

**NATIONAL TRANSPORTATION SAFETY BOARD  
Office of Aviation Safety  
Washington, DC 20594**

**January 8, 2009**

**ATC GROUP CHAIRMAN FACTUAL REPORT**

**CEN09FA019**

**A. AIRCRAFT ACCIDENT**

**Location:** Aurora, Illinois  
**Date:** October 15, 2008 / October 16, 2008 Coordinated Universal Time<sup>1</sup>  
**Time:** 2358 Central Daylight Time / 0458 UTC  
**Aircraft:** N992AA, Bell 222 helicopter

**B. AIR TRAFFIC CONTROL GROUP**

Mr. Scott J. Dunham  
National Transportation Safety Board  
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**C. SUMMARY**

At 11:58 PM central daylight time, a Bell 222 helicopter, N992AA, operating as an emergency medical services (EMS) flight, impacted a guy-wire from a 750-foot tall radio tower while in cruise flight. The helicopter then crashed into an alfalfa field and burned near the residential area of Aurora, Illinois, a suburb of Chicago. The helicopter was destroyed. The pilot, flight nurse, paramedic, and a 13-month-old female patient were killed. Night visual meteorological conditions prevailed at the time of the accident. The flight was conducted under 14 CFR Part 135, and had departed from the Valley West

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<sup>1</sup>All radar target times are expressed in Coordinated Universal Time (UTC). Controller shift schedules are local time. Aircraft altitude references are in feet above mean sea level (MSL).

Hospital in Sandwich, Illinois, where the patient was loaded. The flight was destined for Children's Memorial Hospital in Chicago, and crashed about half-way to its destination.

#### **D. DETAILS OF THE INVESTIGATION**

The ATC group met at Chicago Terminal Radar Approach Control (TRACON), Elgin, Illinois, on October 21, 2008, to review recorded radar data from the Chicago and Midway ASR-9 radar sites showing the track of N992AA as it approached the accident site. Following the data review, the group went to DuPage Airport Traffic Control Tower (DPA ATCT) to interview the controller on duty at the time and collect associated tower documentation and training materials. We were met by David Carmona, Air Traffic manager, Jeff Rich (FAA ATO-S), Greg Hayden (ORD ATCT), Winston Dixon FAA Central Service Area), and Scott Gyssler (DPA ATCT front line manager.) Mr. Carmona provided an inbrief on the accident as well as initial information on tower procedures and responsibilities. Based on the information provided, we terminated the inbrief and requested that Mr. Carmona and Mr. Gyssler be made available for formal interviews along with the controller.

Review of DPA training materials showed that the antenna struck by N992AA was shown as an obstruction at the correct location and elevation. The training data is included in the docket for this accident.

We completed the three interviews, collected the support materials provided, and left the facility.

##### **1. History of Flight**

According to the recorded data, N992AA proceeded northeast bound from the direction of Sandwich, Illinois, at 1300 to 1400 feet msl. At 2355:21, the pilot of N992AA, identifying himself as Lifeguard Angel 1, contacted DuPage ATCT. The controller acknowledged the transmission. At 2355:28, the pilot stated, "Ah sir we are just over Aurora en route to Children's Hospital ah downtown Chicago at about 1,400 feet. At 2355:36, the controller responded, "Lifeguard Angel 1 cleared through the delta (Class D airspace) current altimeter 3014. The pilot acknowledged the altimeter setting at 2355:42. At 2358:26, an unidentified transmission similar to "ahhhhhhhh" was heard on the frequency. There were no further contacts with the aircraft.

At approximately 0015, DPA was contacted by an unidentified FAA employee to report the accident and ask whether DPA had been working N992AA. The controller did not recognize the registration number, but after some discussion they determined that the aircraft in question was Angel 1.

