NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

June 14, 2012

HUMAN PERFORMANCE

Factual Report

ERA12MA122

A. ACCIDENT

Operator:	SK Logistics, Inc. dba SK Jets
Location:	Green Cove Springs, Florida
Date:	December 26, 2011
Time:	0554 eastern standard time[1]
Airplane:	Bell 206B, Registration Number: N5016M

B. HUMAN PERFORMANCE INVESTIGATOR

William J. Bramble, Jr., Ph.D.
Human Factors Division (AS-60)
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

C. SUMMARY

On December 26, 2011, at 0554 eastern standard time, a Bell 206B, N5016M, operated by SK Logistics, d.b.a. SK Jets, collided with terrain while maneuvering near Green Cove Springs, Florida. The certificated airline transport pilot and 2 passengers (a doctor and a medical technician) were fatally injured. The on-demand air taxi flight was conducted under the provisions of 14 Code of Federal Regulations Part 135. Night instrument meteorological conditions prevailed along the route and no flight plan was filed for the planned flight to Shands Cair Heliport (63FL), Gainesville, Florida. The flight originated from Mayo Clinic Heliport (6FL1), Jacksonville, Florida, about 0537.

[1]All times are eastern standard time (EST) and based on a 24-hour clock unless otherwise noted. Time of accident is approximate.

D. DETAILS OF THE INVESTIGATION

A human performance investigator joined the operational factors/human performance group. For a description of the group's investigative activities, see the operations group chairman's factual report.

E. FACTUAL INFORMATION

1.0 Flight Crew Information

1.1 The Pilot

The pilot, age 68, was SK Jets' president and director of operations. His wife said he was very energetic and enjoyed working, especially flying. He went to the office every day unless he was on a trip, but his work schedule depended on when he was flying and when he was on call. His wife said that he normally ate breakfast at 0730, but he would have a nutrition drink and coffee if he had to go in to the office early. He normally ate lunch at the office and dinner at home about 1830 or 1900. His wife said that he normally woke about 0630 and went to sleep at 2330 or 2400. She said he routinely slept 6 hours per night, he had done so throughout the 50 years she had known him, and he felt well rested on that amount of sleep.

Fourteen current SK Jets employees, including pilots, schedulers, managers, and maintenance personnel, said that the pilot got along well with others and was outgoing, friendly, and approachable. Current SK Jets pilots said he was easy to fly with. The company's current FAA principal operations inspector (POI), who was assigned oversight responsibility for the company in September 2011, said he had received no complaints about the pilot from SK Jets personnel.

Descriptions about the pilot's interpersonal characteristics at work were also provided by former employees and FAA personnel. The SK Jets former director of operations (an employee from 2001 to 2008) said the pilot as strong-willed, but easy-going in the cockpit. A former helicopter pilot (2006-2008) said the pilot had a "my way or the highway" attitude. A former fixed-wing pilot (2007-2008) said that the pilot was "a little volatile," and not receptive to input from other pilots. A former company POI (2005-2009) said the pilot could be difficult if crossed, and he reported having received past complaints about him from other company pilots.

For information about the pilot's professional background, history of employment, FAA pilot certifications, pilot training history, and flight experience, see the operations group chairman's factual report.

1.1.1 The Pilot's Preaccident Activities

The pilot's recent activities were documented by conducting interviews with his wife and colleagues and by reviewing company emails, portable electronic device records, access gate logs, and surveillance camera footage.

On Friday, December 23, 2011, the pilot woke about 0630, left the house at 0700-0730, and arrived at the office about 0915. He gave the chief pilot a Part 135 oral examination and practical test in the Bell 206 because the company's two full-time helicopter pilots were not available and he needed the chief pilot to serve as the pilot on call that night. The pilot administered the oral exam

from 0930 to 1030 and the practical test after that. After he administered the practical test (which consisted of 1.4 hours of flight time), the pilot left work early to celebrate his 50th wedding anniversary. He picked up his wife at home, ran an errand, drove to a nearby resort, and spent a quiet evening there, falling asleep about 2300-2330.

