

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

August 27, 2008

**ADDENDUM TO THE SURVIVAL FACTORS GROUP CHAIRMAN'S FACTUAL
REPORT**

INTERVIEW NOTES

A. Accident : **DCA07MA310**

LOCATION : St. Louis, Missouri
DATE : September 28, 2007
TIME : 1316 Central Daylight Time
AIRCRAFT : McDonnell Douglas DC-9-82 (MD-82), Flight 1400,
N454AA
OPERATOR : American Airlines

B. Interviewers

Survival Factors Group Chairman: Courtney H. Liedler
National Transportation Safety Board
Washington, D.C.

Operations Group Chairman: David Tew
National Transportation Safety Board
Washington, DC

Human Performance Group Chairman: Evan Byrne
National Transportation Safety Board
Washington, DC

C. Details

On June 12, 2008, at 1400 EDT, Safety Board staff re-interviewed STL ARFF personnel. The following is a summary of the interviews conducted.

D. Interview Summaries

Captain Ellis Outlaw

3 years with STL ARFF

9 years prior experience as Fire Captain

Captain Outlaw saw the airplane when it made the first pass over airport. There was a lot of grey and black smoke coming from the left engine. He does not recall if he passed that observation along to air traffic control or anyone else. Seeing the smoke, he knew it was a real incident with seriousness.

He said that when the airplane first stopped he got back to the engine area “pretty quickly” and was positioned on the left side of the aircraft where the fire was. The fire was “nearly out from the bottles” and estimated it to be 90-95 percent extinguished when ARFF arrived at the airplane. He described the engine fire as “a small amount of visible flames and light smoke.” The fire was burning internally, from the middle to lower third portion of the engine. ARFF sprayed water from a handline to extinguish the remaining fire, which went out immediately. Captain Outlaw stated that he did not directly assist in extinguishing activities. Once the fire was extinguished, he did not see any dripping fuel or on-going fuel leaks. He said he did not recall any concern from ARFF’s perspective that the right engine continued to run.

Captain Outlaw mentioned that “puffs of smoke” would reappear over time and this caused ARFF enough concern to investigate further, getting a closer look into the engine and continued monitoring. This is when he was directed to go on-board by Chief Henderson. Captain Outlaw explained a period of time had passed, and Chief Henderson wanted someone to go on board. To make sure the crew and passengers were “okay” and to reassure the passengers everything was “under control.” Captain Outlaw stated that boarding an airplane to check inside the cabin was a normal ARFF procedure after an event like this. ARFF personnel also took a thermal imaging camera on-board to make sure there was no evidence of smoke or heat.

He motioned to the flight crew that ARFF was going to set the airstair truck up to the door and ARFF personnel would be boarding. The airstair truck was positioned at the front left door of the airplane, but not all the way up to the door. Captain Outlaw did not recall who he motioned to on-board the airplane that ARFF was going to bring up the truck. A flight attendant opened the door and he told the flight attendant ARFF was going to come aboard to “check things out.” Captain Outlaw noted the pilot’s window was open.

Captain Outlaw walked the entire length of the airplane, conducting a visual inspection for smoke and/or fire as he walked through the cabin. He also asked both the passengers and flight attendants if they were ‘okay.’ He said his question to the passengers was a broad statement, loud enough so that most people could hear it. He is not exactly sure how he phrased it, but it was a general question if “everybody was all right and was anyone in need of any kind of particular assistance.” He did not recall anyone needing any medical attention. He told passengers everything was under control and would be resolved shortly. He did this to reassure the passengers. Captain Outlaw said this was normal, upon entering he would typically speak to the flight attendants and talk to the passengers as they walked through the cabin.

In the cabin ARFF did a visual inspection of the area by engine to see if they noticed anything unusual, like smoke and/or smells. ARFF paid particularly "close attention" to the area around the left engine and used the thermal imaging camera to look for heat. Captain Outlaw did not see anything out of the ordinary in the area of the engine and did not recall seeing anything abnormal in the cabin. As Captain Outlaw was leaving the airplane he told the passengers "they would get them off the airplane as fast as they could and it should not be much longer." He let them know they "would be okay." He does not remember saying anything else and had no specific recall whether he had any other discussion with the crew as he left about the conditions in the cabin.