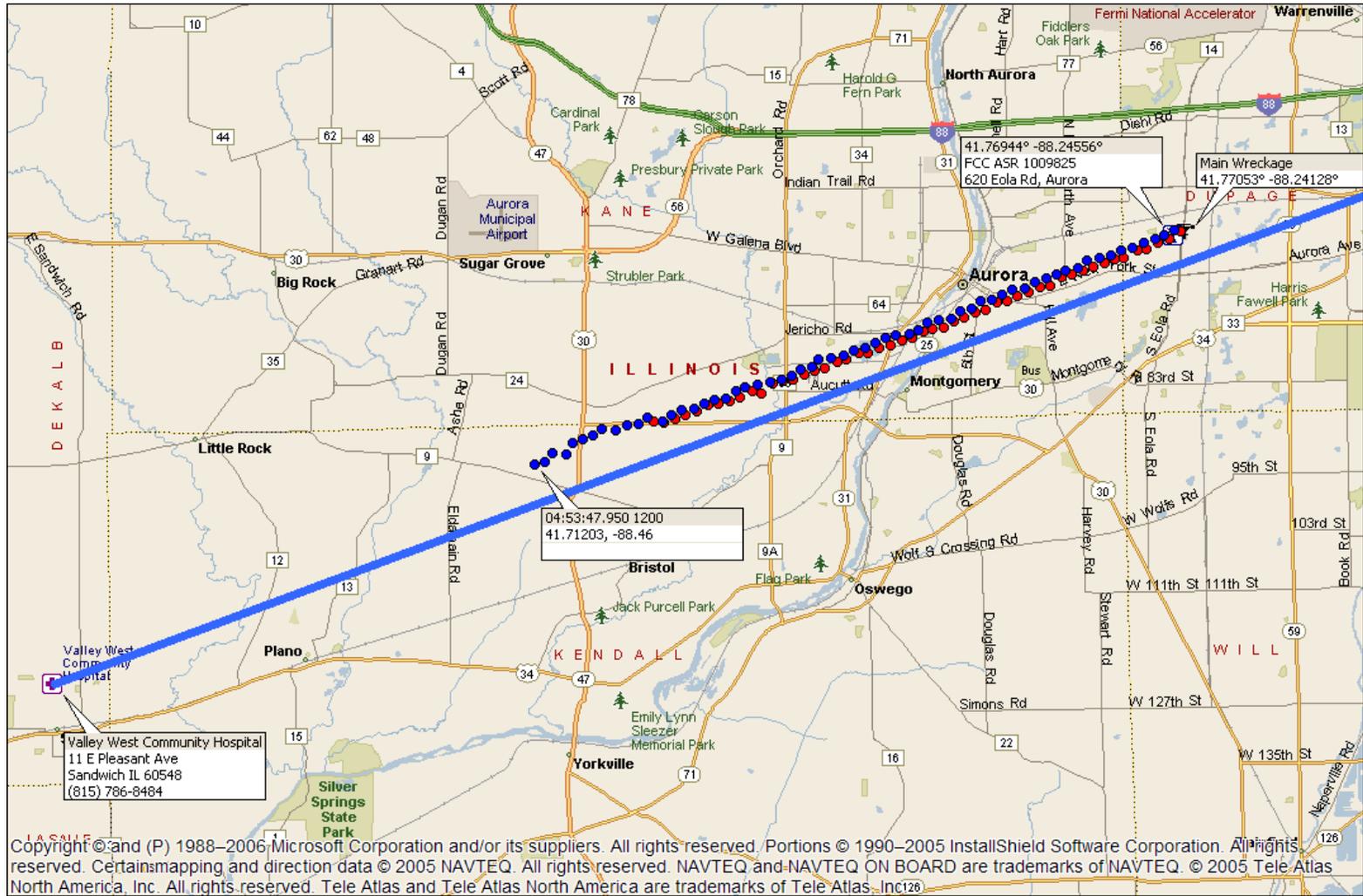


Figure 1 – N92AA direct route and radar targets from the Chicago(blue) and Midway(red) radars.

