Docket No. SA-532

Exhibit No. 2-G

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Operations/Human Performance Group Chairmen
Interview Summaries - Charlotte

(32 Pages)

Attachment 6

to Operations / Human Performance Group Factual Report

DCA09MA026

INTERVIEWS IN CHARLOTTE

Interview: Greg D. Andrews, Ground School Instructor - US Airways
Interview date: January 20, 2009
Time: 1107
Location: US Airways Training Facility, Charlotte, NC

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Ricky Daniel – Federal Aviation Administration (FAA); Philippe Boscardin (BEA).

Mr. Andrews was represented by Dane Jaques (US Airways Legal)

In the interview Mr. Andrews stated the following:

He was 61 years old. He was a Flight Crew Training Instructor at US Airways. He had been with the company for 19 years. In 1964, he was with the US Navy and had a maintenance background and was not a pilot. He was with the Navy for 10 years. After that he went to school and got his airframe & powerplant (A&P) license. He worked in aviation maintenance until 1977. In 1983, he went overseas and taught the pilot ground school for Saudi Arabian Airlines on the 737-200. From 1978 to 1983, he worked as a master instructor with Colorado Aero Tech in Denver, CO. After that he went to Houston to Rice Aviation and was Director of Technical Staff, which he said was a large A&P school. In 1989 he went to US Airways. He had been a ground school instructor since 1989 with various airplanes but in the same capacity. He was an instructor for the 737-200, Fokker 28, Fokker 100, and the Airbus.

Mr. Andrews did not do any flying after the Navy.

Mr. Andrews stated that as a flight crew training instructor, his duties and responsibilities were to follow the curriculum which teaches someone coming in to the Airbus program how to manage the Airbus, the controls and indicators and procedures. He said they prepared the flight crews for simulator training.

He said the Airbus crewmember curriculum was an 11 day course. The first day was all computer based training. Students learned about all of the systems of the aircraft that they would go through. In days 2-11, he said there was two hours of computer based training, followed by an hour or more of stand up lecture. The last four hours of the day, he said was training in a fixed training device. During the four hours, students received a scenario each day that highlighted different systems and QRH procedures. He said it was fairly structured and instructors had a syllabus that they followed. He said all instructors did the same thing.

When asked who developed training/curriculum, he said it was an ongoing process and was continually being updated. He said new lectures were being written for the current class. He said it was developed by the "ground school people" who each had specific areas of expertise for writing the program. He said it was a rather involved process. He

said after someone wrote a procedure or program it was reviewed by several people. He said it was the AQP program. He said they had guidelines that they had to follow and within those guidelines they built the program. He said they worked closely with the flight department.

When asked about the development process and what information they got from the manufacturer, he said they used the FCOM (Flight Crew Operating Manual) from the manufacturer. He said they referenced that when they got stuck on something and referred to that to see how something was written. He said they tried not to plagiarize the manual but sometimes it was the only way because the manufacturer had written it down the best way possible.

Mr. Andrews was asked about ground school training for engine failures. He said in the fixed training device they did not have any scenarios for engine failures. He said that engine failures came up in the lecture type environment in the classroom. He said their curriculum did not involve engine failures and they did not teach that in ground school. He said pilots were really interested in V1 cuts and they deferred to the flight department because that was where they were going to get it. He said those procedures changed often and they were not advised of those changes. Because of that, he said they did not like to teach students about that. He said they had no problem deferring to the flight department because they did not keep up on those procedures. He said they did not want to tell someone how to deal with an engine failure on takeoff when they did not have the information to do that. He clarified that the flight department was the next level up where students did simulator training.

He said they did not teach dual engine failures in ground school. He said they were aware of that procedure and it was available in the QRH. He said they told students to look there and again they deferred to the flight department.

When asked if they trained for bird strikes he said they did. He said it was not part of the curriculum but it came up. He said in a lecture environment, students always asked about 'what if' scenarios. He said they tried to answer questions to the best of their knowledge. He said he had a maintenance background and he knew a lot about the bird strike certification. He said they did not have a procedure or program to talk about that and it was not in their written documentation in ground school.

When asked about bulletins or something similar in which ground instructors were kept up to date on current issues, Mr. Andrews said that they received emails. He said they were linked with the flight department and all of the CBS, broadcast messages, and changes were sent to all ground school instructor emails. He said all ground school instructors were up to date with those things and they checked their mail every day.

Mr. Andrews said that they did not train or offer guidance on compressor stalls in ground school.

When asked if he knew Captain Sullenberger, he said no, he did not know him personally. He said he had written his name down on a roster but that was it.

When asked if he knew FO Skiles, he said he did not know him personally but he had him as a student in ground school in December 1-16, 2008. He said he would have to see his picture. He said he was not sure if he would remember him. He said they had thousands of students that came through there so unless there was something outstanding or bad about a student he could not place them. He said the class with FO Skiles was the only class that he taught in December and it was during a timeframe in which he did not normally teach. He said he remembered that it was a "rather enjoyable class". He said they had a very congenial session, everything went wonderful and they had no issues with either of his students. He said there were two students, a captain and a first officer.

He said the ground school lecture portion of it, the first four hours, could have up to eight students. He said they could not have more because of a training device issue at the current time but would be able to have more later but they were limited at that time to four students. He said after the first four hours and a lunch break, they came back to four hours in the fixed training device. He said at that point they were broken up in to one instructor for two students. He said once an instructor was paired with students in the fixed training device, unless there were extenuating circumstances, they would stay with the same students.

When asked about the grading criteria in ground school, he said it was a pass-fail grading criterion. He said if someone was not doing well and had not gotten their procedures that they were required to know flawlessly, then the recommendation was for them to receive extra training. The extra training would probably be given by another instructor. He said a day or two of extra training with somebody else. He said other than that they either got their type rating or not. When asked how students were rated, he said they were rated based on the fixed training device and question and answer periods during the classroom. He said no test was given and it was a subjective process – were they doing well or were they struggling with a procedure.

When asked what the areas of expertise were of the ground school curriculum developers, he said he was not really familiar. He said the whole ground school was writing the new program. He said it was not the curriculum because the curriculum was set. He said they were developing that in to lesson plans. He said some of the people were dispatchers and pilots.

He said there were only two students in December and one was FO Skiles and he was paired with a captain.

When asked about FO Skiles' performance that stood out, he said both of his students stood out very well. He had no difficulties.

He said he was the only instructor that FO Skiles and the captain he was paired with had in the FTD. He said training was divided in to two parts. The morning part of training

was lecture and computer based training and the second half was FTD. He said he worked with those 2 students in the FTD and most of the briefings

He said there were no problems with his students. He said they were well prepared when they started the class. He said he could tell that both had studied. He said no information had to be gone over again or repeated.

When asked if notes were taken to document performance, he said he only took notes if there were problems and if he would have to justify additional training.

He said he completed a systems procedures validation (SPV) which included information on type of aircraft, type of training, and his recommendation. He said there was a place for comments and he did not fill it in for either student.

When asked about training for crew resource management, he said CRM was a philosophy that they used from day 1. He said they tried to get crews to work together and did procedures together. He said the procedures that were done in the FTD were geared around CRM.

When asked how new employees knew about the philosophy of CRM, he said it was laid out in their handbook – who says what and when for a procedure; when dealing with a fault it stated that this person does this, this person does that. He said with that they reinforced CRM. He said all crewmembers have this handbook.

When asked if they used the swiss cheese model for training, he said he was not familiar with it.

He was asked to clarify four students being in the class together and how they break down into groups of two. He said day 1 was all computer based training. He said in days 2-11 the first four hours was lecture and after that there would be two students to each instructor.

He said they trained the QRH. When asked if ditching procedures were included, he said they taught that on day 1. He said they would put the QRH up on the screen and go over those procedures. He said it was not covered in the rest of the days or in the FTD. He said when in the FTD and they got to the ditching button, they would talk about what it controls and the details of that.

When asked if changes came through emails, he said crew broadcast bulletins were put out by the fleet captain to advise them of a change in lieu of a manual change which takes longer. He said he thought that the changes would be incorporated in to the next manual revision.

When asked if they teach fundamentals rather than procedures, he said yes.

He said ditching was taught in detail on day 1 with the actual procedure being presented on the board. He said day 2 was cockpit familiarization including the ditching panel. He said there was also a review on day 11 which covered it again. He guessed that ditching was talked about at a minimum three times.

Mr. Andrews was asked if the system with one half of classroom and one half of training with the FTD worked well, he said absolutely. He said students learn it and then go in the FTD and try to put it in to practice.

