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CAL under increasing scrutiny for plane explosion

In this photo released Thursday, Aug. 23, 20007 by Japan's Aircraft and Railway Accidents Investigation Commission of the Ministry of Land, Infrastructure and Transport in Tokyo, a bolt is seen piercing through a fuel tank on the right wing of a China Airlines aircraft which exploded in a fireball just seconds after all 165 passengers and crew have evacuated Monday at Okinawa's Naha airport in southern Japan. Aviation experts investigating the plane explosion found Thursday a hole in the fuel tank, made by the bolt, which is on the right wing slat, and believe the damage caused fuel to pour out and catch fire, transport officials said. (AP Photo/Japan's Aircraft and Railway Accidents Investigation Commission of the Ministry of Land,

Taiwan's Aviation Safety Council (ASC) said yesterday that it is awaiting a final investigative report on last Monday's explosion of a China Airlines (CAL) aircraft in Naha airport of Okinawa, but will carry out an across-the-board review of CAL's maintenance operation if it's to blame for the explosion.
The China Airlines Boeing 737 exploded in a fireball Monday seconds after all 157 passengers and eight crew members had evacuated safely on to the tarmac at Okinawa's Naha airport.

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An investigation team composed of aviation experts from Boeing, Japan and Taiwan has just taken apart the No. 2 engine and nearby oil tank, and will carry out one-year analyses on the relevant investigative data.

Initial investigations showed that a bolt on the right wing slat pierced through the fuel tank, causing fuel to leak out. Further investigation is needed to determine how the bolt came to damage the fuel tank in the first place.

Slats, stored inside the main wings in flight, come sliding out from the frontal edge of the main wings during takeoff and landing to help lift the aircraft, along with flaps that come out of the wings' rear edge.

Aircraft maker Boeing Inc. had received reports of several similar cases in which the bolt penetrated the fuel tank in the past and instructed airlines in December 2005 to inspect their 737-800s.

In recent days, Japanese news media repeatedly reported that there must be something wrong with CAL's maintenance operation, as indicated by the dislocation of the bolt.

Japan's police authorities also claimed that it would sue CAL if it turns out CAL's poor maintenance operation is to blame for the explosion of its Boeing 737 airplane.

In response, ASC officials said that CAL is facing increasing pressure from various relevant sectors, but if CAL is finally proven responsible for the airplane explosion, the ASC will fully review their aircraft maintenance and flight operation and will ask CAL to improve its safety record without fail.

The officials continued that CAL has been fined 10 times for poor maintenance records over the past three years, and therefore the quality of firm's maintenance engineering remains highly questionable in light of the Monday explosion.

Qantas safety under fire after fake engineer discovered

Hundreds of thousands of lives have been put in danger by an unqualified Qantas mechanical engineer who conducted safety checks on more than 1000 international flights in the past year without having a license to do so.

The "imposter" engineer based at Sydney airport is being investigated by the Australian Federal Police after allegedly forging his licensed aircraft maintenance engineer's license without having passed the required Civil Aviation Safety Authority examinations.

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The alleged fraudster has "given the thumbs up" to more than four international flights a day in the past year - signing off on safety inspections without the authority or training to do so.

He is believed to have conducted the ruse to boost his salary from about $65,000 to $90,000.

"Irregularities" with his license were exposed during a "routine checking process" last month, Qantas' executive general manager of engineering David Cox said yesterday. "A manager picked it up and when we investigated we found some irregularities around the license, which has led to CASA and the AFP investigating."

The man had been responsible for "signing off on maintenance", which allowed aircraft to be classified as safe to fly.

When confronted by Qantas management, he tended his resignation and apparently fled. The man contacted his union - the Australian Licensed Aircraft Engineers Association - last week seeking help but has not been heard from since.

"He called the union claiming the licenses were genuine and asked to be represented so we've asked him to provide evidence of that but we haven't heard from him since," ALAEA's federal secretary Steve Purvinas said yesterday.