On Saturday, December 24, 2011, the pilot woke at 0630, and then went back to bed and slept an additional hour. He ate breakfast, ran an errand, drove home, and visited the home of a relative, where he ate lunch. After that, he returned home at 1620 with one of his grandchildren, engaged in routine activities around the house, and took a nap from 1800 and 1900. At 1900, he accepted responsibility for answering the company phones, having to have them forwarded to his cell phone so the director of charter could be off duty on Christmas Eve. At 2230, he drove to church and attended midnight mass with his wife and grandchild.

On Sunday, December 25, 2011, the pilot returned home about 0115. His wife estimated that he went to sleep an hour later, but he sent a routine email to a company scheduler at 0236 indicating that the company had received no calls. The pilot woke at 0800, celebrated Christmas morning with his wife and grandchild, and relinquished responsibility for the company phones at 0930. He went for a short bike ride in the early afternoon, telling his wife he might stop by the office. At 1251, he sent an email to the director of safety notifying her that he had left cash on her desk to provide for her expenses during an upcoming trip, explaining that the company credit cards had become "unmanageable" and he wanted to control costs. At 1252, he sent an email to company personnel stating he had watered plants in the company office. At 1330, he returned home and ate lunch. About 1600, he told his wife he was going to take a nap because he was going to be on call that night. His wife recalled that he lay down for an hour to an hour and a half, then got up, engaged in routine activities around the house, and ate dinner. She thought he went to sleep between 2230 and 2300.

On Monday, December 26, 2011, at 0335, the pilot received a 1-minute 33-second call from the company's charter scheduler. The scheduler recalled that it seemed she had woken the pilot. She notified the pilot about a trip that involved transporting a Mayo Clinic team from 6FL1 to 63FL, where they would extract a heart, and then transport them back to 6FL1. The pilot said he would accept the trip. The charter scheduler provided additional details, including the scheduled departure time from SGJ (0450), the scheduled pickup time at 6FL1 (0515), and the identities of the passengers (a medical technician and a surgeon). The pilot correctly repeated back this information to her and sounded okay. They did not discuss weather conditions or the pilot's intended route of flight. The scheduler subsequently obtained a company release for the trip from the director of charter without further involving the pilot.

At 0357, according to a record retrieved from his laptop, the pilot reviewed METARS for SGJ, Craig Municipal Airport (CRG, located about 5 nautical miles from 6FL1) and Gainesville Regional Airport (GNV), and terminal area forecasts (TAFs) for CRG and GNV. He then drove to SGJ (a 12-minute trip by car). At 0419, he made a 50-second call to the Gainesville Regional Airport automated surface observing system (ASOS). At 0423, he opened a card-activated entrance gate to the SK Jets hangars. At 0504, he called Shands hospital dispatch. At 0505, he called the SK Jets charter scheduler. During this last call, which lasted 27 seconds, he told the scheduler he was departing SGJ for 6FL1 in the helicopter.

At 0516, the Mayo Clinic medical technician who was to be a passenger on the flight called the charter scheduler and informed her that the helicopter had not arrived at 6FL1. The charter scheduler told the medical technician the helicopter was on its way and would arrive in 10 or 15 minutes. The

medical technician called a Mayo Clinic transplant coordinator and told her that the helicopter was running late. She asked him to inform her about any additional delays so that she could postpone operating room times if necessary.[2] At 0528, the SK Jets charter scheduler called the medical technician. He told her the helicopter had still not arrived and asked her to confirm the estimated flight time from 6FL1 to GNV, which she provided. At 0535, the helicopter landed at 6FL1. The transplant team boarded and, at 0540, the helicopter took off.

1.1.2 The Pilot's Health

The pilot's wife said that the pilot was in good general health and neither she nor any of the pilot's coworkers had observed any recent signs of illness or injury. The pilot's most recent FAA first class medical certificate, dated October 5, 2011, bore the limitation "holder shall wear corrective lenses." The pilot's wife said that he wore eyeglasses with trifocal lenses and the pilot's colleagues reported that he wore glasses when he was flying.

FAA medical records indicated that the pilot was diagnosed with hypertension in 1984 and was taking three medications (atenolol, nifedipine, and hydrochlorothiazide) to control it. According to these records, he was not experiencing adverse side effects from the medications and his blood pressure was well-controlled. Several years before the accident, the pilot was diagnosed with epiretinal membrane disease and cataract, and these conditions were resolved through surgery. In 2010, the pilot sustained a leg fracture when he was struck by a car. FAA medical records indicated that this fracture was fully healed by the time of a March 23, 2011, FAA medical exam. Additional information about the pilot's medical history is contained in the medical officer's factual report.

