

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety, Western Pacific Region
Gardena, CA

OPERATIONS GROUP

WPR10FA371

Attachment 1

Operations Interview Summaries

INTERVIEW SUMMARIES AND RECORDS OF CONVERSATION

Interview: Mr. Clarence Wayne Dickerson, A&P Mechanic with Inspection Auth (IA)
Date: July 30, 2010
Time: 1515
Location: 3011 W Buckeye Rd, Phoenix AZ
Present: Van McKenny (NTSB), Elliott Simpson (NTSB), Archie Whitten (Turbomeca), Don Lambert (Air Methods)

Digest:

The following is a summary of conversation with Mr Wayne Dickerson, who is an A&P IA mechanic that is employed by Air Methods and worked on the accident helicopter. He holds a commercial pilot certificate, SEL, SES, rotorcraft-helicopter, and has approximately 2,800 hours of flight time. He received his A&P certificate in December 1973. He moved to Las Vegas in 1976 and flew for Grand Canyon Airlines. Moved to Alaska in 1980 and was the general manager and pilot for Ft Yukon Air North. In 1983 he became the Director of Maintenance for Wings of Alaska. From 1984-86 worked for Grand Canyon Helicopters, and in 1986 worked at Arizona Jet in Phoenix as a pilot and mechanic. In 1987 he moved to Columbia, SC, and started working for Rocky Mountain Helicopters. In 1989 he moved to Billings, MT. He continued to work for Rocky Mountain Helicopters in Tucson, AZ, as a mechanic. In 2001 Air Methods bought Rocky Mountain Helicopters. In 2008 he became the base mechanic in the Florence, AZ, Air Methods (LifeNet) base.

Mr Dickerson recalled that he returned from vacation on Thursday, July 22. On July 23rd he heard that the N509AM engine was "coked up" and located at Marana. He helped another mechanic, Victor Reeb remove the engine from N509AM. He separated module 5 from 4, and put module 3 on the stand. The other mechanic replaced the flux valve (avionics/compass system). He then removed engine modules 2/3 from module 1. At that point they were ready to replace the fuel manifold (that was coked up) and waited for Wayne Young of Helicopter Services Nevada to arrive and do the work. The removal of the fuel manifold required a higher level of maintenance than what they could provide themselves. Friday night (July 23) it was determined that N551AM had the same coking problem. No more work was performed on Friday.

On Saturday (July 24) he arrived at 0900 and met Wayne Young at the hanger. They rolled N509AM outside. He and Mr Young removed the engine from N551AM and started to separate the engine modules. They separated the work area in the hanger keeping the engine and parts for N509AM on one side of the hanger and the engine and parts for N551AM on the other side. In between the two areas was another airplane stored in the hanger. The parts for N551AM and N509AM were ordered via FedEx counter to counter. The parts and special Turbomeca tools for Mr Young for N509AM arrived on Saturday and were picked up by Mr Young Saturday evening. He said he quit work at 1700.

On Sunday (July 25) he arrived at Marana Airport at 0900. He started prepping

N551AM in the hanger and he and Mr Young reassembled the engine for N551AM. At noon another mechanic, Steve Osborne, picked up the parts for the engine at the counter. He and Mr Osborne installed the built up engine into N551AM. Mr Young built up the engine for N509AM on his own. He did a ground check on N551AM with pilot Lee Waldron. N551AM was on the ready pad, they rolled N509AM into the hanger. He quit between 1930-2000.

Monday (July 26) Joel Merton, and Victor Reeb arrived at 0630. He arrived at 0800. Mr Merton and Mr Reeb had finished doing the ground and daily for N551AM, and he signed off the maintenance for that helicopter. Wayne Young arrived at 0815. Pilot & Area Aviation Manager Jerry Fajelka performed the functional check flight (~12 minutes in duration), and then took the helicopter to Tucson Medical Center (TMC) to pick up Arron Todd, the CEO of Air Methods. Mr Dickerson said that there was some pressure put on the mechanics by Mr Fajelka to have the helicopter ready. Not only was the Air Methods CEO in the area but the Safford Base was out of service (no helo), and the backup helo was in use at Douglas, this was additional pressure felt by Mr Dickerson. Mr Dickerson then performed the prep work on N509AM, Mr Reeb performed the daily inspection for the base helicopter. He and Mr Young rotated the engine in the engine stand to the horizontal position and put the spline adaptor on the tail rotor drive. He hooked up and tightened the fuel supply line, and tightened the b-nut. He believes he torqued the b-nut for the line from the HMU to the fuel drain line on the lower right side of the engine. He and Mr Merton installed the engine, he on the left side and Mr Merton on the right side. The engine was serviced with oil and taken outside for a ground run. The pilot for the ground run was Bob Wasik, and the ground run lasted 9 minutes. The helicopter was shut down, leak check performed, restarted and a check was performed where the engine was brought up to 85% Ng and vibes checked (~4-5 minutes of run time). Mr Young then left after the vibes were verified. The short shaft was safetied and the vibe meter removed. Mr Dickerson installed the exhaust drain and tail rotor driveshaft cover. Mr Merton and Mr Reeb disconnected HMU channel A and waited to 10 minutes, then restarted the engine. They found a fuel control leak from the shaft drive housing. At this point Mr Dickerson said they were "dead in the water", they did not have the parts necessary to repair the fuel leak. He ordered the parts and they rolled N509AM into the hanger. He left the shop at 1700.