Mr. Purina's said it was the responsibility of Qantas to check its employees were qualified to sign off on aircraft. "That this guy has slipped through the system highlights a pretty serious breakdown in the Qantas system of maintenance to allow this to happen," he said.

Qantas yesterday admitted the worker was not only responsible for "certifying for the release of aircraft" but had authorized junior engineers to send aircraft on their way. The national carrier also admitted the safety breach not only related to Qantas flights but "thousands" of others operated by overseas carriers

Pilots stood down after low-fuel flight error

Two Qantas pilots and an engineer have been stood down after they failed to report immediately a mistake that led to a low-fuel warning on a flight from Perth to Sydney.

Qantas denied initial reports that suggested the aircraft landed on August 11 with only minutes of fuel to spare.

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However, the airline confirmed that the 737-400 left Perth with only four of six pumps servicing the plane's three fuel tanks turned on. This meant that fuel was drawn from the wing tanks and not the centre tank, which is normally the first to be used.

The pilots did not realize their oversight until they received a low-fuel warning light for the wing tanks. They then turned on the centre tank, giving the plane another 80 minutes of fuel, and landed safely.

A Qantas investigation found the pilots and an engineer had breached protocol by not reporting the incident.

Windshield Emits Smoke and Flames

Bombardier CRJ200. Minor Damage. No Injuries.

The aircraft was climbing through 17,000 ft after departing from Asheville, North Carolina, U.S., for a scheduled flight with 30 passengers to Convington, Kentucky, on March 19, 2006, when the captain smelled smoke. "A few seconds later, flames and smoke started shooting out of the lower left side of the windshield," Said the NTSB report.

The captain told the first officer to turn off the windshield heating system. This eliminated the flames, but the smoke persisted. The crew declared an emergency and returned to Asheville Regional Airport, where the aircraft was landed without further incident.

Postflight examination of the aircraft revealed overheat damage to the windshield near a terminal block for the windshield heating system. "The overheat damage was the result of an improperly installed fastener that resulted in arcing between the terminal block lug, the aircraft wiring eyelet, and the fastening and lock washer that secure the two components together," the report said. "The arcing progressed over time, degrading the solder junction between the terminal block and the windshield heating system braid wire and resulting in heat damage to the sealant and the subsequent flame."

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Flight 255: Tragedy lingers

Entire families from Arizona were among those killed

Cecelia Cichan, shortly before her release from the University of Michigan Medical Center in Ann Arbor on Oct. 9, 1987, was the lone survivor of Flight 255.

Twenty years ago on August 16, Northwest Airlines Flight 255 from Detroit to Phoenix crashed moments after taking off. There were 155 people on board, 110 from Arizona. Even with time, however, the numbers do not tell the story. The true scope of the tragedy is revealed in the flight manifest.

The entire Best family from Mesa, a mother and father and their three small children, died. The Byelich family from Chandler was wiped out. Two branches of the Geiger family, one from Phoenix and one from Gilbert, died on the plane. Justin Keener, a 12-year-old boy, was flying on his own for the first time.

His mother and stepfather did not hear news of the crash until they arrived at the airport and wondered who would be paging them. Despite all that, the crash of Flight 255 may be best remembered for the one passenger who made it. The survival of the passenger in Seat 8C, Cecelia Cichan, continues to astound because the crash was remarkable for its ferocity even in the physics of air disasters.

The crash

Flight 255 was cleared for takeoff at 8:44 p.m. After an unusually long takeoff roll, the plane finally lifted off. But the DC-9 never soared upward. The left wing clipped a 42-foot light pole in a rental-car lot about half a mile from the end of the runway. The plane then started hitting the ground and breaking apart as it skidded along a road. Almost immediately, it was engulfed in flames.

The death toll of 156 includes two people in cars. There were many witnesses to the crash, including a number of people in the flight industry, because the plane crashed so close to the airport.