1.1.3 The Pilot's Proficiency and Aeronautical Decision Making

The company's current helicopter pilots (two full-time and two part-time) said they regarded the pilot as knowledgeable and highly experienced but they had had little opportunity to observe his helicopter flying skills because normally they only flew together when they underwent checkrides or were being trained. The company's current POI said he had conducted three helicopter checkrides on the pilot in recent years, however, and he characterized the pilot's helicopter flying skills as above-average. Four current company fixed-wing pilots were asked about the pilot's airplane flying skills. They said he was proficient, but not as "smooth" as the other fixed-wing pilots when carrying passengers. They attributed this to the fact that he did not fly fixed-wing aircraft as often as the other fixed-wing pilots did.

Current company pilots said they had observed no deficiencies in the pilot's aeronautical decision making. A helicopter pilot (the chief pilot) and a fixed-wing pilot regarded aeronautical decision making as one of the pilot's strengths. The fixed-wing pilot provided a specific example, citing a decision the pilot made during a low-instrument flight rules (low IFR) approach they conducted together in one of the company Learjets. When the autopilot failed to intercept the localizer as planned, the pilot, who was flying, promptly recognized the problem, disconnected the autopilot, and hand-flew the rest of the approach. Company personnel had observed no signs of the hazardous attitudes described in FAA pilot training literature (i.e., resignation, anti-authority, impulsivity, invulnerability, or macho) in the pilot. Pilot's said the pilot had never done anything in an aircraft that made them feel unsafe and he had never pressured them to fly in unsafe conditions.

[2] The transplant coordinator told investigators that it was very unusual for the helicopter to arrive late.

The company's director of maintenance, who had been with the company for four months at the time of the accident, reported that the pilot had made what the director of maintenance considered an unusual safety-related decision in a context outside of aviation. He stated that the pilot owned an 8-year-old pickup truck that was sometimes used by company maintenance staff. About three weeks before the accident, one of the truck's front tires failed while the pilot was driving the truck. The pilot replaced the damaged tire but not the other tires, which were the same age. The director of maintenance told the pilot he was uncomfortable driving the truck or having other employees drive the truck unless the pilot replaced the other tires, but the pilot did not agree. Two weeks later, another tire blew out while the pilot was driving the truck, damaging a fender and quarter panel. The director of maintenance asked if the pilot would replace the remaining tires, but the pilot said no. Again, the director of maintenance objected. The pilot did not verbally agree, but a few days later, the director of maintenance noticed that the truck had all new tires.

The former helicopter pilot and the former fixed-wing pilot referenced in Section 1.1 voiced concerns to investigators about the pilot's aeronautical decision making. They cited the circumstances of a December 22, 2007, accident. The former company helicopter pilot said he had been assigned to perform an organ transplant flight in the Agusta 109 early that morning. He was supposed to transport a transplant team from SGJ to the Mayo Clinic in Jacksonville, Florida. It was still dark and the SGJ tower was closed. He recalled that the ceiling was 400 feet and the visibility was about 1 mile, so he called the company scheduler and told her he was turning down the flight. He recalled that the pilot called him soon afterward and insisted that he take the flight. When he refused, the pilot yelled at him and said he would take the flight himself. After the transplant team arrived in one of the company Learjets, the pilot took off in the Agusta 109 carrying the team. The former company helicopter pilot said the Agusta 109 return to SGJ a few minutes later, barely cleared a line of 100-foot tall trees, descended steeply, nearly collided with a refueling facility, and then struck small trees next to the company's ramp area with its tail rotor, substantially damaging the helicopter. The former company helicopter pilot recalled that, after landing, the pilot pulled the power control levers to idle and went inside the company offices with the helicopter's rotor blades still turning and his passengers still aboard. The former company helicopter pilot recalled that one of the Learjet pilots who had transported the transplant team to SGJ (the former company fixed-wing pilot) helped the transplant team safely exit the helicopter.