On Tuesday (July 27) he went to work at his normal base (Florence) and arrived around 1000.

Mr Dickerson stated that this area has 6 bases (Marana, Wilcox, Florence, Safford, Douglas, Sierra Vista). There are 8 mechanics in the this area, 6 base mechanics, and 2 rovers. Each base has one dedicated mechanic. The rovers move from base to base as necessary. The base mechanics work 10 days on 4 days off. The rovers work a normal Monday-Friday work week. The base mechanics that are on duty over a weekend will cover the other bases that don't have the weekend duty mechanic. The work days vary from a normal 6 to 8 hour day up to a 12 hour day, depending on what the workload is. When Mr Dickerson is working on a weekend he covers his base (Florence) and Marana.

In summary he recalled that Wayne Young signed off the deep maintenance work and build up on the accident engine, and had the maintenance manual open during that work. Joe Merton signed off the engine installation on N509AM.

Interview: Gage Camp, LifeNet Pilot
Date: 8.19.2010
Time: 1500
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Gage Camp, who is an Air Methods (LifeNet) pilot at the Douglas base. Mr Camp stated that he has an ATP (fixed wing), and commercial rotorcraft-helicopter certificates. He has about 6,000 hours of total flight time, and about 800 hours in the AS350. He started at LifeNet in February, 2004, as a line pilot. He is now the lead pilot at Douglas. His responsibilities include managing the other 3 pilots at the base and being the liaison with the Area Aviation Manager (Jerry Fijalka).

His relationship with the accident pilot was purely professional. He's known him since the spring of 2005, when he was flying LifeNet 4 out of Tucson. The accident pilot moved to the Douglas base about a year ago. Mr Camp said that he thought the accident pilot was very competent, safety conscious, and conservative. The medical personnel liked to fly with him because he was so safety conscious and had a lot of helicopter experience.

Mr Camp said that the accident pilot, as far as he knew, had a good relationship with his wife and family. He was retired from the Border Patrol (30 some years), so that the pilot had no financial concerns that he was aware of.

Mr Camp stated that management has never pressured him or any other pilot to take a flight that the pilot had reservations about. Their regular brief was '3 to go, 1 to say no.' He has no real concerns about the performance of the maintenance, and he hasn't heard of any other crews complaining about maintenance actions. Mr Camp does not typically perform post maintenance check flights. When he does to them, they are for very basic maintenance actions. The Marana base typically will perform the in depth post maintenance check flight.

Mr Camp said that he gets 2 training flights a year, and one check ride. He feels that the quality of the training is good, but the quantity needs to be more frequent. Proficiency is the main issue. He'd like to see quarterly EP flight training in the aircraft, and additional simulator training. Mr Camp stated that the over arching question he and other pilots are feeling is that with all the experience (10's of thousands of hours) that the accident pilot had, why had he not been able to land the helicopter and if he could not, how can they expect to perform better in a similar circumstance.

Interview: Mr Jerry Fijalka, Air Methods Area Aviation Manager
Date: 8.18.2010
Time: 1330
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Jerry Fijalka, who is employed by Air Methods as the Area Aviation Manager for the Southern Arizona Air Methods Operating Area. He has held this position for the last 6 years. Mr Fijalka stated that he holds an Airline Transport Pilot Certificate (rotorcraft-helicopter), and a flight instructor certificate (rotorcraft-helicopter). He is a company check airman, has approximately 7,000 hours of total flight time, and about 2,000 hours in the AS350 (C, BA, B2, & B3). Air Methods was doing business as (DBA) Life Net. The bases that Mr Fijalka oversees in Arizona, are Douglass, Wilcox, Safford, Sierra Vista, Marana, and Florence. In Nevada he provides oversight to Henderson, Pahrump, and Mesquite bases. His duties entail; certificate compliance, safety, FAR compliance, check airman duties, monitor crew schedules and flight duty times, and directs aircraft movements (positioning). His specific duties are outlined in the Air Methods General Operating Manual.