He said that when the fire was extinguished, there were no leaks for "quite a while." He was standing on the left side of the plane, directly across from engine, when suddenly a large pool of liquid, either fuel or hydraulic fluid, began to pour out. Captain Outlaw described its appearance "as if you were turning over a 5 or 10 gallon bucket." He said it poured out for 5 or 10 seconds, 15 seconds at the most. He was standing next to the Chief, who instructed firefighters to cover it with foam. Truck 43 was positioned at the left rear of the engine, close to the spill, and they foamed the ground and engine. He did not recall the foam turning any color.

Captain Outlaw mentioned when they made the decision to get the people off, the airstairs were no longer placed at the L1 door. The airstair truck had left the airplane. He explained that Captain Redding, the driver of the airstair vehicle, had some debris or something get into his eye. ARFF used the airstair truck transport Captain Redding to the medical station for an eye flush. When the airstairs were needed to get the passengers off the airplane, Captain Outlaw called for them to return. He did not feel it was necessary to evacuate the people down the slides at that point. He said as soon as the spill happened firefighters sprayed it with foam. There were no signs of fire or anything like and the liquid had stopped. Captain Outlaw said having passengers jump out slides may have been an additional hazard to the people. He believes that ARFF "made the right call," they put out the fire and were observant for any changes or flames. When the spill happened they had a controlled evacuation, in an orderly manner, and that was the best course of action.

He said that STL ARFF can make the decision to evacuate based on his training, but the decision should be made by the incident commander or airport fire chief, one or the other. He said the decision could come from inside the aircraft when they have an immediate danger inside, the crew would let ARFF know the airplane needed to be evacuated. When the problem is on the exterior of the airplane, ARFF could make the determination based on what they saw outside. He was not sure how typical it was for ARFF to call for an evacuation because this is the first incident he had experienced it first hand. Since the incident commander did not call for an evacuation immediately upon arriving at the airplane, Captain Outlaw assumed it was not necessary at that time.

Captain Outlaw did not talk to the flight crew on the scene, but saw another firefighter speaking to the flight crew through the Captain's open window. He said there were a couple of ways for ARFF to know if a flight crew wanted to evacuate passengers. Inside their ARFF vehicles, on the radios, ARFF could switch to a discrete channel and talk to the flight crew directly. Captain Outlaw said normally the radio is set on the ground frequency they would use to talk to the

tower, but he has the discrete frequency channel written down in his truck. He said if they authorized the discrete frequency they would ask for the airplane to switch to the discrete channel also. He explained that he was currently a field commander on his shift and it is a judgment call to use it or not. He was not aware of ARFF personnel having difficulty “plugging into” the airplane during this incident; ARFF did not have the equipment to do so. That is what the discrete frequency is for, and the tower can tell the flight crew to use it. Captain Outlaw added that if there was a jack to plug into, it would have been extremely helpful to have a placard advising which jack to plug into and have the equipment to do that.

He said if a plane seemed to be in real distress, he would ask to go on a discrete channel while the airplane was airborne to get as much information as he could. For example, if there was a fire on-board, he would want to find out the extent of the fire so ARFF could prepare for once the airplane lands, and know whether or not to evacuate the airplane immediately. He had done that in the past, since he had been a field commander.

Captain Outlaw said there are a few basic hand signals firefighters could use to communicate with flight crews. For example, there are signals to let pilots know they ARFF will chock wheels; tell the crew that they want to open a door, etc. He thought they had a signal for an evacuation but was not 100-percent certain. He said there is always room for improvement in that area. For example, if it is foggy or raining the flight crew may not be able to see ARFF well. He thought that perhaps colored or flashing lights might be of use. Captain Outlaw said that when an airplane comes to a stop he would conduct a visual inspection, and if something looked out of ordinary, he would radio ground control to relay that information to the flight crew. Initially, that would be the quickest way to get information to the flight crew. He said if firefighter saw something “good or bad” on the initial visual inspection they would find a way to tell the crew.