The former company fixed-wing pilot recalled transporting the transplant team to SGJ in one of the company Learjets. He said that he and another pilot performed an ILS approach to runway 31 and broke out of the clouds near decision height (250 feet AGL). He said he was shocked to find the Agusta 109 on the ramp with its rotor blades turning and he was shocked when the pilot subsequently took off with the transplant team aboard the helicopter. He said the helicopter returned shortly thereafter, flew down the runway, made a turn toward the hangar ramp, turned again, barely missed the fuel farm, and struck bushes next to the ramp with its tail rotor, showering the ramp area with debris. He also recalled that the pilot exited the helicopter and went inside the company offices with the rotor blades still turning. He said he noticed that the rotor blades were turning closer to the ground than normal and he became concerned that they would strike the transplant team as they exited the helicopter, so he walked over to the helicopter and helped them exit safely. He said the pilot returned a few minutes later and drove the transplant team to Jacksonville in his car.

In a report submitted to the NTSB on January 15, 2008, the pilot reported that the accident flight's point of origin was SGJ and its destination was St. Luke's Hospital Helipad (FD58) in

Jacksonville, Florida.[3] He reported taking off, encountering deteriorating weather conditions five minutes into the flight, and returning to SGJ. He reported landing on runway 13, ground taxiing to the SK Jets ramp, and making a 180-degree turn on the ramp. He said the helicopter's tail rotor struck a bush at that time, causing the tail rotor blades to fragment. He said he shut down the helicopter, disembarked his passengers, and immediately notified company maintenance about the damage to the helicopter. He reported that the cloud ceiling was 500 feet AGL and the visibility was 2.5 miles at the time of the accident. He stated that after the manufacturer inspected the helicopter, he was informed by the FAA that the helicopter's tail boom had been structurally damaged. The investigation of this accident was largely conducted by the FAA, and the NTSB determined that the probable cause was "the pilot's failure to maintain a visual lookout while taxiing."[4]

Following the December 26, 2011, accident, investigators contacted one of the passengers listed in the pilot's January 15, 2008, pilot/operator accident report (a medical technician). He recalled taking off from SGJ and returning to the airport on one occasion because the pilot could not see, but he could not recall any other details about the flight. Investigators tried to contact the other passenger listed in the report (a surgeon), but he could not be located. The POI who was overseeing SK Jets at the time of the December 22, 2007, accident recalled that SK Jets had failed to report this accident and the FAA had found out about it through an anonymous call. He said that another FAA inspector led the investigation of the accident and recommended counseling for the pilot, but the North Florida Flight Standards District Office (the POI's duty station) decided to perform a re-examination of the pilot instead (which the pilot successfully completed). He stated that, although the pilot took off in marginal weather conditions, he was operating legally and made a good decision to return to the airport. In addition, he stated that FAA did not pursue enforcement action against operators for failing to report aircraft accidents.

Following the December 26, 2011 accident, NTSB retrieved weather data for SGJ for the date and time of the accident (December 22, 2007, 0530 local time).[5] The METAR for SGJ at 0515 local time reported a cloud ceiling at 400 feet AGL and visibility at 2 ½ statute miles. The same conditions were reported at 0535. FAA publications indicate that the airspace surrounding SGJ is class D from the surface to 2,500 feet MSL when the tower is in operation, and class G when the tower is closed. Federal aviation regulations state that no person may take off within the lateral boundaries of the surface areas of Class D or E airspace designated for an airport unless the ceiling at the airport is at least 1,000 feet AGL and the ground visibility is at least 3 statute miles,[6] unless they receive a special VFR clearance, in which case, they may operate "clear of clouds."[7] A pilot operating a helicopter under 14 CFR Part 135 within the lateral boundaries of class D or E airspace must maintain visibility of at least one mile.[8] After taking off in class D or E airspace, a helicopter must remain at least 500 feet below clouds.[9] In class G airspace, FAA regulations permit VFR helicopter flights at night to be performed "clear of clouds," as long as flight is conducted at a speed that allows the pilot "adequate opportunity to see any air traffic or obstruction in time to avoid a collision."[10] Regardless of airspace classification, a pilot operating under 14 CFR Part 135 is required to maintain visual surface light

[3] Federal regulations require operators to notify the NTSB immediately of an aviation accident and submit a written report (using NTSB Form 6120.1, *Pilot/Operator Accident/Incident Report*) within 10 days.
[4] NTSB Accident No. MIA08CA040.
[5] For additional information, see Addendum 1 to the meteorology group chairman's factual report.
[6] 14 CFR Part 91.155 (c) and (d).
[7] 14 CFR Part 91.157 (b).
[8] 14 CFR Part 135.205 (b).
[9] 14 CFR Part 91.155 (a).
[10] 14 CFR Part 91.155 (a).