The typical request for services comes from the Air Methods dispatch center in Oklahoma (Life Com). Life Com receives the request from the requesting agency, and in Arizona, that agency is Meds (medical control). Life Com then contacts the closest HEMS base for tasking. Meds will request services from only one source, if that source declines the request, then it will move to another source. There are no simultaneous requests sent out to competing HEMS organizations. Life Com contacts the closest base, and the pilot has the authority to accept or decline the request. There are no penalties for declining a flight request or of the base being out of service. These types of penalties are seen in hospital based HEMS operations, but LifeNet was a community based HEMS operation, and penalties are not part of that type of operation. The only penalty for being out of service would be the loss of business.

Mr Fijalka stated that he had known the accident pilot since 2001. He had flown numerous check rides, and semiannual training flights with him. The two of them had a normal professional relationship. Mr Fijalka thought the pilot was good solid pilot who made sound decisions. In training the accident pilots autorotations were performed very well considering the controlled training environment that they practice them in. The accident pilot had previously been employed by the US Border Patrol, and the Border Patrol practices full down landing autorotations, where as Air Methods practices power recovery autorotations. He considered the accident pilots ability and experience flying autorotations to be very good. Each pilot gets a training flight before their annual check ride, and a training flight about 6 months later. Typically, they will do 3-4 autorotations on a training flight, so a pilot usually gets a total of 4-8 practice autorotations a year. During a practice autorotation Mr Fijalka said that he ensures that the autorotation profile hits all the checkpoints (altitude, speed, rotor rpm) during the event which gives a good

indication that things will be in parameters at the bottom of the auto. Mr Fijalka said that he thought this amount of training was adequate for the type of flying they do, mainly because they hire experienced helicopter pilots. At any time a pilot can request extra training if they feel they need it or if the check airman sees a need for additional training. This type of request is very rare, and he can only recall one time, a couple of years ago, when a pilot requested extra training, specifically for practice instrument approaches.

Mr Fijalka stated that he had not received additional pressure from upper management to increase availability or accept questionable flight requests. Management does shuffle things around, opening new bases, and closing bases that are not getting enough flight requests. There is some internal pressure on pilots and mechanics because they know if they are not getting enough flight volume per month (for example 10 or less), then their base may be considered for closure. All the bases in the southern Arizona area were doing ok though. The HEMS market in Arizona is very competitive, and in his opinion, there are more HEMS operations than the population can support.

Mr Fijalka stated that they have almost no contact with the local FSDO (FAA Office). Air Methods has a huge Certificate Management Team (CMT) in Denver. Inspectors from the CMT would visit his facilities 1-2 times a year, visiting 3-4 bases per visit. He would deal with different CMT inspectors during a visit. All associations with the FAA were cordial; there was nothing adversarial about the visits. He could not recall that there was any particular area that they were working on with the FAA, or an area where the FAA expressed concern.

Safety issues are communicated throughout the company and bases in a number of ways. There are Safety Bulletins and Safety Alerts issued, there is a Safety Newsletter distributed regularly via email and posted on the internal company web page. If there are immediate safety issues the Director of Maintenance or Chief Pilot would send out a letter addressing the issue. He would visit the bases to oversee and ensure safety compliance. The new SMS (Safety Management System) has a safety audit process that involves observing operations and identifying potential hazards. He is pleased with this new proactive approach verses the typical reactive approach.

He does not have any maintenance concerns, and he was not aware of any concerns about maintenance from the flight crews. The mechanics are good and dedicated. There is the normal frustration about parts, or tools, but nothing unusual. They do exercise "controlled cannibalization"; if a helicopter is in maintenance and another helicopter needs a part, then they may take it from the one in maintenance to keep the other one as mission capable. A replacement part is then ordered and replaced on the hangered helicopter usually by the next day. He normally flies the post maintenance check flights. The Marana base is really the only base that does post maintenance check flights, since that is where the more extensive maintenance is performed (usually the 600 hour inspection for the AS350). He does the check flights, so that the base pilot would be available for any flight requests that come in. About once a month or so, he is not available to do the post maintenance flight, and the base pilot would then perform that function. In that case the Marana Base would be out of service while the pilot is performing the check flight.