Captain Outlaw explained the one thing he would have done differently would have been to put firefighters on the plane immediately. With a real fire and the airplane landing “a little hard,” in his opinion he would have had some firefighters board the airplane immediately when it stopped, and had other firefighters addressing the engine fire at the same time. He said safety was first and he would want to make sure there are no fire indications inside the cabin and everyone onboard the airplane was okay. However, in this situation the fire was just about out and he did not sense any urgency from what they saw outside from a danger standpoint, and the fire seemed to be out and it seemed secure at that time.

Captain Outlaw explained in the three years he has been at STL AAFF, he has had training “on paper” but no practical application regarding evacuations and/or slide deployments.

Captain Zeffrow Redding
15 years with STL ARFF
10 years prior experience in the military

Captain Redding was assigned to the West Firehouse and was one of three Fire Captains at the accident. He said that when the airplane flew by, he saw fire still burning in the engine, but it was not trailing any smoke. He knew that they had a problem on the aircraft. Captain Redding

said that normally when they had an aircraft come in with smoke in the cockpit, ARFF would want to be in communication with the flight crew while they were still 5 or 10 miles out.

Captain Redding was on scene immediately when the airplane stopped. He was driving the airstair truck and thought he initially parked it to the rear of the aircraft. He did not recall pulling-up to the door. Initially, he “stood back” and assessed the conditions. He said there were just remnants of an “incipient” fire and the fire agent bottles had put out 99 percent of the fire. Captain Redding could see there was some kind of fish netting still burning on the engine. He thought the netting was mesh that was made up some sort of composite and figured the only reason the extinguishing agent did not get the fish netting was that it hung down lower than where the bottle could shoot. The fire went out pretty easily with a “quick spurt.” He said the fire was put out “expediently,” within a minute to a-minute-and-a-half the whole situation was under control. Once ARFF had extinguished the fire, he went to check the engine to make sure it was fully extinguished. During that check, Captain Redding got something in his eye and had to leave the scene to have it flushed. When the airstair truck left the fire scene, the fire was fully extinguished and firefighters were using the thermal imaging camera off of Truck 45 to make sure there were no “hot spots” on the fuselage. He said the thermal imaging camera showed no evidence of heat on the fuselage.

He said that when the engine fire was initially extinguished, the fluid dripping out was from the agent that was sprayed into the engine. Captain Redding said foam and agent was dripping out for about two or three minutes, and then the dripping stopped. He assumed that is what got partially in his eye. Some time elapsed and then there was a “gush” of fuel that came out of the engine, onto the ground. That liquid was “kind of clear” and came out in a “big gush.” When the fuel or “whatever fluid” dumped out of the engine, Chief Henderson decided he did not want the airplane towed and the airstair truck was called back to the scene. Captain Redding was also informed Chief Henderson had called for an evacuation of the passengers. Captain Redding had finished flushing his eyes and was already on his way back to the scene when they were called back. He explained since the fire was at the rear of the aircraft, when the fuel was dumped ARFF did not want to bring passengers down the rear stairs of the aircraft. The airstair truck was repositioned at the L1 door for firefighters to board the airplane and for the passengers to evacuate. The passengers got off the airplane “smoothly.”

Captain Redding said that once the flight crew called for an emergency landing, ARFF was in-charge of the airplane. Captain Redding explained that when the airplane landed, ARFF had control of the aircraft until the situation was “under control” and ARFF released the airplane. The flight crew had no control over the aircraft until ARFF released the airplane back to the flight crew. Whether the airplane was towed to the gate or otherwise was then decided by the airline. But, normally, ARFF would not let an airplane be towed with fuel still on it, not knowing the extent of fire damage. In this case, Captain Redding did not know when the aircraft was released back to the crew but Chief Henderson made the decision to evacuate people.