Mr. Andrews was asked what he did if he finished early in the FTD and had extra time available. He answered that he could use it for review or to discuss any subject areas that the crew would like to discuss or did again. He also stated yes when asked that the whole four hour session was used in its entirety.

Mr. Andrews was asked if in addition to CBS messages if he got something called "recent developments" which would also interact with what the flight crew was doing. He responded that they did get those but they were sporadic. He also stated that he usually got them from another instructor and then passed on to him via e-mail.

When asked what time session F/O Skiles had for training he responded that it was the late day session from 2 until 10pm each day.

Mr. Andrews said that compressor stalls were not discussed in ground school but that the ditching pushbutton was covered on the first day of ground school. However it was never covered in the FTD.

Mr. Andrews also noted that although they tried hard not to plagiarize the FCOM, US Airways procedures were very similar to those written in the FCOM.

When asked who trained him to be a ground instructor he claimed it was a complicated answer in that he had spent days with the flight department where they make sure that he was giving an SPV in the same way as the flight training department. In these meetings they bounce questions off of one another. Also he said he participated in monthly standards meetings where the ground school would meet with the flight training department to once again hash out questions on systems and procedures. In doing so he said it was a way to keep open communication with the flight department.

Mr. Andrews said when asked if there was a process for a crew to provide critique following training that the students were provided with a critique form to fill out that went to the fleet captain. He also claimed that he had heard nothing but good things about how the course was run. He did claim that they did get many complaints on the cafeteria.

He said that any changes that come via email to all the flight crews were also disseminated to the ground school instructors. He also said that these email changes were

for informational purposes and that he did not decide if it went into the curriculum as these decisions came from a higher level than the experts.

He stated that he could go to the senior check airman and advise of any curriculum problems. To date they had been very receptive. Although he stated that he could not recall any changes to the curriculum that he recommended.

When asked how he handled changes to the curriculum to insure that he was up to speed before presenting these changes to his students he responded that this was done in department meetings. In these meetings his instructors would verbalize how they were going to do this. He also stated that if it was a new procedure they were required to teach it exactly as it was sent to them.

Mr. Andrews stated that the company sent new students a CD in the mail before ground school to do home study. He said it was completely up to them whether they did it or not. In his experience you could readily tell who had done it and who had not. With the two students he had in December it was clear that they had reviewed the procedures and manual. He also stated that there was no exam given prior to ground school.

He stated that at the end of ground school there was an oral exam called the SPV which was a pass/fail type exam.

When asked about knowledge of the FADEC and engine masters he stated that it was discussed in ground school and that the students practiced starting and shutting down the engines each day in the FTD.

He stated that the handbook was clear in explaining who did what and when with any procedure when asked where one could find guidance on this subject. He went on to say that certain items must be confirmed by both crew members. Examples of this were Engine Shutdowns and disconnecting a generator.

Mr. Andrews explained that both he and his students were required to stay up to date with their Distance Learning classes. He was not sure of the frequency as he claimed that the distance learning link prompted them when they were due. Also if they were not completed on time a pilot would not be allowed to sign in for his trip.

The Captain always makes the final decision as to who completed the QRH. Regarding immediate action items, he said it depended on who was flying.

When asked if he had any suggestions for improving training he stated that they were in the process of doing that. They were adding new training devices and curriculum. He also stated that additional time would be nice but believed that even with the constraints he had to work with it was still probably the best ground school in the country.

He stated he could not think of just one thing that he would do to improve the ground school.

When asked if there was one thing that he would like to see included in training, Mr. Andrews representative told him he did not have to answer that. Mr. Andrews responded that he could not think of just one thing that he would do to improve the ground school

The interview ended at 1227.

Interview: Kenneth John Kaufmann, Instructor Pilot – US Airways
Interview date: January 20, 2009
Time: 1245 EST
Location: US Airways Training Center – Charlotte, NC

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA); Ricky Daniel – Federal Aviation Administration (FAA).

Mr. Kaufmann was represented by Dane Jaques

In the interview Mr. Kaufmann stated the following:

He was 45 years old and had been an Instructor Pilot on the Airbus at US Airways for two years. He was hired by US Airways on August 1, 1988.

Mr. Kaufmann earned his Bachelor of Science in Aerospace Engineering at Syracuse University in 1985. He worked as the Director of Flight Training for Sair Aviation in Syracuse from 1985-1986, worked for a commuter airline for 2 years and then was hired at US Air. At US Airways he flew as FO on the B737, F28, A320, and was a captain on the F28, B737, and the EMB-170.

He had logged between 15,000 and 20,000 hours total time. He had an ATP (Airline Transport Pilot) certificate multi engine with commercial privileges single engine land. He had type ratings for the C-500, F28, CRJ-200, A320, EMB-170 and B737. Commercial private also rotorcraft helicopter with commercial privileges. He had a Flight Instructor certificate with instrument instructor and multi engine instructor ratings.

He did not recall how many hours he had flying the Airbus A320. He received his initial training on the A320 at the end of 2001 or beginning of 2002 when he was displaced from his 737 captain position to FO on the Airbus. He said he was furloughed for a while in 2003 and flew a CRJ 200 for Midway and an EMB 170 for Mid Atlantic Airlines during that time. He was recalled by US Airways in 2006.

He trained again as an FO on the Airbus and then became an Instructor Pilot soon after.

He said as an Instructor Pilot, he taught qualification events in the simulator for sessions T1 thru T4 and T6 thru T9 in the US Airways A320 training curriculum. He said he was

also qualified to do Opportunity Training Day events and to seat fill for either seat for training and qualification or continuing qualification events. He flew the line as an A320 FO 3 days each month from his base in BOS, which was required in his training.

Mr. Kaufmann said session T1 in the simulator covered takeoff and landing, ILS approaches, RNAV approaches, go around, rejected landings, steep turns and normal law demonstrations. He said sessions T1 through T4 were used for maneuvers training. There was some no slat, no flap training, evacuation, rejected takeoff and cat III approaches but those sessions were used for basic maneuvers training.

He said day five (session T5) was a maneuvers validation that was conducted by a check airman and tested crews on the maneuvers they had trained on during T1 through T4. He said T6 through T9 was mostly line flying with some specific procedures training in T6. The rest of the week was point to point. He said during sessions T7 – T9 they focused on Threat and Error Management.

Session T9 was a LOFT (Line Oriented Flight Training) scenario that included 2 legs of flying and special airport training which he thought was conducted at RNO. After session T9 a crew was signed off for the LOE (Line Oriented Evaluation) which was the qualification check where they demonstrated their proficiency and got their type rating.

Mr. Kaufmann said prior to coming to training, crews had the Pilots Handbook and were given a study guide prior to the T1 session. They also had the qualification syllabus. During training, there were slide presentations that were provided to crews before each simulator session. He said the slide presentations were not accessible to the crews, that instructors used them during training. He said there was also the US Airways "The Hub" which was a computer based ECAM (Electronic Centralized Aircraft Monitoring) trainer that crews could access to practice ECAM procedures.

During training, instructors also had access to videos that were presented to the crews. Instructors used a virtual simulator in the briefing rooms prior to each simulator session. The virtual simulator was a personal computer with two screens that an instructor used to program most of the abnormal conditions that were available in the FTD (flight Training Device). The crews did not have access to the videos or the virtual simulator outside of training. He said the virtual simulator allowed him to program failures.

He said during session T6, crews encountered a dual engine failure. He said the simulator sessions were pretty structured. An instructor used tools such as slide presentations and the virtual simulator for briefings. Mr. Kaufmann said he usually arrived early to set up the virtual simulator for cruise flight near PHL at 20,000 feet and 300 knots. He froze the simulator until the point in the brief when he was ready to use it.

He said the first question in the briefing was to determine if the crew had studied for the session and to answer any questions they might have. After resolving any questions, they focused on the virtual simulator.

The instructor failed engine number one followed by engine number two almost simultaneously to induce a dual engine failure scenario. At that point he asked the student what they would like to do. In that particular scenario, only the captain's instruments functioned; the primary flight display, the nav display, and the upper ECAM. Usually the crew determined that the captain needed to fly this procedure since they only had the captains' instruments. He said at this point he discussed threat and error management with the crew. He said the FO was very task loaded and the captain usually took over communications which was part of task loading and relieving the FO. The FO had been trained to non normal methodologies.

The crew was responsible to determine the non-normal condition and referred to the back of the QRH (Quick Reference Handbook) which had immediate action items and ECAM exceptions. He said the dual engine failure was an ECAM exception. He stated that US Airways had found that the ECAM procedure was not sufficient in this particular non-normal procedure so they did the exception.