Interview: Mr Bob Jurate, Tucson Aeroservice Center
Date: 11.9.2010
Time: 1420
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Bob Jurate, who is the aircraft service manager at Tucson Aeroservice Center.

Mr Jurate said that one of his linemen fueled the accident helicopter. The lineman remembered that the pilot requested about 100 gallons, and the helicopter was not completely topped off (not a full fuel load).

This was an unusual fuel load because normally the LifeNet helicopters take on about 40-50 gallons of fuel when they are fueled.

Interview: Mr. Dennis McCall, Aviation Compliance Manager
Date: 8.1.2010
Time: 1000
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Dennis McCall, who is the Aviation Compliance Manager for Air Methods Corporation.

Air Methods received its Part 135 certificate on March 11, 1992 (QMLA253U).

Mr McCall stated that he joined Air Methods in January, 2003, as a line pilot in Mojave, CA. After a year he moved to Victorville and became the lead pilot there. He was promoted to the Aviation Area Manager position for the 7 bases in southern California. He was a check airman and training captain, and flew the Bell 222, and 412. He has his commercial pilot certificate, rotorcraft helicopter rating, and has accumulated 14,000 hours of flight time. In 2007 he became the Aviation Compliance Manager. In that position he provides oversight between flight operations and operational control to all Air Methods operations.

Air Methods is part of the Safety Management System (SMS) and currently is Level 1 in SMS.

He is manager of the Operational Control Center (OCC). The OCC is located in Englewood, CO, and performs flight monitoring, risk assessment, a computer system monitors the aircraft position and issues a weather warning if the aircraft is within 30 nm of potentially serious weather conditions. The Skyconnect system provides satellite communication to via sat phones that are built into the aircrafts communications suite.

The local Comm Centers are separate from the OCC. There are two types of Comm Centers, Community Based, and Hospital Based. The Community Based Comm Center is located in Omaha, NB, in a single building (LifeCom). Housed in the building is a desk or station for each region. The Hospital Based Comm Centers are communications stations that are physically located at a hospital. There are 70 hospital based Comm. Centers in the US. If the region is not serviced by a hospital based Comm. Center then it is serviced by the community based Comm. Center in Omaha. The Comm. Center receives the request for services from the locally/State run area dispatch system (MEDS, in AZ), they notify the pilot of the services request, enter the flight plan, flight follow the aircraft, and receive the aircrafts 'off call.' When the Comm Center enters the flight plan into the system, the OCC is notified of a pending flight (mission), and the OCC starts it's tracking and support procedures.

Pilots at each base decide their own schedule. The schedule must be 1 for 1, meaning 1 day of duty required 1 day off duty. The pilots stand a 12 hour shift and must have a mix of day and night schedules. 50% of the Air Methods pilots are

NVG qualified, and Part 61 establishes the NVG flight currency requirements. The pilots at the Douglas base were on a 7 days on 7 days off duty schedule.

The use of an allowed 'maintenance delay' by some areas is strictly a local area convention. Some local dispatch authorities will allow the base status to have a 10 or 15 minute response delay for maintenance, which doesn't count against the base as an 'out of service' status would. Within the Arizona region there is no penalty, financially or otherwise, for being out of service.

Interview: Mr. Joseph Milora, US Customs and Border Protection
Date: 11.9.2010
Time: 1450
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Joseph Milora, who is a US Customs & Border Protection pilot, and was a friend of Alex Kelley for the last 10 years.

Mr Milora said that he has been with what is now US Customs and Boarder Protection for 13 years. He has been a full time pilot for them since 2005. He has about 4,000 hours of rotary wing time, and 2,000 hours of fixed wing time. He is an instructor pilot and a post maintenance check pilot for the EC120 and AS350 helicopters. Mr Milora said that he met Mr Kelley in 1999.