Captain Redding said that the incident commander would usually make the decision to evacuate the passengers; however Captain Redding could have made the call if necessary. Captain Redding said making the decision to evacuate passengers depended on the situation with the aircraft. He said normally the airline made the decision, and “most of the time” when there is an

incident on the aircraft, the airlines call for a tug to tow the aircraft. The airlines would also bring busses out to load the people and load bags, etc. But whether an airline would use busses for the passengers or towed the aircraft depends on the situation, and the airline would make the decision. He said ARFF always had people to bring busses in a timely fashion if needed. Captain Redding explained ARFF has guidelines for evacuations. For example with fuel, ARFF would cover it and make sure that passengers did not walk in it. But the guidelines do not always fit the situation, ARFF must use the experience they gained on job to assess situation and make a decision based on what they saw.

Captain Redding did not know what communications took place with the flight deck. He did not have any communications with the airline captain, or the flight attendants. He was positioned at the aft of the airplane, checking out the engine. He said ARFF always had someone available to talk to flight crew. When incident commander was on the ground, he talked to the flight crew through the window. Captain Redding explained this might have been a cumbersome way of communicating since there were aircraft landing on the other side of the airfield. But in this case, if ARFF had thought it would be necessary to evacuate immediately, ARFF would have gone to the discrete radio channel to notify the flight crew.

Captain Redding did not believe there was reason to get people off immediately in this event. There was no “dire reason” to get the people off, ARFF used the thermal imaging camera on the fuselage and saw no hot spots. He said this was not the emergency to use the slides. When they did get the people off, he said passengers commented to him about not getting to use the slides and he told them “it was good they did not use them because that is when you get injuries.” He said there is nothing he thought could have been done differently in this case.

Captain Thomas McMahon
Approximately 3 years with STL ARFF
14 years prior experience with the City of St. Louis

Captain McMahon was the captain on Truck 50, which was responsible for supervising the South Firehouse. He had one crash truck from south, a small rescue unit and truck 50 under his control. He said he was one of the first trucks to arrive at the airplane. He was positioned “on the left engine, about 8 o’clock position.” Another crash truck rolled-up to the airplane at about 7 o’clock position, and Truck 49 was positioned around 10 o’clock. He said the airstair truck responded but he didn’t know when it arrived or where it was positioned.

He said when the airplane stopped; his main concern was to get agent onto the engine. The first thing he did was get a handline off the truck and go to the engine. Another of the firefighters went to the nose gear, and another was under the wing to help get the handline up to the engine. He said he could not see the flames until he was directly behind the engine and got up-close to it. He said the “bottles” put most of the fire out. What remained were “candle-like flickering flames, two or three inch flames about sixteen to eighteen inches wide that would have been lying in the belly of the engine, at the bottom.” The flames went out with a quick burst of the 1.5-inch hand line.

After the fire was out, he ran up to the cockpit window. Initially, he communicated with the flight crew using mostly hand signals. He said he gave the pilots the “cut engines” sign to shut down the engines and used signals to communicate chocking nose gear. The right engine was still running which is why he gave them “the cut throat” sign to cut the engines. He did not recall if the engine was actually shut down, but he did recall the flight crew giving him the “thumbs up.” Then Captain McMahon yelled from the ground, up to the airplane captain who had his head sticking through the open cockpit window. McMahon described it as pretty loud and windy that day. Captain McMahon asked whether the flight crew was going to evacuate and the pilot said “no, they did not need that.” Captain McMahon said those were not the exact words used by the flight crew, but it was the message he gathered based on their communication.

Captain McMahon said he did not have any other verbal communications with the flight crew, except when he asked if there was smoke in the passenger area of the aircraft. The flight crew responded there was no smoke in the passenger cabin. He said ARFF understood that everything was “fine” on board and there was no smoke in the passenger area. Captain McMahon said he did not believe the passengers should have been deplaned immediately. He wanted to put more foam on fuselage and engine before the airplane was moved. He pulled the crash truck behind engine to “saturate it” with foam using a handline off the truck. Captain Redding told Captain McMahon to stop application of foam on the engine, based on orders from Chief Henderson. Captain McMahon did not think he had enough foam down when he was told to halt, he felt if agent was not running all over the place there was not enough used. Captain McMahon thought the engine was a total loss anyway and additional foam would not have done any more damage to it. A few minutes after he was told to halt application of foam, he was told to start placing foam on the airplane again using roof turrets and hand lines. He said there was more than one crash truck involved in the subsequent applications of foam to the engine. They applied, then waited a bit, then applied again.