Mr. Kaufmann thought the dual engine failure checklist was on page 27. Another tool was displays where they can display the logic of the dual engine failure. He said he showed the crew the step by step methodology of the checklist procedure. He said there was a discussion about the optimum relight speed. The crew would walk through the QRH. Mr. Kaufmann referred to the QRH to review the procedure.

He said the scenario was set up so that crews were led to the fuel remaining section of the procedure. He said the FO would read and do this checklist. He said the first item was the ignition to on, then "the thrust levers confirm idle", which the captain had to confirm and then the FO would place the thrust levers to idle. He said he had a discussion of the relight speed and whether, depending on your altitude, would they nose the airplane over to achieve the relight speed. He said if you were at a low altitude, of course you would not do that.

He discussed with the crew, threat and error management. The captain was talking on the radio and deciding where to land. He said the captain had to make the decision about where they were going and what they were going to do. The tools available in the virtual simulator allowed the captain the opportunity to access charts and select the nearest suitable airport.

He said the students were taught to pull up the ECAM ELEC page to check if the emergency generator was on line, if it was not on, they were taught to push the MAN ON push button to deploy the RAT. He said the captain would work out strategy and get vectors to nearest suitable airport. Item G on the checklist was FAC 1 reset. He said if there was no relight after 30 seconds the next item was engine master 1 and 2 off and the captain would confirm this.

He said he usually had a discussion at this point about why the engine masters were turned off. He said they were turned off in order to reset the FADEC (Full Authority

Digital Engine Computer). Then they turned the engine master switches both to ON. He said there was a discussion then about why they turned them both on at the same time. He said if they were attempting a windmilling start, rather than an APU start, that they could try to start both engines simultaneously

Mr. Kaufmann said the crews tried a simulated engine windmill start but in the scenario presented to them it would not work. The next item on the checklist was to start the APU (Auxiliary Power unit) and at this point he discussed with the crews the possibility of doing an APU assisted engine start and whether they needed to dive the airplane or maintain green dot speed. If they were doing an APU assisted start, they had to stay at green dot speed.

He said he discussed the difference between an APU assisted start and a windmill start, specifically that doing the APU assisted start, you attempted to start only one engine at a time. This was the reason this procedure was an ECAM exception, the ECAM addressed this part of the checklist incorrectly. The ECAM would have led the crew to turn on both engine masters at the same time, and that was a mistake in the ECAM logic.

He said the rest of the items on the checklist were conducted as a read and do procedure by the FO. He said the process in the virtual simulator mimicked what the instructors taught in the simulator.

In the scenario, the crew would get an engine back at this point. He said there was a discussion regarding how to determine that there was an engine running now; when the grey box disappeared. He said this was a point of confusion with a lot of students and there was discussion about how to realize there was an engine running now and they had thrust available; they needed to communicate that the power was available.

He said the item on the checklist "Establish/Communicate" was a trigger for the crew to advise ATC, to advise the company, to advise the cabin crew, and to advise the passengers.

Mr. Kaufmann said in the simulator they set up the same scenario and that if the crew completed the checklist correctly, they would get engine number 1 back. He said what they did in the simulator mimicked what they did in the virtual simulator; we tested them to see what they learned from the briefings.

The instructors had access to an instructor guide and a Lesson Plan Editor. The lesson plan editor had preprogrammed failures and scenarios. The instructor used the editor in this case to reset engine number 1 after the APU start which usually occurred around 8,000 feet in the scenario.

He said there was no scenario in the simulator for ditching and there was no specific training for ditching from session T1 through the LOFT session except for what he read as a briefing in the dual engine failure checklist. He said he did not know what went on

in the ground school training, and thought ditching might be covered during that time or in the "Distance Learning Program".

He said there was not very much system training in the simulator. He said the students had passed their SPV (Systems Procedure Validation) prior to session T1 and they showed up to T1 with full system knowledge of every switch on the airplane.

Mr. Kaufmann said there was no training for a compressor stall offered in the simulator sessions. He said it might be mentioned as a briefing item when discussing engine failures or V_1 cuts.

He said the lowest altitude they introduced engine failures was when doing V_1 cuts which occurred just before the airplane left the ground. He said they also practiced V_2 cuts that occurred a little higher. He thought during T4 they practiced engine relights but could not recall what altitude that occurred. He said they did not practice dual engine failures below 10,000 feet. It was not specifically discussed where exactly a dual engine failure occurred.

He said they did discuss during the dual engine failure training that due to altitude, the windmill start may not be practical. When they did the dual engine failure, they failed the engines simultaneously.

Mr. Kaufmann stated the Threat and Error Management was not taught as a separate course; it was brought up in every simulator session. He said Threat and Error Management was based on the realization that pilots made mistakes and Threat and Error Management was designed to find ways to prevent mistakes and correct errors. He referred to a poster that described the ABC's. A is for assess the potential for errors, B for balancing all available barriers, C for communicate threats and intentions, and S for standard operating procedures and communication was extremely important. They had a separate poster to discuss task loading. Task Loading was the number of tasks you needed to perform divided by the amount of time you had to perform them.

He said there were colors of different phase of flight, yellow for taxi and takeoff, green for cruise.

He said he did not know if the Threat and Error Management was discussed before simulator training because that was not his department, but he said they covered it in the simulator.

He said bird strikes were not covered in the simulator syllabus. He said he had experienced a bird strike before while flying a 737-200 in 1989 out of BGM. He said after takeoff the tower had called to report flames coming out the back of the engine. He said he was an FO at the time and the captain decided to continue to PIT. He said the engines were the old JT-8 engines. He stated that the Pratt and Whitney engines could "take a bird, cook it, and spit it out". He said maintenance signed off the airplane to keep flying.

He said he never experienced a compressor stall while he was the flying crew before, but he had been a passenger in the back of a 727 when he heard one. He stated that it was a long time ago, maybe 18-20 years and he could not recall exactly what it sounded like.

He said he had not experienced an engine failure before but he had to shut an engine down one time due to low oil pressure.

He said he had trained FO Jeffrey Skiles and said he was very studious, showed up well prepared, and was well above average. He said the only issue he could remember Jeff had was slightly over controlling the airplane the last 50 feet before landing. He said that was pretty common and that everything else was above standard.

He said there were different options on what crewmembers made up a crew for training. When Jeff Skiles came through training, he was paired with a captain, which Mr. Kauffman said was the best combination.

Mr. Kaufmann said FO Skiles CRM was excellent, that he had a very good understanding of threat and error management and task loading. He understood non normal methodology and definitely understood task loading and assessing barriers and following SOP's. He said FO Skiles was well above average in this area.

Mr. Kaufmann said at the end of training a student was either signed off or recommended for additional training. He said FO Skiles did not require any additional training. He recalled that during the dual engine failure training scenario FO Skiles was absolutely above standard. In regards to threat and error management he did what he was taught. He recalled that the captain took the controls and the communications and Jeff (Skiles) took the QRH, found that it was an exception, and went to the correct procedure to run the checklist and relight the engine. Once the engine was relit, the scenario ended.

He said during training they covered flight deck to cabin communications. He said in most cases the crew used the call signal and interphone. Some cases, like on an emergency descent where the flight deck and cabin crews were wearing oxygen masks, the crew had to communicate using the PA system. He said if the crew had to make the "brace" call they were taught to use the PA system.

Mr. Kaufmann said on the de-identified data collection in AQP (Advance Qualification Program), crews were only graded on first look maneuvers. The crew was signed off at the end. He said, for example, the first maneuver might not be satisfactory but if it was satisfactory on the second or third try, the crewmember was passable. If they were signed it meant they were proficient in all maneuvers.

He said they did not go into too much systems detail regarding the FADEC and why to wait 30 seconds, that was covered in systems and in the simulator they were looking at logic of the checklist.

He said the simulator sessions were packed with procedures, especially T6 and could need more time. He said if an instructor could not finish all the items in a simulator session, it could be rolled over into another day or show session as incomplete and get more time. He said it was also possible to extend the simulator session if the simulator was available. He said he may have gone long with Skiles' training but he could not recall. He said all training was completed.

When asked to compare the AQP training to the old training program Mr. Kaufmann said that AQP was much better because the crew had a better and more understanding of threat and error management and line management. He said an old part 121 check ride was just maneuvers and no line flying was involved.

He said the crews use a color system to communicate their comfort level; green indicated a low task loading, yellow indicated a moderate task loading, and red indicated extreme task loading. Mr. Kaufmann said he would rate the T6 simulator session as a red area.

