process of training non-precision approaches with vertical guidance. Other training tracks were essentially training crews to get the airplane down to Minimum Descent Altitude early and then "drag it in." Thompson thought crews should use a constant rate of descent approach, like they were training in the MD-11.

When asked if he thought any changes might be made to non-precision approach training as a result of the accident, he said, "There needs to be. I don't know what happened on this one. I've been there – I know what it looks like. It was probably a modified base leg to short final. The company needs to make sure that crews get set up on final at 3-5 miles for a visual approach with a constant rate of descent."

When asked if there was a way the FedEx system could identify crewmembers that were fresher or had not been flying as many hours at the beginning of a trip, he said, "That's one of the things that we teach in team formation and management is to ask the question, 'Are you hub turning, how many days have you been at this, how are you feeling?'"

When asked whether he felt the mix of union and nonunion pilots created conflicts within the airline, Thompson said, “Right now, no. Has it, yes. Will it down the road, yes. At the moment, I don’t think it’s an issue. It’s never an issue with me. I’m not a member. It’s never been a problem for me in my cockpit.”

When asked if there was any provision of information to the Flight Safety Department after a mediated debrief occurred, or whether there was any feedback to human factors from Flight Safety regarding their aggregate data, Thompson said, “We ask for it, and they’re very free with their data. As data goes we’re operating in the dark – latent threats, system threats – straight out threats to our operation will only be known is if we as a company, with union (which supports ASAP), do something – if we don’t get on board with LOSA and ASAP then there is no data. American Airlines estimates that 90% of the latent threats they detect would not have been known about without ASAP. The problem is you have to have many company people buy off on it at the same time.” The company was going to do LOSA back in 1995. It was canceled because of precursors to strike operations with the union.

Interview:	**Mike Padron, Managing Director of Flight Training**
Time/Date:	**1445/ September 11, 2002**
Location:	**Federal Express Flight Training Facility, Memphis, TN**
Present:	**Brenner, Bramble, Groves, Nesthus, Welch**

Captain Mike Padron was responsible for all pilot and maintenance training at FedEx. He was also a captain. His date of hire was December 5, 1983.

Before being hired by FedEx, he was a civilian pilot. He received his initial training at Burnside in Miami and Daytona Beach at ERAU. He spent time as a flight instructor and as a freight pilot to the Bahamas. He flew corporate as the chief pilot for Hawaiian Tropic. He was also a test pilot for Mitsubishi Aircraft.

Padron's total time was approximately 7000 hours.

After being hired by FedEx, Padron was a line pilot from 1983 to 1995. He was a second officer on the 727 for a year and a half. He was a first officer on the 727 for a year and a half. He was a first officer on the DC-10 for a year and a half. He was a captain on the 727 for 5 years. He had been a captain on the MD-11 since 1993. In 1995 he began working for the flight training program as a flex instructor/check airman. He was also serving as a check airman on the MD-11 at the time of the interview as well. In June, 1998 he became manager of the MD-11 flight training program. In June 2000, he became senior manager for all FedEx flight training. In September 2001 he became the managing director of all flight and maintenance training. Padron stated that he reports to the Vice President of Flight Operations. Padron said he is one of only four seniority-holding Managing Directors in the company. Others are the Assistant Chief Pilot, the Director of Operations, and the Director of Safety.

Padron said he would characterize the quality of pilot training at FedEx as "outstanding." He said he characterized it that way because, "since 1995 I've been directly involved with it and had opportunity to refine it as I saw fit." They were continuing to refine the training. Padron believed FedEx flight training was geared to prepare their pilots for the operating environment at FedEx as opposed to merely complying with FARs. The training was compliant with the FARs, but that was not FedEx's target. Padron said that was evident in many different areas. It was evident in the Flight Operations Training Manual. It was evident in the fact that every one of FedEx's training programs widely exceeded FAR requirements. No carrier exceeded FedEx's training program. For example, FedEx MD-11 pilots were trained and qualified to fly all over the world in both directions in both the MD-11, MD-10.