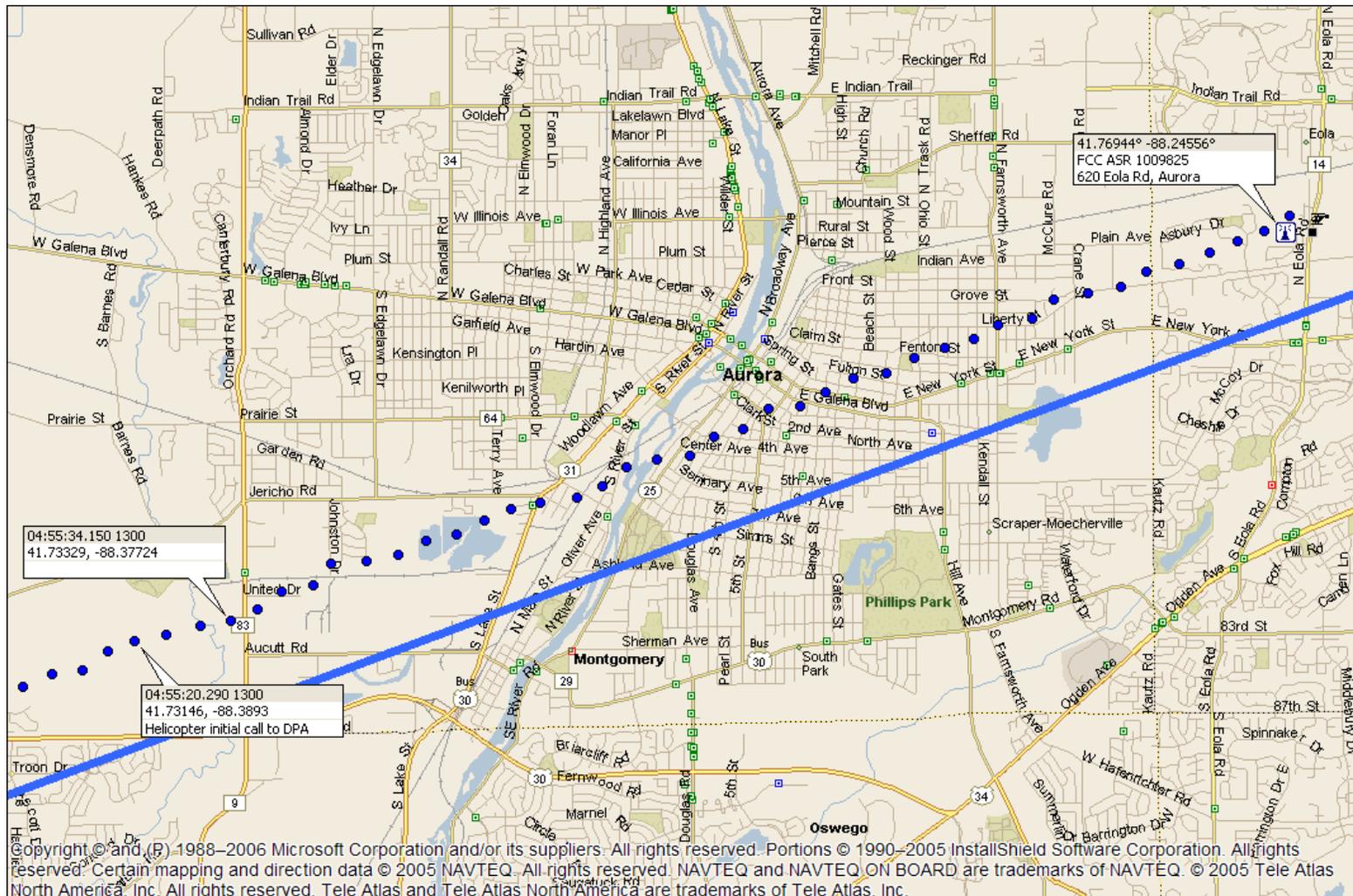


Figure 2 – Section of flight while N992AA was in contact with DPA ATCT.