Captain McMahon said the whole time they were on-scene “stuff” was leaking from the engine. He could not tell if it was hydraulic fluid, fuel, or foam and water. Captain McMahon said every kind of fluid that went into an aircraft could be coming out of the engine, and he could detect fossil fuel in the foam sprayed put all over the ground by the brown swirls it created. These brown swirls in the foam appeared after they applied “a lot more” foam. The best he could recall was that stuff was leaking out from time they applied agent. He said it may have stopped briefly, but it would start up again. Captain McMahon stated he never really saw fuel “pour out” of the engine. He said there “may have been a point where the drips from the engine became more voluminous” but to him there was a constant stream of drips. There may have been a little gush of fuel out of the engine at some point, but he did not see it.

Captain McMahon felt, although there was fire and something leaking out of the engine, the passengers were safer where inside while ARFF applied agent to the fire and no immediate evacuation was necessary. He was on the hose team and his first priority was to make sure there was enough agent and handlines on the engine. Captain McMahon also felt there was no need to “pop the chutes” and have an emergency evacuation after the fire was extinguished. A calm deplaning of the passengers was fine. Captain McMahon explained that the decision to deplane was up to the field commander, who was Chief Henderson. During the event he did not ask why they were not evacuated, he would not second-guess his commanding officers, especially on an

emergency scene. If Captain McMahon thought it was unsafe to keep passengers on-board and he was only one there, it was in his guidelines that he could have ordered an evacuation of the airplane. Otherwise, he would have to go through the field commander and battalion chief. Captain McMahon stated whether the flight crew would follow his order is not up to him.

Captain McMahon said the flight crew first wanted to taxi the airplane to the gate, and then they wanted to tow the airplane. They had hooked tugs up to the airplane, but towing “was not happening” when the fuel spilled out of the engine. The commander decided to get the passengers off the aircraft, and ARFF blanketed the engine and spill with foam at that point. He said the flight crew wanted to know why they could not move the aircraft. He did not know if anyone from ARFF told the pilots it was not safe to tow because he was not assisting with communications. He said ARFF communications with the flight crew may have had some problems. Specifically, he was later made aware that the flight crew was arguing with ARFF that “they wanted to do what they wanted to do” over the radios. Captain McMahon said he had no suggestions how to improve communications between aircraft crews and ARFF. The reasons not to move the aircraft were obvious to firefighters, engine disintegration and fire.

He said when the airplane was on the ground; it belonged to ARFF after the flight crew declared an emergency. Captain McMahon thought the passengers needed to be deplaned and ARFF needed to stay there to make sure that nothing else happened to that airplane. He did not think the “chutes” were needed to get the passengers off; in this case ARFF did not “want an emergency evacuation if they could have an orderly evacuation in non-emergency mode, it would only cause chaos and further injuries.” He said that it was very windy and when the passengers came out of L1 they were upwind and the runoff on the ground was going east, towards the tail not towards nose. He said it was much better to evacuate the way they did. He said that based on the level of risk to the passengers at that point, the way they got the passengers off the airplane was the safest method. That is, the spill had stopped, they had handlines in place, a foam blanket laid down, the fire had been out for some time, and the ignition sources had been removed. Captain McMahon complained that too many people wanted to be in control that day and were doing things too fast.

Captain McMahon estimated ARFF was on-scene for between 2 to 2.5 hours. He felt everything should have been done faster. He said he would have moved the airplane to “C pad” more quickly, but also said the airplane could have been deplaned sooner where it was. He said there were too many interruptions with communications that he heard, too many people talking at the same time that were not priority communications. Captain McMahon said only the airplane and ARFF should have been talking, without the additional discussions that occurred between the airline and tower, etc. He also mentioned they could have used another stair truck, in addition to the one they had.