reference sufficient to safely control the helicopter[11] and to operate at least 300 feet above congested areas.[12] Away from congested areas, a pilot may operate a helicopter at any altitude that does not create a hazard to persons or property on the surface.[13]

2.0 Organizational Information

2.1 Safety Management and Safety Culture

SK Jets contracted with ARGUS International (ARGUS) to audit the safety of its operations. The company underwent its first ARGUS audit in September 2006. At that time, an SMS was required to obtain an ARGUS platinum rating, so the company developed an SMS. The director of safety said the company developed its SMS program using ARGUS guidance. A safety policy letter was developed, signed by the president (the pilot), and inserted into the company's new SMS manual. A risk analysis of the company's flight operations was performed and a risk matrix was developed so pilots could carry out risk assessments on a per-flight basis using a Flight Risk Analysis Tool (FRAT) form. Safety assurance processes, including internal and external safety audits, were established. The company created an anonymous safety reporting system and the director of safety was assigned the responsibility of investigating all safety reports. Safety promotion was accomplished by the director of safety by disseminating safety newsletters to pilots. The SMS manual said the company would hold quarterly safety committee meetings between managers and line pilots. The director of safety said these meetings were suspended in January 2011 as pilot staffing declined, but safety issues were still discussed in management meetings.

The director of safety, chief pilot, director of maintenance, director of charter, director of charter ex-officio, and former director of operations had positive things to say about the company's safety culture. They said they had no particular safety concerns about the company, and they reported that the company's ARGUS platinum and ISBAO Class II ratings signified that the company had developed a positive safety culture. Current pilots said positive things about the company's safety culture and indicated that they also had no particular safety concerns. They said they were not worried about experiencing repercussions for making safety-oriented decisions, and they said that they felt comfortable expressing safety-related concerns. The director of maintenance said the safety culture at SK Jets was "to the standard" and he reported having no particular safety-related concerns about the company's flight operations. The POI, who had visited the company four times, conducted a flight check on one of its aircrews, and interacted with company representatives by phone every 2 weeks, said that SK Jets appeared to be a normal 14 CFR Part 135 air carrier. He said he thought company personnel were cognizant of safety risks.

The two former company pilots said they had concerns about the safety culture at SK Jets during their tenures (which ended in January 2008 and March 2008). They cited management efforts to cover up the December 22, 2007, accident, and retribution they experienced for reporting the accident to the FAA. The former company helicopter pilot said the pilot confronted him and accused him of "ratting on [the pilot]." The former company helicopter pilot also said that company managers told him they would not hold his job when his National Guard unit was activated. As a result, he left the company in January 2008. The former company fixed-wing pilot said that when company managers found out that he had reported the accident to the FAA, they assigned him more difficult work schedules and pressured him to fly in situations that made him feel unsafe. He said that if pilots

[11] 14 CFR Part 135.207.
[12] 14 CFR Part 135.203.
[13] 14 CFR Part 91.119 (d).

refused such flights, the company would fire them and make them repay their training expenses. He said the chief pilot and general manager tried to intimidate younger pilots by threatening to provide negative reports to future employers. He said he left the company in March 2008 over these and other concerns. He said he had signed a training contract with SK Jets, so he was required to pay the company $3,500 to reimburse a portion of his training costs. He said that he later learned SK Jets had falsely told his new employer he had been denied an upgrade to captain.

The former company helicopter pilot told NTSB investigators that company pilots were always on call and managers urged them to falsify duty time records to indicate that they had received rest periods they were not flying. The former company fixed-wing pilot also said pilots were continuously on call and they were retroactively considered to be in a rest period when not called for a flight. He also stated that rest periods were regularly interrupted by company calls and non-flying assignments and flight crews were routinely exhausted and concerned about safety. Both former pilots said they had complained to the FAA about these practices and FAA records confirmed that such complaints had been received. The former POI recalled receiving pilot complaints about company scheduling practices, specifically how duty time was being tracked and recorded. He said that in response to these complaints he told company managers they could not continuously keep pilots on duty. He said that, after this discussion, the company instituted a rotating duty schedule and he received no more complaints from company pilots about this issue.