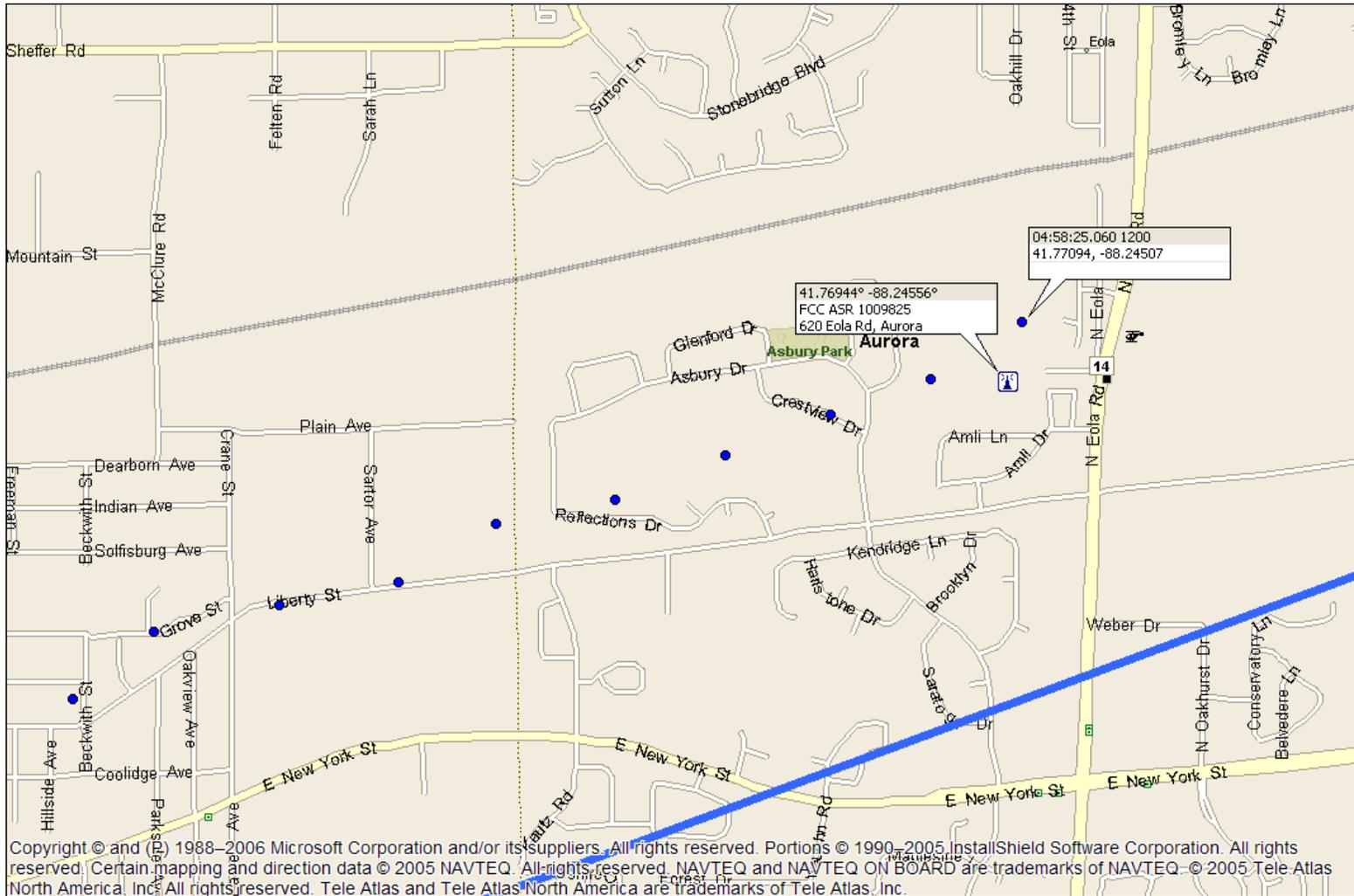


Figure 3 – End of flight.

## **2. Radar Data**

The tower radar display at DPA normally shows information from the Chicago ASR-9 radar. According to the recorded radar data, N992AA was first detected by the Chicago radar site at 2353:48, northwest of Bristol, Illinois at 1,200 feet. The aircraft continued northeastbound on what appeared to be a direct track to Children's Hospital. Figure 1 shows an overview of the radar data from the Chicago and Midway radar sites along with a line representing a direct route between the origin and destination hospitals. Figures 2 and 3 show closer views of the section of the flight where Angel 1 was in contact with DPA, and as the helicopter approached the obstruction.

## **3. Personnel Interviews**

### **Scott Gyssler**

### **DPA ATCT Supervisor**

Mr. Gyssler entered on duty with the FAA in 1982. He began his career at ORD ATCT, then transferred to Aurora ATCT, Rockford ATCT, and Chicago Executive ATCT. In 1991, Mr. Gyssler came to Dupage ATCT as a Front Line Manager, and served for a time as the acting Air Traffic Manager.