He said the training was "pretty regimented" so that training was the same between instructors. He said the dual engine failure in session T6 was designed to end when the crew got an engine restarted. The scenario was not limited by altitude but estimated that most crews completed it at about 8,000 feet. He said there was no time limit either but estimated the scenario took about 10 minutes to complete.

Mr. Kaufmann said during the scenario it was up to the crews to determine who would fly the airplane or if and when they would transfer controls. He said the crews usually had the captain continue flying after the event. The checklist logic was discussed and in the simulator there was no mention of ditching because the engine restarted.

He said the T6 session was very structured and he could not say whether it was a positive or negative learning experience for them. He said the crews usually said something like "that was great". He said after all the preparation and briefing, the crews usually had a high level of confidence so in that regard it was a positive training experience.

Mr. Kaufmann said that in his opinion, if the scenario was started at 3,000 feet altitude, there would not be enough time to complete the checklist.

Mr. Kaufmann said as part of his training he was observed two times each year in the simulator and the Instructor / evaluator CQT 1 time each year by a senior check airman. He said he has also been observed by the Standards captain. He said the FAA (Federal Aviation Administration) came in to observe them but he was not sure of the frequency, he thought maybe once every two years, and he received a line check once each year while flying the line by an APD.

He said the training program had not included a dual engine failure that resulted in a ditching during the two years he had been in the department. He did not recall if that scenario was included in training for other airplanes.

He said he never flew with Mr. Skiles. He said the simulator they used in training was an A320 and they discussed any differences that existed between the other Airbus airplanes. He said he assumed that systems differences were covered in ground school. If he did have an opportunity for training day there would be a discussion of recent developments

Mr. Kaufmann did not know if there had ever been any discussion about developing a shorter version of the checklist for a dual engine failure. He said crews were not required to memorize parts of the checklist; they were taught to follow the logic of the checklist and not taught to skip around.

He said he did T1-T4 and T6-T9 with Skiles' crew. He signed FO Skiles off for his LOE and the captain was recommended for extra training. He said they worked together very well. That was usually the case with crews that got along personally. They did their threat and error management very well.

He said he did not follow up with the check airman to see how he did on the checkride. He said if there was a problem he would get a call but he did not get a call in this case.

The interview ended at 1405.

Interview: Charles ("Chris") C. Lyon, Check Airman - US Airways
Interview date: January 20, 2009
Time: 1419
Location: US Airways Training Facility, Charlotte, NC

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Ricky Daniel – Federal Aviation Administration (FAA); Philippe Boscardin (BEA).

Mr. Lyon was represented by Dane Jaques (US Airways Legal)

In the interview, Mr. Lyon stated the following information:

He was 56 years old. He was hired by US Airways 27 years ago and had been an A320 Check Airman for the last 12 years. He was a pilot on the C-130 for the United States Air Force. He was hired by Piedmont Airlines and flew the B-737 and F-28. He stated he flew the B-737 for the majority of his career there. He was an Initial Cadre check airman on the Airbus and had been on the airbus ever since. He stated that his total time was about 11,500 hours and 4,000 of those hours where on the Airbus. He stated he was typed in the B-737, A-320, FK-28, C-130 and the LR-JET (24D).

When asked about his duties and responsibilities as an A-320 check airman and Aircrew Program Designee (APD), Mr. Lyon responded by stating that most of his job function was to perform evaluations on initial training, re-current training and aircraft evaluations

both on line checks and Operational Experience (OE). He stated that those where his primary duties. He said he flew the line 3 days a month on the A319/320/321.

He stated the evaluation process for initial training was performed on the last simulator session the student had, and it was called the Line Oriented Evaluation (LOE). He said the LOE was a scripted event performed in the simulator and consisted of a syllabus, briefing guide and lesson plan. He said the LOE was set for 4 hours in the simulator, but generally would only last 3 to 3 and a half hours, which included a break.

He said that the LOE was always the same script and that they had three separate LOE's. LOE 1 was for initial training and LOE 2 and 3 were normally used if LOE 1 did not go well. LOE 2 was only given after a failure of LOE 1 and the student had been retrained.

He stated that LOE 1 was always the first event.

Mr. Lyon stated that the LOE's were written by check airman and instructors that were in the curriculum development department and that they had a process for it. He stated that they periodically rewrote new scenarios for the LOE, but would not speculate as to how often they made the changes.

He stated that the grading criterion of LOE's consisted of satisfactory, unsatisfactory or incomplete (if the simulator broke and they could not finish).

He stated that there where normal and abnormal procedures used in the LOE. He described the abnormal procedure as being a trigger. He said the LOE consisted of a two leg event from BOS-DCA then DCA-CLT, with a trigger for a divert on the last leg. He said a specific abnormal on the first leg was to input an ADR fault, pack fault or a DMC fault. A specific abnormal for leg 2 would consist of an APU fire, engine fire, or low oil pressure and two others that he could not recall, but he thought there were four.

When asked if any of the events consisted of an engine failure, Mr. Lyon responded by saying the second leg could have an ECAM procedure that would drive a crew to shut down an engine. He stated there were no scenarios that involved ditching, compressor stalls or bird strike hazards.

He stated that there was an LOE for recurrent training. He stated that the recurrent LOE consisted of six different scenarios but the same concept. When asked if the scenarios involved engine failures, he said there were six scenarios so he could not say.

He stated that during an LOE event he just observed and did not sit in either pilot seat.

He stated he did take notes that went into crew files during observations.

When asked if the LOE was changed to reflect recent incidents and what factors go in to that, he responded by saying that AQP can customize their training to fit the needs of the fleet and benefit pilots at airlines.

He stated that it had only been a couple of weeks since he had performed the LOE on FO Skiles, but he remembered Skiles being paired with a check airman who had seat filled in the left seat and acted as a captain during the LOE.

He stated that FO Skiles passed the LOE 1 with a satisfactory ride.

When asked if anything stood out in FO Skiles LOE, Mr. Lyon stated that the things that stand out are the bad things, and he did not remember anything about FO Skiles. He stated that FO Skiles passed on the first LOE.

He stated that nothing stood out about the CRM between FO Skiles and the captain during the LOE.

He said he evaluated CRM on FO Skiles and it was satisfactory.

He stated that the check airman that sat seat support for FO Skiles played the role of a captain and not a check airman. He emphasized that the LOE was a crew concept.

He said he documented LOEs on the FAA form, gave the airman a temporary certificate and completed a company form. He said there was another form, but he could not recall what it was.

He stated there were no special events during this training cycle.

He said he was not sure what triggers were changed during training cycle evaluations.

When asked about triggers in LOE legs 1 and 2, he stated that leg one would have a yellow event that would task the crew, but was not a crucial event. He said that it was a normal process for them to be able to manage the task to a satisfactory conclusion. He noted that the red trigger was a little more challenging event and required more task management between crew for a satisfactory outcome.

Mr. Lyon stated that he could not recall one check airman that had more “downs” than another.

He stated that his role as an APD was to be an evaluator, and that as an evaluator he had no latitude to change the script. He stated that he supplemented the crew as ATC and flight attendants to obtain realism, and that he did not help the crew at all. He stated that the LOE scenarios changed, but he was not sure how often. He said they evaluate how the crew witnessed or experienced a problem, and how they managed it.

When asked why FO Skiles had seat support, Mr. Lyon said that it was his understanding that the captain was not recommended for the LOE, but was not sure why.

He stated that no ground or simulator instructors had approached him asking how FO Skiles' LOE evaluation had gone and that he had no contact with FO Skiles after the LOE.

He said that after an event was triggered, the Threat and Error Management of the crew would be rated by a grade scale that went from 1 to 5.

He stated that he had heard of Capt. Sullenberger, but had never flown with him.

The interview ended at 1448.

Interview: Marion "Locke" R. Floyd, Check Airman - US Airways
Interview date: January 21, 2009
Time: 0907
Location: US Airways Training Facility, Charlotte, NC

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Ricky Daniel – Federal Aviation Administration (FAA); Philippe Boscardin (BEA).

Mr. Floyd was represented by Dane Jaques (Partner, Law Firm of Dombraugh, Gilmore, Jaques, & French; US Airways Legal)

In the interview Mr. Floyd stated the following:

He was 59 years old. He was a Check Airman on the A320 series at US Airways. He had been a check airman about two years. He was hired by US Airways in June of 1985.