The former company fixed-wing pilot told NTSB investigators that, when he was working for SK Jets, two captains (including the future director of safety) did not meet ARGUS minimum flight time requirements, and he believed that the company had submitted false flight time information for these pilots so the company would appear to conform with ARGUS requirements. He said that when he attempted to discuss this issue with the pilots in question, they told him that they were not supposed to discuss their flight experience. He told NTSB investigators he had contacted ARGUS to report this issue and had multiple follow-up conversations with ARGUS personnel about it. NTSB investigators contacted ARGUS to confirm these reports, and ARGUS personnel stated that the company had received a whistleblower complaint from a former company helicopter pilot describing a 600-hour discrepancy in the reported flight time of one of the company's pilots. ARGUS could not confirm how the matter was ultimately resolved, but an ARGUS representative said SK Jets was probably asked to review the matter and correct any inaccuracies in the flight time information it was submitting to ARGUS.

The former fixed-wing pilot told NTSB investigators that SK Jets pilots had been advised to avoid writing up any maintenance discrepancies in the aircraft logbooks. He said they had been advised to instead write up issues on adhesive notes and leave them inside the logbooks so that the company could decide when and if they would address the maintenance issues. The former POI was not asked about this issue specifically, but he told investigators there had been a lot of complaints from pilots who were leaving the company about how SK jets had operated. He said that when he asked managers to make needed changes, they did not resist. The company had corrected any areas of noncompliance that he had identified. He stated that operators with ARGUS ratings generally tried harder and were more compliant because they wanted to maintain their ARGUS rating.

The former POI told investigators that, in addition to the company's concealment of the December 22, 2007, accident, he suspected that SK Jets had not been forthcoming with the FAA about other accidents. He recalled that a company Learjet had lost power to both engines during an

approach and crashed on the runway at SGJ, substantially damaging the airplane.[14] The company towed the airplane to a hangar and, when FAA inspectors arrived, advised them that the airplane's fuel tanks had split open during the crash, draining all fuel. The NTSB determined that the probable cause of this accident was "A loss of power on both engines for an undetermined reason." The former POI said he conducted a proficiency re-check on both crewmembers, taking them to 12,500 feet, shutting down one engine, then pulling the other to flight idle and telling them to restart the first engine. Both pilots successfully completed this check. The former POI and other inspectors suspected that the Learjet had run out of fuel during the accident flight, but they could not prove it.

Current SK Jets managers and pilots said business had been declining in recent years as a result of economic recession. SK Jets' general manager said the company had renegotiated some loans, the charter business was starting to pick up, and the company's financial condition was improving. While on company premises, NTSB investigators noted that some of the company's Learjets were down for maintenance and sitting idle in a company hangar and one was leaking fuel onto the hangar floor. In addition, the Agusta 109, the company's most capable helicopter and the preferred helicopter for the Mayo Clinic contract, had been down for maintenance since August 2011 and SK Jets had acquired the accident helicopter 1 or 2 weeks before the accident because the other Bell 206 was going to be away from St. Augustine on a fire-suppression contract for 9 months. Mayo Clinic's director of supply chain said he was concerned about the company's finances because of its apparent inability to service aircraft in a timely manner. He said this had prompted him to begin identifying other aviation companies that could better fulfill Mayo Clinic's air transportation needs. He reported that the pilot was aware of this and had scheduled a January 2012 meeting with him to obtain clarification about Mayo Clinic's requirements.

The POI said he had heard from the company's competitors that one of the Learjets was unavailable for service because the company would not pay for repairs. He was not aware, however, that the Agusta 109 was unavailable for service. He said he did not normally look at an operator's finances as part of his surveillance activities. The company's former POI said, however, that a POI's surveillance activities normally did include looking at an operator's financial stability and he pointed out that the Inspector's Handbook[15] contained a section addressing the surveillance of companies that were in financial distress. He said that if the FAA learned a company was in financial distress, they would notify FAA management and surveillance would be increased. He said, however, that it was difficult to prove a company was in financial distress, and the FAA often found out about it very late.