Mr. Gyssler said that the traffic display in the tower is a Certified Tower Radar Display (CTRD). When asked what he can do with this type of equipment, Mr. Gyssler stated that, as a controller, he can provide initial departure radar separation between departures. He can provide IFR separation between arrivals and departures and he can give traffic advisories. Mr. Gyssler said he gives traffic advisories using clock positions when using the radar. He said that when he is looking out of the tower windows instead of using the radar, he uses directions relative to the aircraft he is addressing (i.e., to your right, behind you, ahead of you, etc.)

In addition to his supervisory duties, Mr. Gyssler provides training to new controllers. He said that when a new student arrives at the facility, they are given a map of the area to study and are expected to be able to identify landmarks within about 10 miles of DPA, including the nearby river and other reporting points. Mr. Gyssler was not sure if controllers would be familiar with landmarks that are more than ten miles from the airport. He stated that controllers should be aware of the height and location of the antenna involved in this accident, because that information is taught to controllers as part of their classroom training. Mr. Gyssler said that the reason they teach new controllers about the obstructions is to let the controllers know that they are there. They do not train the controllers what to do with aircraft which are in the vicinity of these obstructions. He was uncertain how the specific obstructions described in the DPA training materials were chosen to be included.

Mr. Gyssler had not seen a radar replay of the accident, but he has heard the voice communications. When asked what he would expect of a controller working a VFR helicopter, Mr. Gyssler said that the controller should periodically look at the display to monitor the aircraft's location. Mr. Gyssler said that it is common for aircraft to call

Dupage requesting a Class Delta transition. At times, pilots will leave the airspace and not advise the tower or report clear of the airspace.

Mr. Gyssler was asked to explain a safety alert. He stated that a safety alert is a high priority. If two aircraft are on a collision course, a controller should resolve the conflict. When asked how to do this, Mr. Gyssler said that a controller would say, "safety alert" and issue traffic information. If necessary, he would also issue a suggested turn to avoid the traffic. Mr. Gyssler is not aware of any other instance where DPA controllers would issue a safety alert.

Mr. Gyssler was asked about the tower's response to a Minimum Safe Altitude Warning (MSAW) Alert on an aircraft executing an approach into DPA. Mr. Gyssler said that he would look out of the tower window and ensure that the aircraft is in a safe position. If he couldn't see the aircraft, he would issue a safety alert. For VFR aircraft, the situation is less clear. The tower doesn't verify altitude readouts, so controllers are not certain that what they are seeing is correct. They would therefore not necessarily issue a low altitude alert.

Mr. Gyssler said that altitude information on VFR aircraft is not verified. Mr. Gyssler said that there is no other circumstance that he is aware of to issue a safety alert to a VFR aircraft except for other traffic. Mr. Gyssler said that DPA trains controllers to give the best service possible and therefore hopes that controllers would give any needed information to a pilot.

Mr. Gyssler said that the Angel 1 operation used to be based at DPA before they moved to Clow. He said that their pilots are very familiar with the area and occasionally, these pilots will call Dupage Tower "just to talk."

Mr. Gyssler said that controllers at Dupage are not allowed to say "radar contact." However, he considers aircraft to be radar identified if a pilot's position report coincides with an observed target and there are no other aircraft in the immediate area. In his opinion, Angel 1's report over Aurora with no other aircraft in the vicinity would be sufficient to consider the aircraft radar identified.

Mr. Gyssler said that the antenna struck by Angel 1 is visible from the tower and can be clearly seen on a clear day. At night it can sometimes blend in with the background lighting, but all the controllers know it is out there.

### **Joseph Merigold**

### **DPA Local Controller**

Mr. Merigold began his career at Midway Tower in 1979. After a break in service, Mr. Merigold was rehired by the FAA in 1998 as a controller at Dupage ATCT. Mr. Merigold reported for work at 2210 on the night of the accident and signed on position at 2230. He had been off on Sunday and Monday, worked a day shift on Tuesday, and then returned for a midnight shift Tuesday night. Mr. Merigold said that he felt rested and in

good health when he came to work. He did not recall any abnormal issues with the equipment.