Chief Raymond Henderson
16 years with STL ARFF
4 year prior experience with City of St. Louis

Chief Henderson was the incident commander on-scene. He did not see fire in left engine from his position when the airplane flew over the first time, and no one communicated anything to

him about seeing smoke and flames when the airplane passed over. He did not see any fire in left engine until he pulled up to the nose of airplane and got out of his vehicle.

He said one fire truck was attempting to extinguish the fire when he arrived, but all the vehicles “more or less” arrived on aircraft at the same time. He went to the rear of the aircraft to look at the fire condition and saw a small fire still burning inside the engine. He described the fire in engine as “flames burning around rear of engine with fire on cone of engine.” He ordered for firefighters to extinguish the fire with halotron and to foam on the ground below. ARFF asked the flight crew if there was smoke inside the cabin, the flight crew reported no smoke. He ordered the airstair truck to immediately stage at the L1 door. He placed the airstairs at L1 so that they could be used to allow a firefighter to get onboard, to check the condition on the inside the aircraft. He wanted to know if the fire had gotten inside the aircraft, or if there was heat and smoke inside the aircraft. Once he knew the inside of the aircraft was safe, Chief Henderson felt the passengers were safe on-board and the flight crew did not need to call for an emergency evacuation using the “chutes.” His concern shifted to knocking down the fire on the engine. Then information came back to Chief Henderson from Captain McMahon that the captain wanted to taxi to gate.

Chief Henderson did not directly communicate with the aircraft captain during the event. He said that Captain McMahon communicated with the aircraft captain through the pilot’s window. Information was then passed to Chief Henderson that the pilot wanted to be towed to the gate. Chief Henderson went to the rear of the aircraft to see the condition of the fire. The fire was out and there was no smoke. Chief Henderson did not recall if the right engine was running. He said that as quickly as they knocked down the fire, he did not believe the right engine running would have been a problem. Chief Henderson ordered ARFF put the airstairs up to L1 for firefighters to enter the inside of aircraft. An ARFF captain stayed on the ground to talk to aircraft captain. ARFF used the thermal imaging camera to scan the fuselage and detected no hot spots, no heat. Firefighters reported back that everything was clear on the aircraft; there was no difference in temperature, no smoke, no heat inside the aircraft. With that information the decision was made to let the flight crew taxi to gate. Then while the Chief was standing next to the airplane, fluid came pouring out from the engine. He figured it was fuel or some other combustible liquid and ordered firefighters to cover the fluid on ground with foam. There was no fire at that time. Chief Henderson made the decision not to allow the airplane to tow to the gate, and to evacuate the passengers on the runway. He no longer believed it was safe to tow the airplane to the gate with passengers on board.

Chief Henderson estimated the time between the fire being knocked down and the gush of liquid was a short time period. About three minutes. He thought using the airstair truck via the L1 door was the most appropriate and safest way to get the passengers off, “rather than sliding down chutes in panic situation and causing injuries.” He also did not want to use the tailcone stairway adjacent to fire; he was concerned that if fire had exited the engine, the tailcone exit would have been “like a flue into the aircraft.” He did not want passengers going out that way. He called the airstair truck back to the scene and the airstairs pulled up against the L1 door to get the passengers off. He said if there is fire inside the aircraft it would be obvious to get people off as fast as you can. However, that was not the case in this event. Under this situation he felt ARFF had the fire under control, it was safe, and they could move the passengers orderly out of L1.

Chief Henderson said from the time he made the decision to evacuate, to the time they moved the people off the aircraft, was a very short period. He said the field commander relayed the message to the tower to evacuate the airplane and bring buses back out to take passengers to the terminal. The tower then relayed the information to the flight crew. He did not think the process was delayed, and they got people off smoothly once the decision was made.

Chief Henderson said he had not read anything regarding passenger injuries from the evacuation slide, but said when he has had incidents where chutes deployed, it caused a panicky situation where people came down chutes rapidly, and it could present a problem. He is not the captain on the flight crew, and he stated the use of evacuation slides is really the flight crew's decision since Chief Henderson is not aware of the conditions of the passengers. If the slides were deployed, ARFF personnel would be there to help brake the fall as passengers slide and come down rapidly. In this event, he felt that based upon their control of the fire the best way for the passengers to come out was through the L1 door using stairs.