They all spoke of the long takeoff, the steeper-than-normal pitch of the plane as it got off the ground, and the fact that the aircraft simply never climbed high enough. All that pointed to improperly engaged flaps and slats on the wings, the mechanisms for getting the plane to actually lift off.

Still, the idea that the pilots could take off without properly configuring the aircraft seemed to astound investigators. A spokesman for the Federal Aviation Administration likened it to a driver pulling out into traffic without shutting his

door. Another problem was the warning system that should have told the pilots they were heading for trouble. It failed to activate.

Months after the crash, the National Transportation Safety Board released its findings. Investigators concluded that the pilots, in a chain of errors, failed to set the plane's wing flaps and slats for takeoff and failed to follow a required taxi checklist that would have uncovered the error. None of that mattered on the night of Aug. 16, 1987, when people started arriving at Phoenix Sky Harbor International Airport to pick up their spouses and children and friends.

Some already knew there was a crash. Others were told at the airport. Twenty years later, they say they have never been the same since Flight 255 crashed.

A sister lost

Maureen O'Connell, who now lives in Maryland, was a teenager on the night her 24-year-old sister, Debra, died in the crash. "It was shocking. There are no words to describe it. It was so devastating," O'Connell said. Earlier this summer, her parents went to the place where the plane crashed. Her mother still visits Debra's gravesite a few times a month.

To this day, the whole family feels a profound sense of loss about the life Debra never got to live. "She had everything ahead of her," Maureen said. "She missed her chance to get married and have kids. To live a life. She started her life, but she never lived it."

Parents lost

Jennifer (Bagnato) Walker, now 42, had just graduated from Northern Arizona University and was watching television in Flagstaff when news of the crash came across her screen. It never occurred to her that her parents would be on the flight because Tony and Jan Bagnato were flying home to Scottsdale from New England. "I thought, how horrible for those people, turned off the TV and went to bed," Walker said from her home in West Virginia.

An hour later, her brother called and told her that their parents had connected through Detroit and was on Flight 255. "Life was never the same again," she said. "In that moment, everything changed. “Some of the lessons, although painfully learned, have been good for Walker. She says she suddenly knew what really mattered in life. She also began to appreciate "that every day matters. “Walker says her parents, both 50, had a terrific marriage. "They were very much partners in their marriage," she said. "They were still very much in love. They still held hands when they went to the movies."

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Walker fought the temptation to become angry or bitter, but she says she still wishes her parents were part of her life. "I still miss them every day," Walker said. "Sometimes, it's the big things like the birth of a child. But usually, it's the small things, like making chocolate-chip cookies."

A son lost

While there were entire families on the plane, 12-year-old Justin Keener was flying home alone after visiting his aunt and uncle in Michigan. Robin Spotleson still cries when she talks of her son. She also tries to think of what he would be like as a grown man. "He was just a sweet boy, kind of quiet," she remembers. "He was very kind. Very loving."

She and her husband, Justin's stepfather, arrived at the airport unaware the plane had crashed. She was surprised to hear her husband being paged when they walked into Sky Harbor but presumed it was to tell them that the plane would either be late or early. She continued toward the gate while he went to hear the message.

When she arrived at security to walk through, she said that it was very quiet and that people stepped back when a policeman approached her. "The policeman walked up to me and touched my arm, I remember that," she said. "He started walking me. I remember a door opening, and there were people crying and grabbing at me."

Spotleson has managed to get through the hard times, in part, because she and her husband had a daughter five years later. Her faith also tells her that she will see her son again. "Twenty years is a long time," she said. "Justin would be 32 now. But it still hurts, I still think of him every day. "The doomed flight lasted only about 19 seconds, but Spotleson cannot bear the thought that Justin was alone during those terrifying moments.

After the crash, she learned that man sitting next to her son was a father flying without his children. "In my heart, I believe he was holding on to my son," she said. "I have to believe that."

The sole survivor

To this day, there is no explanation for how Cecelia Cichan survived Flight 255. Her parents and 6-year-old brother died in the crash. A story circulated that Cecelia was found with her mother, Paula Cichan, protectively wrapped around her. That was not true.