2.2 Company Procedures for Preflight Risk Assessment

As previously stated, company pilots carried out a risk assessment for each trip using a FRAT form as part of the company's SMS. FRAT forms were required to be carried aboard all company aircraft, and separate forms were provided for helicopter and airplane flights. The SK Jets General Operating Manual (GOM) stated the following with respect to the completion of FRAT forms:

> The Captain will complete a FRAT prior to takeoff for each leg. If the risk is 20 or above the Chief Pilot or Director of Operations will be notified to see if the risk can be mitigated to a lower level. If the risk level is 45 or higher, the flight cannot go until changes are made to lower the risk to below 45. All FRAT forms shall be turned in with the flight packet at the completion of the trip.[16]

[14] NTSB Accident No. NYC07LA170.
[15] FAA Order 8900.10.
[16] SK Jets General Operating Manual, Revision 35, January 20, 2009, Section U, Pilot Qualifications and Duties, p.

The chief pilot said all company pilots had received training on the use of the FRAT form during initial and recurrent training, and the director of safety said that pilots usually (but not always) placed completed FRAT forms in her mailbox the day after a trip so she could review them. She said that if she learned a pilot had not submitted a FRAT form, she would contact them and ask why. She said she had not had to do this with the accident pilot. The chief pilot and director of safety said no FRAT form was found for the accident flight. Investigators did not recover a FRAT form from the wreckage either; however, the wreckage was subjected to extensive fire damage and fragmentation.

The FRAT form for helicopters contained 29 items divided into 3 categories: (1) pilot qualifications/experience/duty time, (2) operating environment, and (3) operating equipment. Investigators examined the form to see how low ceilings and visibility and night conditions affected estimated flight risk. The form contained three items addressing how these conditions could increase the risk score for a trip. If the ceiling was less than 500 feet and the visibility was less than 2 statute miles at the point of departure, the risk score increased by 1 point. If the flight was going to be conducted at night, the risk score increased by 3 points. If the ceiling was less than 500 feet and the visibility was less than 2 statute miles at the destination airport, the risk score increased by 5 points. If no other risks were identified, a pilot planning a trip at night with a ceiling at the destination airport of less than 500 feet and a ceiling at a departure airport of less than 500 feet, a total risk score of 9 points would be calculated, far less than the threshold of 20 points that required an independent review by the chief pilot or director of safety prior to flight release. However, other factors, such as receiving less than 2 hours notice of a flight (2 points) or having fewer than 50 hours of flight experience in the last 90 days (1 point), could further increase the total risk score for a flight.

SK Jets helicopter pilots were asked about their use of the FRAT forms. One of the company's full-time helicopter pilots (who usually flew a Bell 206) said company helicopter pilots used the FRAT for flights in the Agusta but not the Bell 206. He said he did not usually complete the form because the total risk scores were normally so low that they would never cause him to turn down a flight. He said he reviewed potential flight risks in his head and would sometimes turn down flights using his own criteria. He said the GOM contained company helicopter VFR weather minimums and, ultimately, the go-no go decision was up to the captain. The company's other full-time helicopter pilot said he filled out a FRAT form for every flight. He said he had a good idea about the level of risk associated with a flight before he filled out the form, but he regarded the form as a useful backstop to his own assessment. He said he rarely had to call the chief pilot or director of operations over a high FRAT risk score because he would normally turn down such flights without consulting them. He said, however, that he had consulted with the chief pilot on at least one occasion when he had had less than 200 hours in a particular aircraft type and was assigned a night flight with thunderstorms in the vicinity of his departure or destination airport.

2.3 Pilot Interpretation of Weather Information

The GOM stated that the following weather minimums were to be used for VFR flight in company helicopters, unless otherwise approved by the director of operations or chief pilot:

> Day – Normal VFR Weather Minimums as per 91.155 or other applicable regulations.
> Night – 1,000 foot ceiling and 3 miles visibility.[17]

U-4.

[17] SK Jets General Operating Manual, Revision 35, January 20, 2009, Section V, Flight Operations, p. V-10.

Company helicopter pilots were asked how they applied company weather minimums during preflight decision making. A full-time helicopter pilot said company VFR night helicopter weather minimums required a ceiling of at least 2,000 feet AGL and a minimum visibility of 3 statute miles for the entire route of flight. During a follow-up interview he corrected himself and said company minimums were 1,000 feet and 3 miles, but the GOM said the chief pilot or director of operations could waive these requirements and allow the use of less restrictive FAA weather minimums. He said he preferred a cloud ceiling of at least 1,000 feet and a visibility of at least 1 mile to feel comfortable. The other full-time helicopter pilot said he would cancel any VFR night helicopter flight if weather conditions were below company minimums (1,000 feet and 3 statute miles).