Mr Milora said that the running joke with Mr Kelley was that he stopped logging flight time after he passed 10,000 hours. Since then, Mr Kelley would only record currency flights. His best guess as to Kelley's total flight time is around 14,000 hours. He knew that Kelley learned to fly in high school, and flew UH-1's and H-47's in Vietnam. Within the US Border Patrol he flew UH-1's, OH-6's (MD 500), AS350's, Cessna 182's, and Piper Super Cub. He was one of the first Border Patrol pilots to become qualified using NVG's and was an NVG instructor. He flew the AS350 in the 1980's and was one of the first to be factory training in the AS350B3 in July 2001. His base was in Tucson, and they had 5 AS350's there, so he got a lot of AS350 time while in Tucson. He also had a lot of UH-1 time, and Mr Milora considered him the smoothest UH-1 pilot he had ever flown with. Mr Milora guessed that Mr Kelley had 3,000 to 3,500 AS350 flight hours. He was very smooth on the controls and was exhibited quiet confidence. He was very knowledgeable in power and energy management.

While Mr Kelley was with the US Border Patrol they were given 2 check rides a year. During those check rides they would perform 6-10 full touchdown autorotations. Additionally, the aircrews regularly practiced power recovery autorotations when over appropriated landing areas.

Mr Milora said that Kelley had been upset about 2 weeks prior to the accident. The company (Air Methods) had reprimanded him for overflying an AD on the accident aircraft. The whole story was that a number of mechanics and a couple of pilots had also over flown the AD but he was the last to fly it before they discovered the overdue AD. The AD was based on cycles, however, the mechanics were expecting it due at a certain Hobbs time, and that was how it happened to get overlooked.

Mr Milora could not recall any specific complaints that the pilot had commented on regarding other maintenance events.

Interview: Ms Nina Hughes, LifeNet flight medic
Date: 8.20.2010
Time: 1335
Location: Telephone Interview

Digest:

The following is a summary of conversation with Ms Nina Hughes, who is a flight medic for Life Net based out of Douglas, AZ.

Ms Hughes stated that she is a flight paramedic and had been working in that capacity for 3 years. She started working in Douglas around May 2008, before that she worked at the Wilcox, and Sierra Vista bases.

Ms Hughes said she knew the pilot pretty well. The relationship was professional, and she never spent time with him outside of work. She recalled that he had transferred from LifeNet 4. She estimated that she'd fly with him around 4 times a month. She always felt comfortable flying with him, he was always aware of his surroundings, she never witness any unsafe actions. Ms Hughes said that the accident pilot typically flew lower than most of the other pilots, not in an unsafe way. He had been flying with the Border Patrol for a long time, and felt more comfortable at a little lower altitude. The helicopter has ground warning systems, and those never activated when he was flying, other than during takeoff and landing. She thinks those give a warning around 300 feet above the ground. She recalls that some pilots fly around 5,500 feet msl.

All the pilots enforce the 'sterile cockpit' rule. Every pilot reads all the steps of the checklist and at the end says, sterile cockpit is in effect. Unless there is a safety of flight issue, the medical crew do not talk until the pilot initiates conversation. Sterile cockpit is always in effect during lifting and landing.

She has never had any concerns about the maintenance, and has a lot of confidence in the mechanics.

She has never felt pressure to fly to take a flight request. The company never questions the decision of a crew to not accept a flight request.

Her schedule is a 48 hrs on duty schedule. They have a double wide trailer with individual private rooms for resting and taking naps. They are encouraged to take a 'safety nap' when they come on duty. If they are particularly tired or fatigued they can 'time out', where they will call dispatch and say they need a few hours rest, at which point the base will go out of service, and won't come back into service until they call back in to dispatch.

The difference between the flight nurse and the flight paramedic, is that the nurse is licensed and the paramedic is a certification. The nurse can perform more complex medical actions and administer certain drugs, or drip IV's, and perform a rapid intubation. The paramedics can assist but not initiate these actions.

Interview: Mr. Patrick Hughes, LifeNet Pilot
Date: 8.20.2010
Time: 1800
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Patrick Hughes, who is a pilot for LifeNet based out of Douglas, AZ. Mr Hughes said that he has been employed with LifeNet for the last 5 years. Before LifeNet he retired from the US Army (helicopter pilot) in 1995, employed by Critical Air in 1997, Rocky Mountain Aviation from 2001-2003, and Air Methods (LifeNet) from 2003 to present. Between 2004-2007, he was mobilized by the US Army flying helicopters (CH-47's) in Iraq. He holds a commercial certificate (rotorcraft-helicopter), with an instrument-helicopter rating.

Mr Hughes said that he had known the accident pilot since he moved to the Douglas base, almost a year ago. He had never flown with the accident pilot, so he could not comment on his flying skills or aptitude. Pretty much the only contact he had with the accident pilot was during the shift change, when the base was changing duty pilots. Their relationship was mostly professional. Personal conversations orbited around golf, the Army, or being stationed in Hawaii (while in the Army). In his opinion the accident pilot was very personable, approachable, and one of the favorite pilots of the medical crews.