He started in the US Air Force in 1971. He separated from active duty in 1976. He stayed on with the Air Force Reserves and flew C-141s out of Charleston, SC. He was hired by Braniff in June 1977 until 1982. In January 1983, he was hired by People Express and worked there for 2 years. In June 1985, he was hired by Piedmont Airlines. He continued on with the Air Force Reserve in Charleston throughout this time and retired in 1992 as a Lieutenant Colonel.

Mr. Floyd said when he was hired by US Airway he was based in Norfolk where he flew the B-737 as a first officer (FO). When they closed that base he went to Baltimore and commuted on the B-737. Around 1988, he decided to fly out of CLT. He flew the B-737, F-100 as captain, and 767 international out of CLT. His next assignment was an A320 captain, until he was displaced and went back to A330 international out of CLT. He was displaced off of the A330 and went back to fly B-757 domestic in CLT, and then got his captain bid back on the A320 in CLT. Mr. Floyd said he was typed in the C-141, B-727 all seats, B-737 as an FO, F-100 as a captain, A320 series, A330, B-767, and B-757.

He had about 20-25,000 hours total time, including his USAF 141 time. He did not recall his total time in the A320 because he said they used computerized records now and he would have to refer to that. Mr. Floyd said he flew the line in the A320 series.

Mr. Floyd was asked what his duties and responsibilities were as a check airman. He said he was an instructor/evaluator. He would perform a role as an instructor and also did evaluations for their pilots. He said the primary thing they did was annual recurrent training. He said it was probably the most common event he did. He said the first day was a training day and the second day was evaluation. He clarified that the annual recurrent training was in the simulator. In addition to the simulator, Mr. Floyd also performed random line checks. He said he would periodically be assigned an OE flight and occasionally would sit in the jump seat for auditing procedures.

When asked about the characteristic of the average pilot in OE, Mr. Floyd said it depended on the student's background. He said the OEs he had been getting were people who returned from furlough. He said some had had additional flying while off on furlough and others did not. He said some had previous time on the aircraft and some had previous Airbus training. He said for some it was their first time on the Airbus. He stated they were the last phase of training before they released a pilot on the line. He said pilots had simulator training and that simulator training really prepared the pilots. He said pilots were very well prepared for OE. He said that he would have to say that "most people do a very good job".

When asked about specific procedures that he taught pilots, he said what they had was basically training in different phases of flight. He said he would start with the preflight and he would make sure the pilot had a good initialization of computers and doing preflight activities. He said next would be engine starting and they would talk through that. He said he had guidelines for each phase of flight and he would make sure pilots were prepared for flying. He said they focused on all procedures all the way through landing and taxiing to the gate.

When asked if training was line oriented, Mr. Floyd nodded his head affirmative. He said in the phase of training before OE, students were in the simulator and they simulated a flight. In OE, he said they would take that flight to the real world. He said the simulator was "really really good" but pilots just needed to do some things "hands on". He gave an example of hand flying the aircraft. They wanted to make sure pilots were proficient in flying. He said while they encouraged the use of automation they also wanted to make sure pilots could disconnect the autopilot and focus on flying. He said the landing phase was what they focused on in OE. He said it was done in the simulator but they really concentrated on that in OE.

Mr. Floyd was asked if there was a specific checklist for OE instructors and he said yes. He stated that the training department provided them with an OE guide, which was set up to mention different events during flight. He said as the events were performed, the instructors would check them off. He said it was used as a syllabus or a guide to make

sure all activities or events were covered. Mr. Floyd said that the syllabus/guide was not turned in after OE. He said the guidance was that when it was completed it was discarded. He said what he did turn in was the actual record and form which signed the person off and signed them off to go to the line. He said it included total time flown and total number of landings performed. He said the form was faxed to the pilot's record department. He said that after OE was completed, he filled out the document, he would call crew scheduling to tell them the pilot could be released to line operations, he would fax the document to records and then the pilot would be released to line flying.

When asked if during OE and completion of the checklist, if any abnormal procedures were required to be covered, Mr. Floyd said that most of the things covered were normal operations, however, there was a section in the guide on non-normal operations. He said those were more discussion items and were generic. He said the items came from the FOM which was generic to all aircraft. He said they were not specific like in the pilot handbook. He said most abnormal procedures were done in the simulator so what they had were generic and not specific to the Airbus.

Mr. Floyd said he did not know Captain Sullenberger. He said he did not recall him from any training events, and said he definitely would have recalled the name.

When asked if he knew FO Skiles, Mr. Floyd said he flew the OE with him. He said he had not known him before the four day OE the week prior to the incident. He said it was a Monday through Thursday trip, originating January 5, 2009. He said he did not know him and had not met him before.

When asked if trainees had access to the instructor guide/checklist, Mr. Floyd said that it was kept by the student. He said a lot of times; students will have more than one OE ride. He said sometimes they will have two trips with two different instructors. Because of this, he said the guide was handed back to the student so that it could be handed off to another instructor. He said in the case with FO Skiles, he was the only instructor and he did not hand it off to another instructor.

Mr. Floyd was asked to clarify two OEs versus one OE. He said it depended on the type of training. He said pilots could go through OE for upgrade training, first time on the aircraft training, or returning from furlough. He said that information was given to him by scheduling and pilot records. He said he got paperwork that said the type of training and the number of landings that must be performed.

He said FO Skiles' OE requirement was 15 hours and four landings and in the four day trip they got over that.

Mr. Floyd was asked about whether a debriefing was conducted after each flight. He said it was not at the end of the flight but at the end of the event. He said for example, after a crossing restriction event, he would ask "do you think you set that up properly?" He also said after landing they would talk about what the pilot thought about the approach or the landing.

Mr. Floyd said that a rating scale was not used for the pass-fail system in OE. He said they did try to collect data on the students and he would turn in an aircrew data collection form. He would try to determine how well the student did and whether he had come in prepared for the training. He said they did not have a scale for pass-fail but they did do data collection for errors or mistakes made.

When asked about FO Skiles' performance, Mr. Floyd said his overall view was that he was a very good pilot, and he came out well trained. He said FO Skiles' attitude was good, and his reception for training was good. He said he would classify FO Skiles as above average for someone coming out of training. He recalled telling FO Skiles that he was making his job easy because he was doing such a good job. He said there were some things that were not able to be performed in the simulator. He said FO Skiles was not sure about how to initialize one of their computers. He said FO Skiles had come off of the B-737 as an FO so he was aware of normal airline procedures. He said FO Skiles concentrated on specific airplane procedures.

Mr. Floyd said he was told by another pilot to consider how comfortable would he feel having his family fly with a pilot he was signing off. He said with FO Skiles, there was no doubt. He said he had no question for signing him off and releasing him to line flying. He stated FO Skiles "was above average, well above average".

When asked if Mr. Floyd made any notes or documentation for performance, he said he strictly made a recommendation for pass-fail.

Mr. Floyd was asked what he looked for in terms of CRM during an evaluation. He said he looked for a pilot that worked well together with the crew, had communication, and had crew coordination. He said he looked for a person who could manage a situation and communicate well when they went from green to yellow to red. He said FO Skiles did great and was able to do a number of things. He said when he flew with FO Skiles in to SFO; they were generally cleared for the FMS Bridge visual. He said ATIS was saying weather was down just a little bit so they needed to coordinate to fly the ILS but they also needed to be prepared for ATC to change their approach. He said that flying in and during the arrival they got an approach change and that required coordination. He said ATC would leave them at a higher altitude and they had to worry about getting down on their profile so they needed to have good communication and coordination. He said FO Skiles did a really good job and that stuck out to him. He said if FO Skiles could do that there, then hopefully he could do that again.

Mr. Floyd was asked how he was trained to be an OE check airman. He said first there was an interview process. He said an opening would be posted by the company and people could apply. He said a pilot selected for an interview would come in for a one-on-one interview. He said a pilot would be chosen from there. He said once hired, the pilot would first go through training in a really good program, BCAT (Basic Check Airman Training). In BCAT they would talk about instructional techniques, briefing techniques and similar information. He said orientation was an observation of other instructors. He

said they would sit in on simulators and observe a number of times. He said, then they would teach that simulator with an observer who was a more senior check airman observing them. He said they would employ the techniques and procedures that were learned in BCAT. He said then they would go through more hands on orientation. After that they would get their final evaluation from the FAA and would teach a crew in the simulator. He said they would also go out in the aircraft with an instructor and perform line duties with an instructor. He said he thought they had the FAA ride in the jump seat where they would simulate instructing another instructor in the line.

Mr. Floyd said there was no FAA instructor or other observer on his flight with FO Skiles.