It was pure chance that spared Cecelia, especially in light of the absolute devastation of the plane and the explosive fires that ensued. She was found by a paramedic who heard her moan and saw her arm twitch.
The medical examiner for Wayne County in Michigan had no explanation for how anybody survived.

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"I have never seen such complete destruction," Dr. Werner Spitz, a veteran of 20 crash sites, said at the time. "There is not a bone left intact in the bodies."

After 24 hours of confusion about the girl's identity, her grandfather identified her by her chipped front tooth and purple fingernail polish her grandmother had applied for the trip.

Cecelia had broken bones and burns, but she recovered. Her story captured the attention of the country and the world. She received thousands of gifts and cards and stuffed animals. A billboard went up in Phoenix wishing her well. She was on the cover of magazines.

Cecelia was raised by Rita and Frank Lumpkin, her maternal aunt and uncle who lived in Birmingham, Ala. From the beginning, the family steadfastly protected her from publicity. She is now a young woman. A recently married college graduate and a devout Catholic, she has never spoken publicly about her life.

She declined interview requests from *The Arizona Republic*. She does, however, check in with people connected with Flight 255, sometimes speaking with people who lost family members on the plane. It is clear that many people who lost loved ones in the crash have nothing but good thoughts for her, and she sometimes updates people about her life, like when she turned 21 a few years ago.

Sometimes, she writes a quick sentence: "I just wanted to say that I appreciate this memorial site. I never go a day without thinking about the people on Flight 255."Sometimes, like before the 17th anniversary three years ago, she writes more.

"Hi everyone. I just wanted to give a quick update. I am doing great. I know the anniversary is coming up soon, and that is a sad time for us all. My thoughts and prayers are with all of you ... families and friends of the passengers of flight 255 ... even those of you who are concerned but have no direct connection to the crash. Thanks to everyone who keeps me in their prayers as well! God Bless!"

Fuel Truck Hits Airplane at Key West Airport

KEY WEST, FL -- A plane parked on the runway at Key West International Airport was damaged today when a fuel truck ran into it.

Airport Security Director Jerome Fain said the incident took place at 6:45 a.m.

The plane, a 1996 Beechcraft belonging to Gulfstream Airlines (which flies as the

Continental Connection) was on the runway, with only the pilot aboard, waiting to be fueled. The fuel truck was approaching the plane when the driver, 23 year old Manuel Estevez, apparently fell asleep at the wheel. As the pilot watched, the truck slowly approached the plane, and then ran into it, hitting the propeller, the engine and the plane itself. Estevez was issued a citation for careless driving. The plane is still grounded at the airport, pending repairs.

Man killed in accident at airport was from Hilo

The worker killed yesterday in an apparent industrial accident at the general aviation area of Honolulu Airport was run over and crushed by a pneumatic roller that was backing up, according to Honolulu police.

The driver of the roller did not see the victim who was working behind the roller, police said. The case is classified as an unattended death pending autopsy findings. The Honolulu medical examiner's office today had no information to release on the man's death.

State Transportation, Department of Public Safety, and Occupational Safety & Health Division are handling the investigation because it occurred at the airport. The Federal Aviation Administration is also involved. The medical examiner's office is not naming the victim until his identity is confirmed.

General contractor Jas. W. Glover Ltd., the man's employer, said the victim was 51 years old and from Hilo but also declined to identify him. The man is survived by his wife, two daughters, a grandson, mother, brothers and sisters, the company said.

The man was working of a taxiway repaving job, according to state officials. "We are doing everything possible to help family members and employees through this very trying time," Jas. W. Glover vice president John Romanowski said in a written statement to The Advertiser today.

AMTSociety Announces Limited Time Membership Offer

AMTSociety has announced a special limited time offer where aircraft maintenance professionals can sign up for an AMTSociety annual membership for only $49.00 and receive a $50.00

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Brown Tool Gift Card. The $50.00 Gift Card can be used toward any Brown Tool purchase at www.browntool.com. This offer leaves members with a profit of $1! The offer is also applicable for those renewing an existing AMTSociety membership.