Mr Hughes stated that he had never had any concerns as to how the maintenance of the helicopters was performed. The mechanics are very careful, he trusts them very much, and he's never had a maintenance issue/problem. He doesn't fly post maintenance check flights, and he recalls the last time was over a year ago for something very simple that didn't require much more than a simple check.

Mr Hughes stated that Air Methods provides them (the pilots) with two training flights a year, one every 6 months. However, this last year, he didn't get his between check ride 6 month training session. When he asked about that he was told that the aircraft wasn't available, and maybe they'd provide it later, but that the 6-month training flight was not required. He has yet to receive that training flight. His annual check ride is normally done in September. Since his last check ride, September 2009, he has not performed any practice autorotations. Once in a while, he will do a practice instrument approach into Douglas, on the return portion of a flight. He likes to do that to keep his instrument skills a little current, even though he is VFR. Mr Hughes said that the training flights every 6 months is sufficient to keep proficient, and is just about right when you should refresh your skills. He said that he had heard that Air Methods was purchasing some flight simulators that would be housed in trailers and taken to bases to provide additional training to the pilots, but he has not seen the actual simulator.

When asked about management attitudes, Mr Hughes said that the management was good, they don't question the pilots decision to fly or not fly, there is no outside

pressure to take a flight request, and if there is something wrong with the helicopter, it is immediately addressed by maintenance.

Interview: Mr. Chris Steeb, Air Methods Training Captain
Date: 8.5.2010
Time: 1300
Location: Telephone Interview

Digest:

The following is a summary of conversation with Mr Chris Steeb, training captain, and company check airman for Air Methods. Mr Steeb holds a commercial certificate, rotorcraft-helicopter, instrument helicopter. He has about 5,000 hours of flight time in helicopters, 480 hours in the AS350. He's also flown EC135, BK117, Bell 407, and R-22. The process to become a check airman starts by the company designation as a training captain, the FAA observes a flight, and then if satisfied, designates that pilot as a check airman. Mr Steeb was designated a check airman in mid 2008.

Mr Steeb did perform the accident pilot's last training and check ride. He recalls it as being a 293, 299, and NVG recurrent training. Additionally, he flew with the accident one other time, on a previous training flight. A typical training and check flight, he will practice standard commercial maneuvers, normal, shallow, and steep approaches, sloped landings, engine failures, hydraulics off flight, basic instruments, an instrument approach (typically ILS), unusual attitude recovery, inadvertent IMC recovery, and emergency procedures. Commenting on strictly autorotations, a training flight will consist of 3-5 autorotations. If the pilot needs more practice than that, then a request for additional training would be submitted before the pilot would get the check ride. He has had only one case where the pilot requested extra training time, and that was for IMC instrument recovery practice. Straight in and 180-degree autorotations are standard, to a 3-5 foot hover power recovery. The acceptable parameters for autorotations are to come within 50 feet of the targeted landing zone, airspeed controlled +/- 5 knots, the ability to compensate for wind conditions to avoid undershooting or overshooting the landing zone, and recover at a safe altitude.

Mr Steeb said that he'd rate the accident pilot as better than average, and when he performed his autorotations he flew the helicopter, and didn't just ride along as some pilots do, working to fly the helicopter to his targeted landing zone. Nothing more stood out about the accident pilot.

It takes about 4 hours to reconfigure a helicopter with the copilots seat and dual controls. A training flight is 1 -1.5 hours, and the check ride is usually 1.0 hours. Air Methods has 2 full time training helicopters that are for training purposes only. About half the time the base has to reconfigure a helicopter for training and the other half they use the dedicated training helicopter. They usually do the training and check rides for all the pilots at one base all at once. It is possible for a base to be out of service for a few days as the pilots are receiving their training and check rides.

Because of the strictly VFR nature of a lot of their operations, pilots usually are

weak in instrument procedures and instrument flying.