Mr. Floyd said when a pilot finished in the simulator; he got paperwork which told him the type of training and the requirements for number of hours and number of landings. He said the paperwork was sent to him from scheduling. He said the number of hours required for OE was either 15 or 25 hours required depending on the pilot's background and type of training required. He said the OE requirement for FO Skiles was 15 hours and four landings. He said all legs counted towards OE and that it was the actual block time on the aircraft from push back; not pay time but actual block hours.

Mr. Floyd said there were not any significant events "so to speak" that happened during the training. He said they had a normal event which was the challenging leg in to SFO. He said there was nothing that required ECAM actions or QRH procedures that needed to be done during the OE with FO Skiles.

Mr. Floyd said he and FO Skiles did not fly in to LGA on their trip.

When asked if FO Skiles had any questions for him, Mr. Floyd said FO Skiles came well prepared from training. He said FO Skiles wanted to concentrate on landings. He said he thought FO Skiles did a really good job. He said he flew the first leg of the trip and FO Skiles flew the rest of the legs. He said they flew three A320 legs and of those, Mr. Floyd took one of the landings, so FO Skiles had two A320 landings. He said FO Skiles also had three landings in the A321.

Mr. Floyd said one of their discussion items was the difference between flying a crosswind landing in a Boeing aircraft versus normal law of fly by wire in the Airbus. He said he did not recall a strong crosswind but it was a discussion item.

Mr. Floyd was asked to designate the color of the landing in to SFO with FO Skiles. He said it would probably be a yellow based on the task loading. He said they had realized that they could expect a change and they talked about how they need to recognize when they fly in to a place like LAX, there may be a runway change or an arrival change. He said they thought ahead and were prepared for it. He said that was what got them "in the green" was being prepared.

Mr. Floyd said he kept up his currency as a check airman through unannounced observations two times per year. He said he had line checks from more senior check airman, the ones qualified to do that, and then he would also go through a fairly extensive IE CQT. He said IE CQT involved yearly ground school but said that their syllabus was different than what the students got. He said it was more challenging and was given by our senior check airman.

When asked if the IE CQT check ride included training for ditching, bird strikes, or dual engine failures, he said no.

When asked if IE CQT changed each year, Mr. Floyd said yes. He said each year there was a different syllabus. He was not sure how they came up with what their training syllabus was but he said each year it changed so they did not get the same thing every year.

The interview ended at 0952.

Interview: John C. Duncan, Manager of AQP (Advanced Qualification Program) - US Airways
Interview date: January 21, 2009
Time: 1012
Location: US Airways Training Facility, Charlotte, NC

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Ricky Daniel – Federal Aviation Administration (FAA); Philippe Boscardin (BEA).

Mr. Duncan was represented by Dane Jaques (US Airways Legal)

In the interview Mr. Duncan stated the following:

He had been the interim manager from June 2006 until August 2008 when he took over the position full time. He had worked for US Airways for about 20 years. He was initially hired by US Airways as a pilot and flew the BAe-146, DC-9, B737-300 and 400 as an FO and was also a B-727 flight engineer. He flew the F-28 as a captain, was an A320 FO and IP (Instructor Pilot), and was an A330 FO.

He said he was type rated on the F-28, B-737, A320, and the A330 and he tried to fly the A330 about once each month. He said he flew with both a regular line pilots and instructors. He said some months it was difficult to get the flying in. Mr. Duncan said he flew the A330 as an FO. He said he had flown on IRO (international relief officer) as 3rd crewmember but he tried to fly as an FO when he could. He said he had 8,000 - 9,000 hours total time.

Mr. Duncan said his duties and responsibilities were for all of the non airplane specific training for the pilots. He coordinated with the fleets on curricula and was responsible for submissions of all AQP documentation to the FAA for approval and coordination of all Distance Learning Products. To summarize, he said his responsibilities were the coordination with all of the fleets on training and standards.

He said a group of SME's (Subject Matter Experts) from both flight and ground that met monthly; curriculum development teams that were responsible on a fleet specific level for identifying objectives to be utilized in training.

He said there was a development team for both flight and ground for each fleet and those fleets had a team of as many individuals as they thought they needed.

He said US Airways had not hired learning professionals but had worked in the past at conferences with other AQP carriers and individuals outside the airlines who were involved in curriculum development. He said they had also worked with other airlines at the ATA training committee.

Under AQP, the CQT (Continuing Qualification Training) was revised yearly based on data and lessons learned from integrated data sources. There was a flight data analysis group that reviewed data from the integrated data sources like ASAP (Aviation Safety Awareness Program), FOQA (Flight Operations Quality Assurance), FAIR (Flight Airline Incident Report) reports and any other industry data that came in. That group reviewed the data to make recommendations to the Flight Operations Standards Board (FOSB) for training objectives. The monthly curriculum development meetings were used to keep those people in the loop in the process for the CQT development that they did on a yearly cycle.

He said they launched a new training program on May 1 of each year. He said their annual training period was from April 30 to May 1. He said the curricula development teams also reviewed all of the training data to help develop the curriculum and training objectives.

He said changes were made during the year as necessary; for example, if there were a change to an approach that was decommissioned, they would amend the training program to address that change. He said that industry initiatives and FAA mandates would also direct a change. The biggest driver of the curricula changes was the data collected. The results of the extended review team meeting with the FAA, which was the annual meeting at the end of the training period with AFS-230, and the Certificate Management Office (CMO) to review all of the data and proposed changes to the program. The three groups; the airline, AFS-230, and the CMO-19 directed those changes.

Mr. Duncan said the curriculum was updated electronically and instructors were notified of the changes electronically.

He said there were three standards meetings annually and if there were big changes, the information was communicated in person at those meetings. He said for example, with a big change on May 1, they scheduled standards meetings in March and April so they could do a little more formal training of the instructors and evaluators.

He said sometimes a change required additional training for the instructors when a new training curriculum was developed. The training was typically planned around the instructor / evaluators annual CQT, a specially designed curricula just for the Instructor / evaluators. For example; he said they would be pursuing RNP in the Ops Specs so they were in the process of training the instructor / evaluators on what those procedures looked like so when they were ready to do the training in May they would be subject matter experts and be able to take that to the line pilots.

He said the instructors were the experts and their feedback was included as an integrated data source. He said typically before launching a new CQT, it was tested with the instructors and when they went through their CQT they provided feedback to determine if any adjustments were required before launching the program for the line pilots. He said another source of data was the customer feedback from the line pilots. All the data came to his office and the information was disseminated to all the fleets.

They also collected data from the FAIR report that was created by dispatch for items such as a diversion.

Mr. Duncan said ditching was included in the training curriculum in qualification training ground school and also in CQ (Continuing Qualification) ground school. He said it may be briefed elsewhere but he had to look. He said dual engine failure was included in the Airbus qualification training. He could not recall if dual engine failure was included in ground school but said it was included in simulator training. He did not recall if there was training included in the curriculum for bird strikes, he said he would have to look in the program to determine that.

He said that training for compressor stalls had been included in the curriculum in the past but he did not recall when. He recalled a video produced in the industry but could not recall when it was covered.

Mr. Duncan said, because of the large number of modules, he could not list all of the Distance Learning Modules but could provide an overview. He said the Distance Learning Modules were a Flash electronic media. He said most of the Distance Learning Modules were for non airplane specific training. He said there was some airplane specific training included, for example, training for evacuations was included as well as being covered in ground school. He said the Distance Learning modules were completed quarterly.

He said last spring there was a big push by the FAA, a call to action, on runway incursion issues. Doing shorter modules quarterly instead of one large module annually, allowed them to get out information on hot topics in a timely manner.

When asked to describe the process for evaluating that training works, Mr. Duncan said they reviewed data on an ongoing basis. He said there was an annual review in July by an extended review team for their AQP. He said it was AS230 in Washington with the FAA, CMO and the airline. He said they prepared a presentation with them at that point and shared an overview of all data sources mentioned before including customer feedback and instructor feedback. He said they also jointly discussed what the recommended changes were. He said they also highlight any significant events from the year. He said that was their annual review and said that was the "big one" and the "biggest driver".

Mr. Duncan said he did not interact with manufacturers. He said that was aircraft specific and that was not a part of his role.

When asked if the manufacturer provided periodic updates of issues or bulletins that would be used to incorporate in to training, he said he knew they did but that was not at his level and would be at the fleet SME level. He said his role was not fleet specific but he got to go and fly the A330.

When asked how long it took to complete a change implemented in the AQP cycle, he said if it was something that they had to touch each pilot with or if it was something like the runway incursion initiative that came out from the FAA, it would be plus or minus three months. He said they would be launching a new distance learning product on March 1 and this was done quarterly. He said depending on when the initiative came out, they could catch everyone in three and a half months. He said if they had to they could shorten that time based on the requirements. He said if it was something that needed to be hands on in the simulator that would be a 12 month period to get everyone in for CQT.