Padron sat on the Operations Training Committee of the Air Transport Association. Two things had been striking at the meetings of that committee. Padron was a seniority-holding pilot. Many other carriers did not have seniority-holding training managers. Padron had also asked the other directors how much training they do. At some other major airlines, they train at 9 and 18 month intervals. FedEx trained twice as much – they saw every pilot every 6 months. This clearly told Padron that it was not a bottom-line driven training program, but was geared to meeting needs of FedEx pilots.

When asked how FedEx's fatigue training module compared to that of other airlines, Padron said, "I'm not aware of a fatigue countermeasures module at other carriers – not to say they don't have them." He added that one thing that distinguished FedEx's operations was that they did a lot of back-of-clock flying. Stand-alone fatigue training might not have been as necessary at other carriers.

Padron received feedback from every student who completed a long course (initial, upgrade, and transition). After a pilot completed his operating experience following a training program, Padron sent them an email. On the whole, the feedback he received in this manner was outstanding. The most common thing he heard was "this is the best training I've ever had." They would let him know if they saw something that needed their attention. All student suggestions for improvement were forwarded to Padron's managers as an action item with a designated time frame for follow-up.

When asked what he, personally, thought of the fatigue training, he said that he did not receive feedback specifically on that portion of the training. He had received the training himself while flying as a line pilot. He found the training was useful to him.

Padron was asked if he thought it would be useful to have senior pilots take the fatigue training or retake it if they had already had it. He said there were no plans to do that at the time of the interview, but he would be happy to entertain the idea

Padron did not know any of the crew members from Flight 1478 personally.

Regarding feedback on the CFIT recurrent training module presented in 1999, Padron said that training had been presented before he became Managing Director of Flight Training. As a pilot he found it fascinating. Before the training, he had thought of CFIT as primarily a problem related to mountainous terrain. Padron found the training very useful. He recalled that the training showcased the FedEx Flying Tiger accident and it really "brought things home."

When asked whether CRM recurrent training had moved to a computer-based format, Padron said no. The CRM training was being prepared by the CRM department and delivered to pilots by simulator training instructors. Padron was very much involved in selecting the delivery method for that training. His philosophy was that he did not have any MD-11 steep turn instructors or any V1 cut instructors. Human factors was a relatively new field in aviation. Ultimately, he thought it needed to be an integral part of all FedEx training curricula. If you had a separate CRM instructor, however, it would not seem like an integral part of the curriculum. Instead, he viewed it as preferable to have the dedicated experts "teach the teachers." This approach was still being developed.

The jury was still out on whether simulator instructors could teach or assess CRM skills effectively in the training context. The skills that were such a part of pilot background – airmanship skills – were not necessarily the same skills needed for identifying and remediating human factors issues. He knew that although instructors were comfortable with evaluating flight performance, some were not as comfortable evaluating team formation and skills of that nature. It was Padron's hope that FedEx could train the simulator instructors to evaluate these things.

When asked if he thought CRM should be made a separate training department, Padron said he had consciously decided not to organize his management structure that way. He had a single seniority manager for each aircraft-specific track he held responsible for the content of that training program. He would hold them accountable for that training and the FAA and the NTSB would as well. Having a separate, accountable CRM training manager is not the optimal management structure.

When asked if there had been any moves to establish a Line Operations Safety Audit (LOSA) or Aviation Safety Action Program (ASAP), Padron said he was "all for it." He would like to know

what FedEx pilots do when they were not being monitored, as long as it would not put them in danger of losing their FAA certificates. Airlines with ASAP programs had moved away from those programs a few years back when FAA said they wanted to use the data for certificate action. The airlines responded by saying they would not have the programs any more. The FAA then said it could achieve what it needed to do using de-identified data. Padron was hopeful that such programs would be established at FedEx in the next year or so. The Director of Safety would be in charge of such programs.