In addition to the $50.00 Brown Tool Gift Card, AMTSociety offers many other great benefits. When signing up for an AMTSociety membership, members will automatically receive a guaranteed subscription to Aircraft Maintenance Technology magazine and the monthly AMTe Newsletter. Both feature key aviation maintenance issues and trends with editorial provided by experienced industry professionals.

AMTSociety members also receive admission to popular industry events such as Aviation Industry Expo ($50 Value), and Aviall Maintenance Symposiums ($25 value). All members also enjoy full access to AMTVirtual IA renewal/AMTAwards Seminars on amtonline.com.

This offer is another step toward AMTSociety's goal of providing a top-notch organization for aviation maintenance professionals, which offers exceptional value for its membership benefits. This limited time offer provides members with an unbeatable return on their investment.

For more information, and to sign up for an AMTSociety membership, visit www.amtonline.com/amtsociety.

Safety Management Systems for Maintainers

Keeping our aircraft, crews, passengers and maintainers safe is always job one for maintenance managers. Whenever you hear about a "mandatory" program that will improve safety, it is hard not to roll one's eyes in exasperation. In the next few years, FAR Part 135 Air Taxi Operators and Part 145 Repair Stations will be required to implement a Safety Management System (SMS) as part of their operations manual. Although not required for Part 91 operators, the subject of SMS implementation is often heard at safety working groups and committees.

With an alphabet soup of regulatory agencies that all require some type of compliance "system," it is easy to forget that the ultimate goal is safety and not more paperwork. It is also quite normal for managers to question the value of these programs, when we somehow have to fit aircraft maintenance into the busy day.

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What exactly are Safety Management Systems? "The goal of an SMS is to reduce safety risks to as low as reasonably practicable for the individual operation," said Ray Rohr, director of regulatory affairs at the International Business Aviation Council (IBAC). What works for one operation may not work for another. "What this means is that safety management must also be appropriate to the size and complexity of the operation; one size does not fit all," he added.

In the past, safety management was usually not considered until after an accident. Proactive safety would only follow mandatory regulatory compliance, usually just the minimum standard. Years ago, the thought was that we could inspect and verify our way to safety, but in a world of do more with less, constant oversight of each element that could affect safety is impractical. The dictionary defines safety in terms of absence of potential harm. Unless you live in a bubble, there is always a chance for harm. Risk is actually what we are trying to manage, and it's defined in terms of severity of consequences (how much harm) and likelihood (the probability of suffering harm). We can identify and analyze these factors and, from there, we can use this information to define system requirements and take steps to ensure that they are met. Effective safety management is the effective management of risk.

The SMS definition used by IBAC is: "The systematic and comprehensive process for the proactive management of safety risks that integrates the management of operations and technical systems with financial and human resource management."

Safety Management Systems are not new; they are an evolutionary development of the traditional flight safety program that integrates all of your management systems with the common goal of improving safety. Maintenance is a substantial component of any SMS, but if your flight department does not already have a program, there is no technical reason you could not implement one for your shop.

A good SMS should provide a systematic way to identify risks, and then manage them so as to not reduce the productivity and profitability of the organization. Since losses hurt a company in many ways, the company that identifies and manages risk will be much more successful. Using SMS as the foundation for a company's safety efforts, your program can become the detailed roadmap for monitoring all of your safety-related processes.

You determine the nature and degree of safety management by assessing the nature of the safety risks to which your maintenance operation is exposed, and tailor your program to focus on managing those known risks, while enabling a system to identify and classify those you are not aware of yet. "There are two kinds of risk, known and unknown," said Jeff Sands, director of technical and financial services at Westchester County Airport-based Altria Corporate Services.

"By proactively bringing those risks into the daylight, you use a systematic approach to addressing safety concerns. In the end it is all about identifying and classifying risk so you can feed that to your SMS, then determine if you need to eliminate, mitigate or accept the risk," Sands added.