When asked if there was a table/cycle/matrix where they had different things scheduled to be trained during different periods so that they had the nature to yield change training from cycle to cycle, he said yes, that they operated an AQP based on a 24 month cycle with a 12 month training evaluation period. He said they had annual requirements which were the standard 121 training requirements. He said their task analysis and qualifications standards define their own training but it allowed them to use their data to alter those training requirements based on the performance and needs of the airline. He said they defined what needed to be trained within that 24 month cycle. He said some things would have to be trained in a 12 month period, and some within the 24 month cycle. He said the distance learning was quarterly. He said the 12 month period allowed them to use aggregate data and be proactive and identify trends that they saw to drive that back in to training on an annual basis. He said there was some time in the footprint to allow them to drive those initiatives back annually.

Mr. Duncan was asked about whether just because pilots were not currently trained on compressor stalls did not mean that it never came up in training. He said correct and that they could not train every eventuality. He said that would be very thick on every aircraft. He said during the training period there was a spot for miscellaneous non-normal events

and they tracked back historically the ones that were done in the past and looked at a threat probability matrix of what was important. He said some of that was defined in the qualifications standards where they had critical maneuvers, which was part of anyone's AQP, and maneuvers was identified by the airline and approved by the FAA as "critical not current". He said this meant that there was exposure to that happening in line operations and it was a maneuver that was critical to be performed very well and it was something that they did not do every day; then those they were going to do annually.

When asked about a video on compressor stalls and what it entailed, he said he would have to go back and review it but said it included examples of compressor stalls. He said it was an industry produced video with the FAA. He said it had audio and some test flights and was "quite eye opening". He said the video was utilized in the past but he could not recall where. He said they did compressor stalls in the simulator training curricula in one of the training periods.

When asked who was responsible for effecting changes to QRH, he said the fleet captain. When asked if it was a line change that needed to be trained and if that would fall under the AQP, he said the fleet would look at the nature of the change and it would depend on the amount of training involved. He said the magnitude of the change would drive it but that would be fleet specific. He said that would occur through the fleet manager.

When asked if the flight training manual was made available to instructors, he said that would be fleet specific and was outside of his job.

When asked if there was preparation for ditching in the simulator in the A330, he said he would have to go back and look and see if it was included. He said training it was a possibility but he would have to go back and look. He said the simulator itself did not recreate water. When asked if preparation for ditching was possible, he said he could not answer that and he would have to go back and look to see.

When asked if they were no longer training for some procedures such as ditching or compressor stalls, and what resources were made available to new pilots to learn those modules, he said the qualification footprint was longer. He said a new hire with the airline would have the basic indoctrination program and that particular element he would have to look to see if that was included in basic indoctrination but that was typically how that process worked. He said if something was not aircraft specific that would be included in their basic indoctrination footprint and the aircraft specific items went in to the qualification footprint. He said he did not know off the top of his head if that video was included.

Mr. Duncan was asked about when an area of concern was identified and that needed to be trained within the next 12 month period, what responsibility his department held for letting the fleet know about this area of concern before it could be trained. He said that did not necessarily fall under his department. He said with the aggregate data group he co-chaired a flight data analysis group with the manager of ASAP (she was a representative from flight safety) and that group consisted of individuals from the safety

department, a representative from the FAA, individuals from flight training from each fleet (so they had fleet specific SMEs there), a representative from flight operations, the manager from policies and procedures, and as a group they took all of the data sources and reviewed the aggregate so if there was a fleet specific issue that was recurring, the fleet SME was able to take that back to the fleet captain. He said if there were significant issues that needed to drive training they would make the recommendation to the Flight Operations Standards Board who would direct that training or direct the issue in a bulletin; whatever the appropriate response was.

Mr. Duncan was asked to describe what was trained as a part of CRM. He said there was a module for basic indoctrination training, which was the big introduction to threat and error management and CRM. He said threat and error management was the 6th generation of CRM. He said it was done on a continuing qualification basis/recurrent and was done in the classroom and distance learning with modules. He said more importantly CRM was integrated in to everything that they did in ground and simulator. He said there were four threat and error management posters in every classroom and briefing room which covered their program which was a concept of three colors – red, yellow, and green. He said these colors were situation awareness markers. He said they worked with their pilots to help them identify where they were with their situation awareness and task loading. He said there were three letters that they worked with – the ABCs: Assess what the situation is, Balance available barriers. He said those were their task management skills based on the Reason Swiss cheese model. He said their task management skills, first and foremost, were policies, procedures and flows, checklists, automation, external resources, and knowledge skill and aircraft handling being the last in line. He said the "C" was Communication which had several of the CRM markers.

He said they trained their instructor evaluators every year during the three standardization meetings and also had a four hour annual training requirement for them. He said the standardization meetings were fleet specific. He said they had a four hour training module called continuing check airman training, which was non-fleet specific, and was done in small groups. He said the biggest part of that was to facilitate debriefing, kind of threat and error management debriefing skills for their instructor evaluators. He said their goal was to try and incorporate that in everything they did. He said he told new hires, when they had them in their indoc program, that they were not going to give them all of their training and then send them off to one day of standalone CRM training that would be stuck out by itself and never talked about again, but rather CRM was the "heart of everything" they would do. He said CRM was integrated in to LOFT and LOE, or at least they strived to integrate it.

He said he had nothing else to share with the group.

The interview ended at 1050.

Interview: Thomas J. Lulkovich, Director of Flight Safety - US Airways
Interview date: January 20, 2009

Time: 1308
Location: US Airways Training Facility, Charlotte, NC, via telephone

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Ricky Daniel – Federal Aviation Administration (FAA); Philippe Boscardin (BEA).

Mr. Lulkovich was represented by Dane Jaques (US Airways Legal)

In the interview, Mr. Lulkovich stated the following information:

He was 42 years old. He previously had worked at various corporate jobs and was a Chief Flight Instructor in 1988. He then worked 8 years with Alleghany Airlines starting in 1990 before being hired by America West in 1998. His first position at America West in management was Regulatory Compliance Auditor, then he became the Event Reporting Manager (they did not have ASAP then), which then evolved into ASAP Event Reporting Manager, then he held the position of Flight Safety Manager for 2 years and then became the Director of Flight Safety for the last 3 years. He had been at US Airways for 10½ years. He said his total pilot time was approximately 10,000 to 11,000 hours.

He had flown the Dash-8, BE-1900 and the B-737, but was in the process of transition training to the Airbus. He said he had no time in the Airbus. He currently flew the line part time once every two months, but would have liked to fly once a month.

He stated that his primary duties and responsibility as Director of Flight Safety was to identify and mitigate operation risk and that there was definitely a lot that was entailed with that. He stated that he would identify operational risk by safety programs and that they had, up until recently, the ASAP program. He stated that they currently had a FOQA program and an Event Reporting Program (ERP) and explained that the ERP was basically the same reporting program as ASAP, in that the event reports were mandatory and had the same type of reporting criteria that ASAP did. He stated they also had a FAIR that was generated through OCC. He said some of the hazard identification sources they used were the FAIR, the ASAP, ERP, Safety Event Report from the cabin crew and the FOQA report. Together they led the industry in Safety and System Processes. He said they had a Safety Information Management System (SIMS) program for a long time now, but it was just catching on with the industry. He stated they had a robust SIMS program that identified hazards from all the internal reporting programs and external industry sources such as NASA. He said they identified and analyzed the reports to determine the root cause and evaluated risk of reoccurrence and then provided feedback through communications to their employees. He believed that the most valuable piece was the communication to the employees, because without he said they could never correct issues. The safety department distributed flight safety alerts and flight safety briefs to the pilots and flight attendants via hardcopy directly to their mailbox. He stated they also had ASAP bulletins, CBS read files and CBS core read files

(because they had two different systems to account for the east and west operations), and these files where distributed electronically as must reads for the pilot and flight attendants.