Interview: Mr Robert A. Wasik, LifeNet Pilot
Date: 8.1.2010
Time: 1500
Location: Marana Airport, AZ
Present: Van McKenny (NTSB), Dennis McCall (Air Methods), Bruce Webb (Eurocopter)

Digest:

The following is a summary of conversation with Mr Robert Wasik, who is employed by Air Methods as a line pilot. Mr Wasik stated the he holds a commercial pilot certificate, rotorcraft-helicopter, and single-engine land. He has approximately 11,000 hours, which includes about 300 hours of fixed wing time. He started flying helicopters in the Army and was in Vietnam 1969-70. In 1978 he was hired by Rocky Mountain Helicopters as a medical pilot and worked for them until Air Methods bought Rocky Mountain Helicopters. He's been working in the Tucson area since 1989. The majority of his flying career has been flying EMS helicopters. From 1997-2001 he was the base chief at the Tucson base. He averages 8-15 hours of flight time a month. The pilots work 7 days on and 7 days off. His shift is broken up into 3 days and 4 night shifts, and shifts are 12 hours from 0700-1900, and 1900-0700. He is NVG qualified. To stay current on NVG's a pilot must fly a NVG currency flight every 60 days. He has received training in the AS350 series helicopters, models A, D, B, B2, and B3. He has not received any type of post maintenance flight check training from Air Methods or Eurocopter (FAA does not require additional training in this area). Mr Wasik stated that they get 3 training flights a year, one to prepare for their annual check ride, the check ride, and one extra training flight in between annual check rides. Because of the single pilot configuration of the helicopters and that the patient stretcher extends completely in to the location where the copilot would sit, a impromptu training flight is not possible. To go on a training flight the patient litter has to be removed and the copilot seat and dual controls installed. Therefore, all training flights are scheduled events, because a helicopter has to be taken out of service to reconfigure it for training, and then configure it back when the training is complete. He estimated that he has performed about 20 autorotations over the last year. He would usually be able to practice about 9-10 during his scheduled training flights, and since Marana is a maintenance base, he gets another 10 autorotations due to the maintenance check flight requirements, although those autos are at altitude. All autorotations are completed in a power recovery. Practice autorotations are entered at 500 feet, and they practice straight in and 180 degree autos.

Local flights are usually flown around 500 feet agl. Air Methods has a letter of agreement with Tucson TRACON that the LifeNet helicopters fly at 3,200 feet or below, and have discrete squaks (transponder codes). In some areas this altitude is the equivalent of 300 feet agl and others 900 feet agl.

Mr Wasik stated that a typical shift for him starts about 20 minutes before the scheduled turnover time (0700 or 1900). He signs in to the Pilot 411 system, and then does a shift change turnover with the off going crew. He then performs the

safety brief with his crew and then preflights the helicopter. The medical crew will preflight the medical gear about the same time too. He does his weight and balance calculation using the base computer software. Mr Wasik said that typical mission fuel is 65% (about 2 hours of gas), enough for a 65 mile trip out, loiter time, and 65 mile trip back. He will set his base status with the Comm Center as green, yellow, or red. Green means that they can accept any flight, yellow means that there is significant weather restrictions and that the crew will have to evaluate the mission before accepting it, and red is not able to accept any missions. The pilot is the one who monitors the weather and updates the base status.

Mr Wasik said that Marana is an Air Methods maintenance base, and that if any maintenance is needed that cant be performed at the helicopters normal base, it will come to Marana for the maintenance. Being based at Marana, he gets to perform maintenance check flights. He said that any Air Methods pilot qualified in model can perform a maintenance check flight. He uses the AS350B3 pilot operating handbook, section 8.3 to determine what post maintenance checks have to be done. He and the mechanic would look and decided which check were appropriate, and not necessarily sticking strictly to the matrix provided in section 8.3. Once they decide what events need to be completed the mechanic will fly with the pilot during the post maintenance checks.

Monday, July 26, was the first day of his 7 day duty shift. After lunch he was asked to perform a maintenance checkflight on N509AM that was coming out of maintenance. When an aircraft comes out of maintenance he does a close up inspection and usually finds something that needs to be addressed by the mechanics before the flight, but this time he didn't find any discrepancies. They did a ground turn with the first section of tail rotor cover off, checked the short shaft vibes and found everything was balanced nicely, and did a leak check. Shut down the helicopter. Next they disconnected channel A and performed the B channel check on the HMU, and checked the results on the VEMD. Shut down again, and during his walk around noticed fuel on the ground. He talked to the mechanic Victor Reeb, and the other mechanics, and they thought it was the bellows seal in the HMU that was leaking. To test this Victor turned on the boost pump and fuel did come out the fuel drain. Nothing else was done on Monday.