Laying the Foundation for Your SMS

The basic steps of an SMS involve risk identification and classification through a formal process. Depending on your maintenance shop, the risk classification and corrective action list may be as simple as a written note posted on a bulletin board, or as complex as a computer database; it's up to you. The process should be documented and made available to your team. As the name says, this is a "management" program, but in order to be successful, *your technicians* need to be your eyes and ears for identifying risks. If you do not follow through on the program, you are doomed to fail. Another plaque on the wall may be impressive to visitors, but management involvement at the highest levels is mandatory.

You need to articulate a clear policy statement that identifies safety as a core value, your target level of safety and provide direction through written policies, objectives, goals and standards. Next, you must commit to provide adequate resources and expertise to address concerns during both the identification and classification phases. Lack of follow-through after classification is a sure way to ruin any shop floor support for your program. "A lot of employees are skeptical that their reports will be addressed," said Richard Komarniski, president of Onanole, Manitoba, Canada-based Grey Owl Aviation Consultants, Inc., a firm specializing in safety management systems, human factors for maintenance technicians and management training. "If the technicians on the floor see management diving in and actually doing something about an incident or hazard identification report, it will help create the type of safety culture that will make the program successful. It is so important that management be prepared to follow through and communicate the corrective actions," Komarniski added.

By providing leadership throughout all phases of the program, your example will help build a safety culture, rather than a blame culture where individuals are afraid to come forward and admit mistakes that probably could have been avoided. This is especially true in maintenance, where mistakes are usually latent in nature and do not show up until much later. In addition to proactive measures, such as tool control, the immediate benefits of SMS are realized when your technicians are actively engaged in hazard identification. Your technicians are the key to the success of the program, but their voices will be silent if you do not take the time to listen.

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All Shapes and Sizes

Many large flight departments are as complex and sophisticated as a small airline. Though SMS is not mandatory for Part 91 operators, best practices guidelines set forth by the NBAA and IBAC's International Standard for Business Aviation (IS-BAO) strongly recommend implementation of SMS concepts. One advantage for large flight departments is availability of resources. "We have created an online safety reporting system, standardization of aircraft and a full-time safety officer to manage all SMS procedures and perform our audits," said Patrick Voeller, general manager for AirFlite. "Our SMS provides us with the structured policies and procedures to ensure everything we do is done with the safety of our associates in mind. The cost of this program is returned through the assurances it provides all who are a part of it," Voeller added.

For many small to midsize flight departments, revamping policies and procedures can seem like a daunting task. Usually the job falls on the shoulders of a department manager as another extra duty. From a maintenance manager's perspective, many of the principles of SMS are already present in your day-to-day shop practices, but formalizing them in writing is the sticking point. Where do you start? One way is to deal with the tough problems first. "The question you should be asking yourself every night before you turn out the lights is what do you worry about most? That is the beginning of your SMS program," said Len Beauchemin, president of Atlanta-based AeroTechna Solutions, an aviation management and consulting firm.

Once you identify your hazards and establish your risk assessment process to enable classification, the next step is documentation. In many cases, more is not better. "You first have to ask yourself why you want a document, then what do you want it to do for you," Beauchemin said. Your policies and procedures should reflect what they actually are doing, not what you think or say they are doing. It is as simple as this: Say what you do and do what you say. The NBAA Maintenance and Operations Manual workshops are a great resource for helping you create the documents that make up your management systems.

The main purpose for SMS is to provide managers with the tools to improve safety, in a way that uses defined goals and processes to identify, classify and address risks to your operation. Many operators that follow NBAA and IS-BAO best practices are almost there already. Those that are starting from scratch can tailor the basic principles to meet their individual operations, without over-burdening their existing resources. Think of SMS as your management toolbox to seek out and address hazards before they turn into accidents.