He emphasized that the primary group for the core of the SIMS program was the Flight Data Analysis Group (FDAG) and they would meet monthly to analyze combined data from all the different sources. He said the representatives for the group consisted of company safety representatives, flight training representatives, flight operations, USAPA safety representative and that the labor and FAA where also invited to participate with the FDAG. Counterpart airlines thought "he was crazy" to have labor and FAA present, but he told them "we hold nothing back and have a transparent policy for data collected and have nothing to hide." He said that the FAA, labor group and the FDAG were privy to all the information that was collected for safety. He noted that FDAG looked at data from the AQP, special operations audit, LOSA, line check data, FOQA and ASAP reports. He reemphasized that this was the core group that made up the SIMS process, and that group analyzed data. He noted that there was a working group for FDAG and that it was a much smaller group. He said this group of players really rolled up their sleeves, got down in the weeds and looked at the nuts and bolts and figured out what worked and what did not. He noted that this group brought back results in the form of possible corrective actions to be discussed at FDAG, and if that group agreed, it was forwarded on as a corrective action recommendation to our Flight Operations Standards Board (FOSB). He stated that the FDAG process and FOSB process had a closed loop system on identifying and mitigating risk.

He said that once a risk was identified and it needed to be mitigated, the fleet was notified by their participation on the FDAG and therefore were privy to all the identified aggregate data. He noted that once the safety department became aware of certain issues then they brought it to the attention of the fleet captains right away on a daily basis. He stated that outside of the FDAG, they did have a redundant system and process in place with the ASAP program, FOQA and event reporting. He used the ASAP ERC as an example of how all the reports coming in would identify safety concerns or issues that needed to be addressed, then they would take action and task different departments and request response back to the ERC, and that it was a closed loop process. He noted that it was a redundant process and that process was on a larger scale with FDAG. He noted that they were very comfortable with the FDAG and the systems they had in place, and that they helped them identify where the risks were.

He noted that they were not currently using the ASAP program, but that they did have an event reporting system that had taken its place. He said that when ASAP disappeared, he saw a drop off of reports, but that he was not surprised, since it had been 10 years since the east pilot group had been without an ASAP program and 5 years since the west pilots had been without an ASAP program, and that previous to ASAP they had never received the type of information on a company mandated event report (such as altitude errors, nav errors), the normal self disclosed issues that they would normally see in ASAP. He noted that when the ASAP disappeared, he was expecting to see the event reports disappear as well, but what happened was that the pilots started submitting more event reports. He

said that much of the information that they were getting from ASAP was now being received from the company mandated event reports. He felt that this told him that the pilots trusted the system, trusted him and trusted the safety department not to abuse the information submitted.

He stated that when an area of risk was identified, that the safety communications program would disseminate the information to the pilot via an alert, brief, ASAP bulletin, CBS or a read file. He noted that in addition to that they had a quarterly safety vector publication that was distributed to pilots and dispatchers, and that the cabin crew had a separate version of the publication. He noted that FDAG would notify the training side of the house. He stated that occasionally there was a policy and procedure change from a result of the ASAP process, but that it would be worked through the FDAG group.

He stated that he had a very large staffed safety department to assess the risk on a daily basis. He said his staff consisted of 2 full time analysts that processed the event and ASAP reports, and reporting to them was an ASAP manager, and together they identified the issues and took action on a daily basis as the reports came in. He noted that he was notified immediately if his grouped observed anything above a moderate risk.

He said his analyst was trained through a long process of on the job training. He noted it was a tough job because identifying risk and assessing risk was very subjective. He noted that they had a matrix in place that they had been using consistently for 2 ½ years, and they had gotten very good at it.

He stated that he was not aware of any trend data on compressor stalls and none that were reported to the pilots.

He said that real critical issues could be issued to pilots the next day. He defined critical issues as "any occurrence that causes significant risk in the operation" and occasionally it did happen. He said he would coordinate the release of information through the VP of Flight Ops, FOSB members and the fleet captains. He noted that critical issues were few and far between, but it did occur occasionally.

He said he was very comfortable with the support that he received from upper management on the safety issues and programs that he was overseeing. He noted that he had more than enough resources and tools to do the job.

He said that the ASAP program was discontinued because of complications with the labor group and was hopeful that they would get the ASAP program back as they work through their differences. He noted that US Airways did not want to change anything about the program because they thought the program was very effective.

He said that there were 38 or 39 mandatory reporting events (big issues) that were listed in the flight operations manual, and if any of those events occurred, then the captain must submit a report within 48 hours after completion of the trip. He noted that most of those defined events encompassed all of what they had received in ASAP. He said he received

unsolicited reports on events that were not on the mandatory list in addition to receiving hotline calls all the time.

He said that he had a 3 hour module that he would present to the new hire pilots that explained all the safety programs and trends. He noted that it was tough to give a presentation during CQT training because of the two training locations and the number of classes being given, but that they did have all the safety information and trends collected from FOQA and ASAP programs included in the appropriate distance learning modules. He said that he felt they did it right at US Airways; they had good programs and processes in place that did make a difference.

He said that one of the reports that they reviewed was the FOQA report and it was broken down by fleet. He said they brought the expert on that fleet to the FDAG group to look at the data, and then worked with the expert to get the issues solved. He stated that in addition to the FOQA reports, they looked at the ASAP trends and those reports would be shared also. He said that it was important to look at all trends for pitch rate at takeoff, or touchdown angle, also maintenance exceedances (such as flap over speed, gear over speed). By virtue of trend charts and knowing where limits were, if they knew they had a tailstrike at 10 degrees and if they saw data points beyond that than they could assume that the pilot landed with a high pitch angle. He said at FDAG the FMT was responsible for looking at those events. He noted that sometimes the data would be invalid data due to a quirk in the data stream and caused an event to trigger. He said other times there was valid data. He said that part of the process was to have gate keepers to verify level 3 FOQA data, which was a significant event in FOQA. When they did that, pilots were contacted which was considered "controversial" in the industry. He said USAPA had been very good at doing that for them and said it was just the tip of the iceberg because it was new. He said the gate keepers where proactive in contacting the pilot to find out why; they knew what occurred but did not know the why.

He said they had created an internal data base that the gate keepers accessed and used to identify the threat errors by conditions.

He said his vision was to merge ASAP and FOQA due to the amount of data between both programs. He said they had a good amount of quantitative data in FOQA and would like to match it with Qualitative ASAP data. He thought they would see big improvements in safety when they got that done.

He said they had a stabilized approach policy but were not seeing the results that they wanted. Because of this, they came out with a new stabilized approach policy and within six months they saw a dramatic improvement. It went from double digits to single digits in a matter of months. He said when they looked at the unstable approach data; there were no unstable approaches in November and December 2008.

He said that on a quarterly basis he was involved with the info share meetings, where the industry got together and shared FOQA and ASAP data. He said he also attended quarterly ATA flight safety meetings where participating ATA carriers shared their data

and what improvements they were working on. He noted that these two venues were where they shared the policies and procedure changes with the industry.

He guessed that the difference between the ASAP data received versus the event reports received were almost equal. He said that they had averaged about 250-300 ASAP reports per month previously, and now it was obviously zero. He noted that they received 50-60 ASAP reports per every 10,000 flights. He said the event report rate was approaching 50. He was surprised by the type of reports and their willingness to report.

Mr. Lulkovich clarified that the FDAG group consisted of representatives from flight operations, flight training, USAPA, FAA, and safety.

He stated that the closed loop system that the FDAG group used to verify that corrective actions were working was to put the issue on a watch list, if they had a moderate or lower risk factor. He noted that the watch list would move it to a concern if the risk factor was moderate or greater. He said a concern must have a resolution and be accompanied by a corrective action recommendation or was no longer a concern. He gave an example of a concern that was forwarded by the FOSB, the change was implemented via a policy and procedure change, and then the FOSB group monitored the trend to see if it was improving. He said that if it was not improving and the mitigating action was not effective, then they needed to do something else. He stated that there was a follow up review 3, 6, or 12 months later depending on the severity and circumstance, and they did a quick follow up at 6 months. He noted that in addition to FDAG, the safety department had an internal safety reporting system that would track the corrective actions and recommendations internally as well.

He noted that they used an SRS system, WBAT, which was software that the FAA had contracted with UTRS to be developed for industry.

He said that the hotline call was separate from the event reporting system. He said that hotline calls where recorded into the safety reporting system, and then a hotline log was created to ensure that they followed the call up. He stated that he had not received an anonymous call in a long time. He said that pilots, flight attendants and dispatchers had a direct line to his voicemail. He stated that he would follow up with the individual, but a lot of times the call was about a misunderstanding. He said that if there was something to the call, then he would ask them to submit an ASAP or event report so it could be documented and go through the process.

He said that the FOQA and ASAP data information was shared with the pilots via the published quarterly ‘Safety Vector’. He said that the FOSB group would make recommendations to the FDAG group and that the data would also be included in the Airport Advisory pages, which are sent out to the pilots.

The interview ended at 1357.