Angel 1 called Dupage Tower at approximately 2355, stating that they were over Aurora and going to Children's Memorial Hospital. Mr. Merigold saw a target about 9 miles southwest of DPA at 1,400 feet that correlated with the pilot's position report. Mr. Merigold cleared Angel 1 through the Class Delta airspace and issued the current altimeter setting.

After talking to Angel 1, Mr. Merigold moved on to other duties such as making a new ATIS and getting the traffic count numbers together. Mr. Merigold said that a cargo operation had just begun the night before, greatly increasing the workload on the midnight shift, and he was trying to get some paperwork finished prior to the start of the night's cargo traffic operations. Mr. Merigold believed that the helicopter was flying towards Children's Hospital, but was not sure because he did not look at the radar display after the helicopter's initial call. He does not recall seeing the aircraft on the display after the first contact. When Mr. Merigold was asked if he ever thought about the helicopter again after the initial contact, he stated that the helicopter operation used to be based at Dupage and that they should be familiar with the area. Additionally, there was no other traffic in the area or displayed on the radar.

Mr. Merigold's first indication that an accident had occurred came around 0015 when he received a phone call from someone in the FAA (probably the Regional operations Center.) There was more than one person on the telephone – it seemed to be a conference call. The caller asked Mr. Merigold if he had been in communication with N992AA. Mr. Merigold said that he was not familiar with that callsign, but had been talking to Angel 1. Mr. Merigold said that he put "two and two together" and figured out that they were asking about the same aircraft. The caller stated that there had been a helicopter crash. That was the first time he was aware of the accident.

Mr. Merigold was asked about his responsibilities when handling VFR aircraft. He stated that he had to check for conflicting traffic and decide whether or not he could clear the aircraft into the zone. He was required to issue the altimeter setting to the pilot, but was not allowed to radar identify aircraft because he is not a radar controller.

Mr. Merigold said that the radar display is certified, but he only uses it as a tool to track aircraft, to separate arrivals and departures, and to establish initial separation between departures. Mr. Merigold stated that the phraseology he uses for traffic advisories includes clock position, mileage, direction of flight, and aircraft type if known. Aircraft are not required to be radar identified for him to provide VFR traffic advisory service. He does not generally issue beacon codes to aircraft, although he does instruct pilots to squawk ident to confirm identity. Mr. Merigold considers such aircraft radar identified, but stated that according to FAA rules they are not actually considered radar identified. DPA controllers do not verify altitudes observed on the radar display – they use phraseology such as "...altitude indicates..." to describe what they see.

Mr. Merigold stated that he was familiar with traffic safety alerts, terrain alerts, conflict alerts and low altitude alerts. Mr. Merigold believes that low altitude alerts are usually associated with IFR aircraft, and that when he observes an "LA" alert on the radar display he is required to warn the pilot. He stated that if he noticed two VFR aircraft coming together, he would issue a safety alert to the pilots involved, and if he felt the need to issue a safety alert for terrain or obstructions, he would do so.

Mr. Merigold recalled classroom training on the radar map used on the tower display. He was aware of the antenna involved in this accident, believed it was somewhere around 1,400 – 1,500 feet tall, and noted that it is shown on the radar map. He said that the antenna was depicted on the radar display. Because the helicopter's initial call was 9 miles southwest of DPA requesting clearance through the Class D airspace, which is well north of the antenna, he did not believe that the aircraft would go near it. There was no reason to continue to radar monitor the flight. There was no other traffic in the area.

Mr. Merigold said that he never considered the antenna a hazard to Angel 1. He has never issued a low altitude alert to a helicopter because, "...the pilots are based near here, they are familiar with the area, and they fly low all the time." He said that if he had noticed the helicopter approaching the antenna, he would have issued a safety alert. Mr. Merigold did not notice the aircraft disappear from the radar display, but said that it is not abnormal to lose an aircraft's radar return at low altitude. When asked about times he would monitor the aircraft, Mr. Merigold said that if he had other traffic in the area, he would have monitored Angel 1 more closely. Mr. Merigold said that sometimes aircraft do not advise the tower that they are clear of the Class Delta airspace, so he wasn't concerned when he didn't hear from Angel 1 again. A few minutes after Angel 1's initial call, Mr. Merigold remembered hearing some kind of transmission on the frequency. He did not know what it was, but thought it may have been an inadvertent transmission from an aircraft parked on the ramp. After listening to the tape, Mr. Merigold realized that the noise came from the accident aircraft after the impact.