NTSB Hearing on Flight 5191

Conclusions of the NTSB report

1. The captain and the first officer were properly certified and qualified under federal regulations. There was no evidence of any medical or behavioral conditions that might have adversely affected their performance during the accident flight. Before reporting for the accident flight, the flight crew members had rest periods that were longer than those required by federal regulations and company policy.

2. The accident airplane was properly certified, equipped and maintained in accordance with federal regulations. The recovered components showed no evidence of any structural, engine, or system failures.

3. Weather was not a factor in this accident. No restrictions to visibility occurred during the airplane's taxi to the runway and the attempted takeoff. The taxi and the attempted takeoff occurred about one hour before sunrise during night visual meteorological conditions and with no illumination from the moon.

4. The captain and the first officer believed that the airplane was on runway 22 when they taxied onto runway 26 and initiated the takeoff roll.

5. The flight crew recognized that something was wrong with the takeoff beyond the point from which the airplane could be stopped on the remaining available runway.

6. Because the accident airplane had taxied onto and taken off from runway 26 without a clearance to do so, this accident was a runway incursion.

7. Adequate cues existed on the airport surface and available resources were present in the cockpit to allow the flight crew to successfully navigate from the air carrier ramp to the runway 22 threshold.

8. The flight crew members' non-pertinent conversation during the taxi, which was not in compliance with federal regulations and company policy, likely contributed to their loss of positional awareness.

9. The flight crew members failed to recognize that they were initiating a takeoff on the wrong runway because they did not cross-check and confirm the airplane's position on the runway before takeoff and they were likely influenced by confirmation bias.

10. Even though the flight crew members made some errors during their preflight activities and the taxi to the runway, there was insufficient evidence to determine whether fatigue affected their performance.

11. The flight crew's noncompliance with standard operating procedures, including the captain's abbreviated taxi briefing and both pilots' non-pertinent conversation, most likely created an atmosphere in the cockpit that enabled the crew's errors.

12. The controller did not notice that the flight crew had stopped the airplane short of the wrong runway because he did not anticipate any problems with the airplane's taxi to the correct runway and thus was paying more attention to his radar responsibilities than his tower responsibilities.

13. The controller did not detect the flight crew's attempt to take off on the wrong runway because, instead of monitoring the airplane's departure, he performed a lower-priority administrative task that could have waited until he transferred responsibility for the airplane to the next air traffic control facility.

14. The controller was most likely fatigued at the time of the accident, but the extent that fatigue affected his decision not to monitor the airplane's departure could not be determined in part because his routine practices did not consistently include the monitoring of takeoffs.

15. The FAA's operational policies and procedures at the time of the accident were deficient because they did not promote optimal controller monitoring of aircraft surface operations.

16. The first officer's survival was directly attributable to the prompt arrival of the first responders; their ability to extricate him from the cockpit wreckage; and his rapid transport to the hospital, where he received immediate treatment.

17. The emergency response for this accident was timely and well coordinated.

18. A standard procedure requiring 14 Code of Federal Regulations Part 91K, 121, and 135 pilots to confirm and cross-check that their airplane is positioned at the correct runway before crossing the hold short line and initiating a takeoff would help to improve the pilots' positional awareness during surface operations.

19. The implementation of cockpit moving map displays or cockpit runway alerting systems on air carrier aircraft would enhance flight safety by providing pilots with improved positional awareness during surface navigation.

20. Enhanced taxiway centerline markings and surface painted holding position signs provide pilots with additional awareness about the runway and taxiway environment.