When shown weather information retrieved from the pilot's laptop that was retrieved by the pilot at 0357 on the morning of the accident, a full-time helicopter pilot said it would have been difficult to evaluate weather for the accident flight using only that information. He said he would want to examine weather information from Jacksonville Naval Air Station (NIP) and Palatka Municipal Airport (28J) as well. He said the METARS retrieved by the pilot were showing acceptable weather but the terminal area forecasts (TAFs) for Craig Municipal Airport (CRG) and Gainesville Regional Airport (GNV) were showing "pretty low weather". He said that, in his experience, the TAFs were not always accurate and, because the METARs were acceptable, he would keep monitoring weather until takeoff to see if conditions changed. He said he might accept the flight as presented under the condition that scheduling would prepare a backup plan. He said that if he did accept the flight, he would continuously monitor the weather enroute using Jacksonville approach and ASOSs at Palatka Municipal Airport (28J) and GNV.

The other full-time helicopter pilot was asked whether he considered TEMPO conditions listed in a TAF to be limiting when interpreting company weather minimums and he said yes. Presented with the weather information from the pilot's laptop, he observed that the METAR for GNV looked better than the TEMPO conditions predicted in the TAF. He said this led him to believe that the TAF might be inaccurate, which he said was common in Florida. He said he would not have turned down the accident flight based solely on the weather information retrieved from the pilot's laptop, but he would have asked scheduling to develop a backup plan and he would have continued to monitor the weather until departure. He said there were adequate ground lights enroute for the initial portion of the flight to GNV, but the area around Penney Farms was quite dark and external visual references were few and far between. He said lights in the vicinity of Keystone Airpark (42J) were normally visible in the distance from Penney Farms (15 nautical miles away), but he did not know how visible they would be if the helicopter was very close to the ground. He said he typically flew to GNV at 1,000 feet. He would go as low as 500 feet while carrying passengers in the daytime but felt uncomfortable flying "much below 800 feet" at night.

The company's POI said he would expect the company's helicopter pilots to carefully review the METARs, TAFs, Area Forecast, and relevant NOTAMs, and compare this information to minimums listed in the company's FAA-accepted GOM. He said all such weather information was binding on the pilot when making a decision about whether a flight could safely proceed. He said the pilot should have an expectation that they would be able to stay in VFR conditions from takeoff to landing. That meant both the METARs and the TAFs should reflect conditions that were above VFR minimums. He said the FAA could not enforce company weather minimums, but they could enforce FAA weather minimums. If a pilot continued into an area where weather conditions were forecast to be below VFR minimums (per the Federal Aviation Regulations), the aircraft entered an area where conditions were below those minimums, and the FAA found out about it, the FAA would probably determine that the pilot's actions were noncompliant. Asked what he would do if he received a

complaint that a pilot had taken off in conditions that were below VFR minimums during a Part 135 operation, he said the FAA would almost always investigate such a complaint. If it occurred at an airport with published weather information and the weather reported at the time of the flight was below VFR minimums, the FAA would start an investigation and initiate enforcement action. The company's former POI said that in the event of a complaint, the FAA would obtain weather reports and try to sort out any conflicting witness statements.

2.4 Pilot Use of Equipment for Terrain Awareness

Company personnel said that the company's Agusta 109 had a terrain awareness feature in its Garmin GNS-430 navigation unit. If the helicopter descended below a few hundred feet, the Garmin display would turn yellow and, if the helicopter descended further, the display screen would turn red. This feature did not provide an aural alert. Although the accident helicopter was also equipped with a Garmin 430, it did not have the same terrain awareness feature. The Agusta 109 and one of the company's two Bell 206s (not the accident helicopter) were equipped with radar altimeters that provided a continuous aural alert if the airplane descended below a pilot-selected altitude. A company helicopter pilot said there was no standard procedure for setting the minimum altitude that would trigger this alert, but he usually set it at 150 feet. He said the alert could be turned off by pulling a circuit breaker, but a pilot could not adjust the volume of the alert.

F. LIST OF ATTACHMENTS

Attachment 1: Next of kin interview summary
Attachment 2: Emails documenting the pilot's recent activities
Attachment 3: SK Jets access gate record