Mr. Merigold usually monitors 121.5 but did not hear an emergency locator transmitter after the accident. He was not sure if setting the speaker volume for 121.5 is part of the watch checklist.

Mr. Merigold stated that there is normally only one controller in the tower during the midnight shift. Since the cargo operations have increased, it has been hard to keep up with the paper work that needs to get done each evening. The daily traffic data needs to be submitted by midnight, and the new daily log has to be opened as well. For a single controller, the midnight shift can be difficult. You get pulled in several directions, and there can be a lot going on. A new controller could get overwhelmed sometimes.

Mr. Merigold said that his main responsibility for separation is on the airport movement area and then, if time permits, traffic inside the Class Delta airspace.

## **David Carmona**

## **DPA Air Traffic Manager**

Mr. Carmona began his career with the FAA in 1982. Since then, he has worked in various tower and flight service positions, regional staff positions, and as an acting Air Traffic Manager. Mr. Carmona arrived at Dupage Tower as the Air Traffic Manager on October 17, 2008.

Mr. Carmona said that the controllers use the CTRD for initial radar separation and to enhance their application of visual separation between IFR arrivals. Mr. Carmona explained that controllers should issue traffic to aircraft which are under their control and in the Class Delta airspace by using positions reference the aircraft (i.e. behind you, ahead and to your right, etc.), or by instructing a pilot to follow another aircraft. Mr. Carmona stated that it is possible to issue traffic using clock positions, but the controller has to correlate the aircraft position on the radar display. Mr. Carmona stated that Class Delta service only allows controllers to issue general traffic advisories and not radar traffic advisories. To provide radar traffic advisories, the aircraft would have to be radar identified. Mr. Carmona did not believe that correlating a target on the radar display with a position report constituted radar identification. He stated that controllers at DPA are not able to radar identify aircraft. Mr. Carmona further explained that DPA controllers do not provide radar separation for successive departures. He said they only provide initial IFR separation.

Mr. Carmona stated that the controller who was involved in the accident probably assumed that the helicopter was going to transition the Class Delta airspace. He said that in this case, the controller should have issued the altimeter setting, provided a clearance through the area, and monitored the progress of the aircraft. When Mr. Carmona was asked about radar monitoring of the aircraft, he said that it was not done with this helicopter.

Mr. Carmona was asked to describe a safety alert. He explained that safety alerts are expressed as either a traffic alert between two aircraft (conflict alert), or a minimum safe altitude warning (MSAW) caused by inadequate terrain separation. Controllers can provide a warning to pilots if they believe that an aircraft is in conflict with other aircraft or the terrain, but such alerts are normally provoked by an automated warning such as a conflict alert or MSAW activation. He said that in order to issue a traffic safety alert, the aircraft involved need to be operating under IFR or radar identified, and controllers at DPA do not radar identify aircraft. Mr. Carmona said that it is possible for VFR aircraft to be in an unsafe proximity to terrain, but because the aircraft is VFR there is no obligation for a controller to issue the alert. Mr. Carmona said that this is a normal practice at Dupage that he has recognized since he has arrived.

Mr. Carmona is not sure of the height of the antenna that the aircraft hit. He said that obstructions are put on the video map if over a certain height. He explained that this particular obstruction was used as a method to align the analog radar display before the current digital display was installed. He stated that since the display system is now

digital and does not require alignment, the facility no longer needs to display this obstruction. When questioned on why obstructions are included on radar maps, Mr. Carmona conceded that they could present a hazard to navigation because of the potential for being struck by an aircraft, but stated that there is no requirement to warn a VFR aircraft about such obstacles.

Mr. Carmona said that he has reviewed the controller's services provided in this accident and has deemed them in accordance with what controllers are required to do, but he was not sure if the radar monitoring was sufficient given that the controller did not notice loss of radar and radio contact.

Scott Dunham  
NTSB AS-30