21. **This accident demonstrates that 14 Code of Federal Regulations 91.129(i) might result in mistakes that have catastrophic consequences because the regulation allows an airplane to cross a runway during taxi without a pilot request for a specific clearance to do so.**

22. **If controllers were required to delay a takeoff clearance until confirming that an airplane has crossed all intersecting runways to a departure runway, the increased monitoring of the flight crew's surface navigation would reduce the likelihood of wrong runway takeoff events.**

23. **If controllers were to focus on monitoring tasks instead of administrative tasks when aircraft are in the controller's area of operations, the additional monitoring would increase the probability of detecting flight crew errors.**

24. **Even though the air traffic manager's decision to staff midnight shifts at Blue Grass Airport with one controller was contrary to Federal Aviation Administration verbal guidance indicating that two controllers were needed, it cannot be determined if this decision contributed to the circumstances of this accident.**

25. **Due to an on-going construction project at Bluegrass Airport, the taxiway identifiers represented in the airport chart available to the crew were inaccurate and the information contained in a local notice to airmen (NOTAM) about the closure of taxiway Alpha was not made available to the crew via ATIS broadcast or in their flight release paperwork.**

26. **The controller's failure to ensure that the flight crew was aware of the altered taxiway configuration was likely not a factor in the crew's inability to navigate to the correct runway.**

27. **Because of the information in the NOTAM about the altered taxiway, a configuration was not needed for the pilots' wayfinding task. The absence of the local NOTAM from the flight release paperwork was not a factor in this accident.**

28. **The presence of the extended taxiway centerline to taxiway A north of runway 8/26 was not a factor in this accident.**

Midnight Shift Nugget

3 Guidelines for Caffeine Use

1) Develop a routine.

Instead of automatically heading for the coffee pot whenever you're tired, map out a caffeine strategy you adhere to night after night. On an 11 p.m. to 7 a.m. shift you might drink one cup when you start work and second at 3:20 a.m.

2) Set a cutoff point.

Although caffeine's effect on sleep varies by individual, in general you should stop drinking caffeinated beverages within four hours of bedtime. If you're thirsty late in your shift, try drinking water or another non-caffeinated beverage.

3) Avoid excessive consumption.

Relying on coffee to make it through the night is a bad idea. If you drink numerous cups every night, try to cut back slowly to avoid withdrawal symptoms.

The bottom line with caffeine is that there's nothing wrong with moderate consumption – two or three well-timed cups per day. Just make sure you steer clear of the cycle of consuming caffeine excessively because it will leave you in a state of chronic sleep deprivation.

BARBECUE FOOD SAFETY

The Do's and the Don'ts

In addition to using backyard grills safely, it's also important to follow food safety guidelines to prevent foodborne illness. Here are some do's and don'ts to enjoy a healthy barbecue:

Do:

- **Store raw meat in the fridge. Freeze poultry and ground meat two days after purchasing. Freeze other meats within four to five days.**
- **Marinate meats in the fridge, not on the counter.**
- **Cook meat thoroughly. Use an internal thermometer to ensure your food is cooked properly. (See chart below.)**
- **Keep the grilled food hot until served—140°F (60°C) or warmer is best.**
- **Discard any food left out for more than two hours. If the temperature is above 90°F (32°C), discard food left out after one hour.**

Don't:

- **Thaw meat on the kitchen counter. For safe and slow thawing, transfer the meat from the freezer to the refrigerator. You can also defrost meat in the microwave if the food is to be immediately placed on the grill.**
- **Re-use marinade that has come into contact with raw meat unless you bring the marinade to a boil to destroy harmful bacteria.**
- **Place cooked food on the same platter that held raw meat; the raw meat juices could contain bacteria and may contaminate cooked food. When taking food off of the grill, use clean utensils and plates.**

Cooking temperatures:

Ground Products:
Beef, veal, lamb, pork: 160°F (71°C)
Chicken, turkey: 165°F (74°C)

Roasts and Steaks (beef, veal and lamb):
Medium-rare: 145°F (63°C)
Medium: 160° F (71°C)
Well-done: 170° (77°C)

Pork Chops, Roast and Ribs:
Medium: 160°F (71°C)
Well-done: 170° (77°C)

Turkey and Chicken:
Whole bird: 180° (82°C)
Breast: 170° (77°C)
Legs & thighs: 180° (82°C)
Stuffing (cooked separately): 165° (74°C)

Fish: Until it flakes with a fork

More information on food safety is available on the USDA website

END