Tuesday, July 27, he flew in the morning. After lunch he readied himself to fly N509AM. They did a leak check, and there was no leak from the HMU. He performed a second leak check with the same results, then performed the HMU B channel check. He put the rotor in flat pitch, established 370 rotor rpm, pushed the button and checked that rotor rpm went up to 390, and back down to 370 when he released the button. Now he was ready to do the maintenance flight. In order for the duty pilot to do the maintenance flight the base has to go out of service because the pilot is not immediately available to accept an EMS mission, he has to get permission from the Area Aviation Manager (Jerry Fijalka) to go out of service. Jerry approved his request. He got out the POH, turned to section 8.3, and he and Joe Merten decided which post maintenance check flight items needed to be done. He briefed Joe Merten and then they performed the following tests.

- Droop check. From the deck, bring the helo into a 5 foot hover in less than 2 seconds, watch the rotor droop and recover.

- Rate of climb check. Start at 5,000 feet, 65 knots, pull max continuous power and maintain a 2,000 feet per minute climb.
- Cruise power check. At 5,000 feet, power check in cruise. VEMD displays torque margin and T4 margin. VEMD tells him if the check is good or not.
- At 5,000 feet, 40knots, put the rotor into flat pitch, abruptly pull in collective to 1.0 FLI (flight limit indicator), should hear the 'gong' at redline limit.
- Flame out check. Max continuous power, bottom out the collective in 2 seconds, and bring in power before it overspeeds.
- Autorotation. 5,000 feet, 65 knots, rotor rpm at 410 should hear a 'gong', check rotor rpm build up in a sustained autorotation.

From Mr Wasik's recollection the whole fight took 7 and half minutes.

Once back at base he noted that the battery had been weak, and the mechanics said that they knew that but had forgotten to install a new battery. They installed a new battery, and he signed off the log book in two places, for the HMU remove and replace, and the engine remove and reinstall. Mr Wasik stated that they don't keep the check flight test results, there is no paperwork retained. During the flight the mechanic, who is reading from section 8.3 will tell the pilot if the test was in limits or not. He did not do a left pedal authority check, and did not record the parameters during the max continuous rate of climb check, but he did read off altitude, torque & T4 to the mechanic.

Mr Wasik said that he does not perceive Air Methods management to be overbearing or adding additional stress or pressure on to pilots or medical crew. He does think that at the Marana base, since those pilots have to do the majority of the maintenance check flights that an extra pilot should be called in periodically to perform the maintenance check flight function and not have the pressure of the base being out of service while the flight is being executed. Management wants the bases to be in service 100% of the time but it is not possible if the duty pilot has to perform the maintenance flight.

In general he has not heard the pilots or medical crew complain about the maintenance performed on the helicopters they fly. They generally feel management treats them fairly.

Mr Wasik said the he has known the accident pilot since 2002. He was easy going, slow to get angry (if ever), non complainer. He saw him the day of the crash and Mr Kelley appeared to be his usual self and did not complain of any physical ailments. He was not aware of any medication the accident pilot may have, and from a financial point of view, the accident pilot didn't have any financial problems that he was aware of. He had a reputation as an excellent, experienced pilot. When Mr Wasik was base chief the accident pilot always got excellent reviews. He said that the accident pilot was particularly good at autorotations.

Interview: Ms. Debbie Waters, LifeNet Flight paramedic
Date: 8.20.2010
Time: 1550
Location: Telephone Interview

Digest:

The following is a summary of conversation with Ms Debbie Waters, who is a flight paramedic for Life Net. Ms Waters stated that she has worked for LifeNet for 5.5 years. Before being employed by LifeNet she was employed by Arizona Ambulance in Douglas. She has been a paramedic for about 10 years. She works two 24 hours shifts per week, usually no sequentially.

Ms Waters said that she knew the accident pilot for 6-8 months, basically, since he moved to the Douglas base. She though she knew him well, and considered him a friend. She always felt safe flying with him. He was very competent, professional, and safety conscious. He was a good communicator during their flights. He was very personable, happy, and approachable. He had not complained about any physical ailments, had no financial difficulties, or took any medication, that she was aware of.

When asked about management pressures, Ms Waters said that she has never been under pressure by management to fly. Any time she had questions about the helicopter or procedures they were answered to her satisfaction. The crews are encouraged to take 'safety naps' and if any one of them (pilot, nurse, or paramedic) is fatigued, there are no repercussions to going out of service for a few hours to get rested.

Regarding helicopter maintenance, Ms Waters stated that she had never had any concerns about the conditions of the helicopters, or how they were maintained.