Padron said his relations with the safety department were outstanding. He met with the Director of the safety department several times a week. All the directors (under the Vice President of Operations) met each Tuesday at 0830 to discuss hot topics. Before the accident involving Flight 1478, the directors were monitoring trends involving weight/balance and runway incursion incidents. Since the accident in Tallahassee, the focus had shifted to Tallahassee.

When asked if there had been any changes in training in response to accidents at FedEx, he said he was on the NTSB operations group for two previous accidents - one in New Jersey involving an MD-11 and an accident in Subic Bay. Padron was intimately familiar with the information that came out in those investigations and he was able to implement appropriate changes right away.

When asked about changes resulting from Subic Bay, Padron said there had been a lot of things changed. It was clear from the official report on that accident that the crew was confused as the events unfolded. Those were largely human factors issues with an undercurrent of technology, and some warnings issues. In the accident, the crew got an alert and ran the appropriate checklist – but with these kinds of Air Data Computer (ADC) error alerts, the alerts are the symptom, and not the root cause. The checklist did not lead them to the root cause. Immediately, FedEx changed checklists to redirect crews to focus on the appropriate cues. The manufacturer later changed their checklists as well. This wasn't the first time this type of ADC alert had occurred. FedEx incorporated these issues into their recurrent and initial training.

Since the accident in New Jersey, FedEx had made changes in training to improve understanding of APLC data. Misinterpretation of the APLC data was not causal in the accident, but confusion occurred with that crew. The crew thought they were on a tighter stopping margin than they actually were. Changes were made to recurrent and initial training as a result. Also, the company had previously been providing training to pilots regarding tail-strike issues and the crew's actions were not consistent with that training.

When asked whether any changes had been made to training as a result of the accident in Tallahassee (Flight 1478), Padron said, "I have heard the FO was flying the airplane. Since then we have mandated monitored approach when the weather is less than 1000 and 3," although the weather was not an issue in Tallahassee.

Padron was asked how he viewed the role of the training department. Padron stated that he viewed FedEx pilots as customers and that he viewed the training department as providing a customer-oriented training program. When asked how he would feel about tightening training performance tolerances in response to the recent accident, Padron said he felt guarded against that. He believed FedEx training was well-founded and delivered and that their standards were set correctly. FedEx pilots needed to know that they would have a fair evaluation, otherwise their motivation would deteriorate. That did not mean the company would not periodically re-evaluate training standards. However, he was very guarded against the possibility of a knee-jerk reaction to change the training or evaluation process.

When asked for his view of the CRM department at FedEx, Padron said the first time he saw human factors training at FedEx, he was totally taken aback at the quality of the training. It was the first time he had seen an integrated power point presentation used for that purpose. He said he was very impressed by the quality and background of the team members working in the FedEx CRM department.

When asked why he was reluctant to create a separate training department dedicated to CRM, Padron said, he had approved training programs for different aircraft and he held those program managers responsible for those training programs. Human factors had to be integral to training, not a separate program. If he built a separate CRM "empire," it would contribute to touchy-feely negative impressions of CRM and people would not view it as an integral part of training.

Padron was asked what kind of negative feedback he had received regarding existing CRM courses. He said the most common type of negative feedback was interpersonal in nature –such as a comment on an individual instructor. Some pilots wished to have more continuity with instructors (i.e., having a single instructor present an entire CRM class rather than two or more instructors), but it is the training department's policy to provide more than one CRM instructor per class in order to provide the students with different perspectives. Sometimes if there was a seasoned instructor taking a class they would comment that they would rather have had a more senior instructor for a particular segment of instruction, but new instructors had to be given the opportunity to gain experience. Some MD-11 pilots would say that the MD-11 LOFT program had too much LOFT.

When asked how he would feel about having CRM recurrent presented as stand-up instructor-led training provided by the CRM department during ground school, Padron said recurrent CRM training was stand-up for all aircraft. They had a whole day of recurrent ground school in the MD-11 curriculum and part of that was stand-up CRM training. FedEx had been looking at bringing back a whole day of recurrent ground school for all aircraft. They already do twice as much training as their competitors. FedEx was also considering adding additional simulator training time as well.