Chief Henderson said ARFF has procedures used at STL to help with evacuation or deplaning decisions, but he explained it "boils down to" using your knowledge and expertise on what you think should be done as far as safety is concerned, based on what he saw. He knew ARFF had the ability to order an emergency evacuation, but there was nothing in this situation that required the immediate evacuation of the aircraft. Chief Henderson said sometimes the decision to evacuate depends on situation on-board the airplane, and then the decision would be made by the flight crew before the airplane hits the ground. Most of time when an aircraft has declared an emergency, the flight crew will say "we are landing and evacuating on the runway once we come to a stop." He realizes the flight crew is in the airplane and can see the situation, and in those situations the flight crew knows best if people need to be evacuated. That is one circumstance and ARFF would be ready for an evacuation, if it happens. But that was not the case in this situation. In this event there was an exterior situation and Chief Henderson was the one who could see that the situation did not look safe and made the decision to get people off. Chief Henderson did not know what liquid he was dealing with and once it poured out he made the decision to evacuate based his judgment of what he saw at the particular time. Chief Henderson said the issue boils down to "who is doing the size up" and who is in position to see what is going on. He said he can not be on ground and make a decision to evacuate based on heavy smoke inside the airplane, he would not know what the condition is inside. The flight crew can not see the outside, so ARFF has to be his eyes and make the decision for him. He made the decision from the outside based on what he saw.

Chief Henderson said ARFF had authority over an airplane once an airplane touched down and ARFF was been called to the scene. If ARFF wanted to deplane and the flight crew wanted to taxi, ARFFs decision should prevail. He has the experience and authority to make a decision based on safety of people on the aircraft. In this case, he did not want to put people in harms way after he saw liquid pour out of engine.

Chief Henderson said he was almost certain ARFF personnel relayed the condition of aircraft to the pilots. When a flight crew member asked ARFF to check out the engine, it was checked and ARFF provided information back to the flight crew. He said that was standard procedure. He had no knowledge of any problems that existed in establishing and maintaining communications

with the flight crew. In this case that info was passed on to the flight crew, but Chief Henderson does not remember who relayed the information or what was said. He believed the flight crew was aware of what was going on with the fire and was also made aware of the liquid underneath engine when it poured out. He thought the flight crew was made aware that the airplane was going to be evacuated as a result of the liquid. Chief Henderson said there was no “guesswork or anything like that,” the information and the reason certain things were done was passed to the aircraft captain.

Chief Henderson said that he did not believe the discrete radio frequency was used during the event. He did not think it was necessary. The cockpit to ARFF communications were made by an ARFF captain, instead of himself, because Chief Henderson’s concern was to make sure the fire was knocked down and passengers were “okay.” He said the procedures for establishing communications with flight crews depended on the situation. If needed, ARFF could establish communications with the flight crew through the tower. The tower makes contact with the flight crew and then the connection is made so ARFF can talk directly to the captain of the airplane. There are also occasions when ARFF is talking to the pilots and ARFF is told to “standby.”

Chief Henderson explained there are times ARFF would want to talk directly to a flight crew. For example, if there was heavy smoke inside the aircraft, obviously you want to talk with the captain about the smoke on the inside of aircraft, is it getting heavier, or is it disappointing etc. Chief Henderson said that not every time a flight crew declares an emergency would it be necessary to talk directly with the flight crew. Information can be obtained by monitoring communications between the airplane and tower, by monitoring the radios. He said the nature of the incident being declared determines how they would establish communications and ARFF has procedures based on that. He said ARFF has the capability to talk to the crew but procedurally the communication is initiated through the tower. Chief Henderson said the procedures for communicating with the flight crew, versus monitoring radio communications, were probably written down, most likely in the airport certification manual.

He said STL ARFF did a post-event critique discussing what went right and what could have been improved. The debrief was informal, not recorded in writing. He said that he thought, overall, the operation went very well. The verbal communications that took place between the flight crew and ARFF went very well. The information was passed to him was obviously coming from the flight deck. He said ARFF thought everything went smoothly, and ARFF stayed within their guidelines.