Padron said the amount and quality of training for new hires was outstanding and continuing to evolve.

His relationship with ALPA was excellent. Padron pointed out that he was on the original organizing committee that brought ALPA to FedEx. When asked if he worked closely with ALPA on training issues, Padron said, "I don't view ALPA as an entity. ALPA is our pilots." He added that the best way to respect their customers was to respect their customers' representatives. He had a good relationship with them.

When asked if he had any other information that could help the Board with the investigation, Padron said he wanted to thank the Board for treating FedEx pilots who had been involved in accidents with dignity and respect. He encouraged the Board to find out what had caused the accident in Tallahassee and to provide that information to him. He would be willing to make any needed changes in training.

Padron was asked if he had been pressured by higher management to come up with any "band-aid fixes" in response to the accident. He said no.

Interview: **Isaias G. Arriaga, Jr., FedEx Duty Officer**
Time, Date: **1400, October 23, 2002**
Location: **Telephone Interview**
Present: **Bramble, Ivey, Groves, Welch**
Represented by: **Mark Hansen, FedEx Counsel**

The duty officer was born [redacted] His date of hire at FedEx as September 21, 1987. His aviation certificates included an airline transport pilot's certificate, with an airplane multi-engine land rating, as well as a flight engineer certificate for the B-727. He also held a type rating for the A-310. He had about 6000 hours total time. He served as captain on the A-310 in addition to his responsibilities as a FedEx duty officer. He did not know any of the crew members aboard Flight 1478 personally.

He had served as a duty officer for FedEx since January 1, 2002. He had served as captain on the Airbus since 1997 or 1998. His responsibility as a duty officer was to "ensure safe and legal operation of the airline." The night duty officer would routinely be responsible for looking at current weather and ensuring that high-minimum captains would not be going into airports with lower weather. Additionally, the duty officer would look at duty times for crew members that were approaching their limits, look at the weather at their destinations. If any of their destinations had poor weather that could require holding, the duty officer might replace them with crews who had more remaining duty time. This would be done to help ensure that freight would reach its destination instead of being diverted to keep a crew under duty time limitations. There were several clauses in the union contract requiring duty officer approval of certain decisions, so the duty officer would get involved in those decisions as well. In general, the duty officer was responsible for issues involving legality and safety. The director of operations was responsible for overseeing the duty officer program and could give a more detailed overview.

New duty officers did receive training. The group of duty officers is small (5 or 6), so training is typically performed on the job by another duty officer who ensured that certain items on a training syllabus were accomplished. There were training presentations on topics like contract administration, and duty officers were taken to observe operations various places in the company, such as control centers and ramp areas. Written guidance was available to duty officers in many forms, including the Federal Aviation Regulations, FedEx Flight Operations Manual, and a duty officer's reference book containing guidance from the director of operations.

He was serving as duty officer on the morning of July 26, 2002. As was normally the case, he was the only duty officer on the job at that time, although he noted that the director of operations was always accessible by pager or telephone if the duty officer needed additional guidance.

The F/O for Flight 1478 contacted him on the evening of the 25th by pager. The duty officer was located at the FedEx global operations control center at the time. The page he received contained a phone number. The duty officer called the number and reached the

F/O. He believed the F/O was at his layover hotel, but he could have been at the air operations center. He could not remember the time of the call. It could have been in the evening around 8 PM, or later after the F/O returned to Memphis.

The call lasted about 5 minutes. The two men introduced themselves, and the F/O said he had a question regarding the reserve assignment on his outbound leg. He indicated he was on R24 status and, the way he read the contract, that status required 24-hour notice prior to any trip assignment. The duty officer told the F/O he thought an R24 individual could be given an assignment with less than 24 hours notice once he was on flying trips. He said he would verify that with the crew resource scheduling manager call the F/O back. The two terminated the call. The duty officer called the F/O back 5-10 minutes later and confirmed what he had initially told him. He gave the F/O a reference for the answer- the Q&A section for the union bargaining agreement. The F/O was "fine with that." The discussion of the trip assignment was "a cordial conversation on both parts, just more or less that he had a question about it." The second call also lasted about 5 minutes.

The F/O's speech was clear during the two phone calls. There was nothing about it that stood out. The duty officer did not notice any indications of sleepiness or poor health. The F/O did not sound congested.

The duty officer felt the inquiry was resolved during the phone calls. He thought the F/O "certainly seemed satisfied with the answer he was given. He did indicate that he would, the next day, check with the union to see what the take was on that. It was said more as a comment rather than anything he took umbrage or exception to." The F/O did not mention anything about wanting to file a grievance. The duty officer had not seen the F/O since the accident.

The duty officer had received this type of inquiry on at least one prior occasion. Common types of inquiries from pilots included requests for catering, questions about the legality of revised trip pairings, and disagreements with maintenance personnel about the legality of deferred maintenance items. Sometimes pilots called about administrative matters, such as military leave, jury duty, or family emergency. Most administrative matters were referred to the appropriate chief pilot, unless a pilot needed to be removed from a trip right away.

The duty officer understood that there was a difference between calling in sick and calling in fatigued. He explained that when a pilot called in sick, the VIPS scheduling system would list the pilot sick until he called in well. A pilot who called in fatigued would speak with his crew scheduler. The crew scheduler would then notify scheduling manager. The scheduling manager might or might not inform the duty officer. As far as whether sick leave would be charged, the duty officer thought it was, but was not certain. The big difference was, if a pilot called in fatigued, he automatically was assumed ready for duty after a period of time, whereas calling in sick removed the pilot from duty until he called in well.

The duty officer was not certain how often pilots called in fatigued. He only worked as duty officer two weeks each month. He heard about a pilot calling in fatigued about once a month. He did not have access to records indicating how often individual pilots called in sick or fatigued. When asked if he had heard of any pilots who abused the option of calling in fatigued, the duty officer said if he had dealt with a pilot calling in a number of times he might gain that opinion, but he had not encountered that. He thought FedEx pilots did not often call in fatigued. They were more likely to call in sick than call in fatigued. The end result was the same, however. They would be off a trip and charged sick leave. When pilots did call in fatigued, most of the time they called in with a valid reason, such as loud repair work in the hotel room next to theirs. When asked if there was any follow up contact with a pilot who called in fatigued, the duty officer said there might or might not be.

The duty officer was asked to elaborate on his flight experience in different crew positions. He stated that he had served as first and second officer on the B-727, as F/O and captain on the A-300, and as an A-300 simulator instructor from 1996 to 2001. He had flown the B-727 from 1987 to 1994, and he estimated his time in that aircraft as between 3000 and 3500 hours. When he was an Airbus instructor he served as both instructor and check airman.

When asked about A-300 training related to awareness of black hole approaches, he said, "We certainly talk about that - CRM one year we had an emphasis on it. We actually had videotapes and briefings. We brief those in every simulator and talk about nonprecision approaches in the Airbus and talk about different tools to combat black hole approaches." When asked about the use of the radar altimeter bug during visual approaches, the duty officer said it was not required that pilots use it. They did not brief a decision height for a visual approach.

The duty officer confirmed that he had not interacted with either of the other two crew members (Captain or S/O) aboard Flight 1478. He had flown into TLH before, but had not landed on runway 9.

When asked if duty officers kept a written log of incoming calls, he said they do not keep a record of every call. They publish a duty log for the night and day duty periods, but calls of the kind he received from the F/O would not be recorded. Something of that nature would not be entered in the log unless the duty officer thought it represented a significant or systemic problem.

When asked if he had spoken with the captain of Flight 1478, the duty officer said no. When asked again if the noticed any issues with the F/O's speech, such as agitation or anger, he said no, the conversation was very calm and unremarkable.