



# **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Research and Engineering  
Washington, DC

## **Medical Factual Group Chairman's Report**

**November 5, 2019**

Mary Pat McKay, MD, MPH  
Chief Medical Officer

### **A. ACCIDENT: DCA19FA089; Presque Isle, ME**

On March 4, 2019, at 1143 eastern standard time, CommutAir flight 4933, an Embraer EMB- 145XR, N14171, d.b.a. United Express, landed between runway 1 and taxiway A in light to moderate snow at Northern Maine Regional Airport at Presque Isle (KPQI), Presque Isle, Maine. This was the second approach to runway 1 after having conducted a missed approach during the first approach. Radar track data show that the airplane was aligned right of runway 1 during both approaches. Of the 31 passengers and crew onboard, two passengers and 1 crewmember received minor injuries. The airplane was substantially damaged. The flight was operating under the provisions of Title 14 Code of Federal Regulations Part 121 as a regularly scheduled domestic passenger from Newark International Airport (KEWR), Newark, New Jersey, to KPQI.

### **B. GROUP IDENTIFICATION**

Chair:

Mary Pat McKay, MD, MPH  
Chief Medical Officer,  
National Transportation Safety Board

Penny Giovanetti, DO  
Director, Medical Specialties Division  
Federal Aviation Administration

### **C. RELEVANT MEDICAL STANDARDS**

According to the Federal Aviation Administration's (FAA's) Guide for Aviation Medical Examiners, obstructive sleep apnea is a disqualifying condition. Those diagnosed and treated for the condition may obtain a special issuance medical certificate if they meet specific criteria. For those using continuous positive airway pressure (CPAP) as treatment and who have a recording CPAP device, the criteria are:

Signed Airman Compliance with Treatment form or equivalent from the airman attesting to absence of OSA symptoms and continued daily use of prescribed therapy; and

A current status report from the treating physician indicating that OSA treatment is still effective.

**For CPAP/ BIPAP/ APAP:** A copy of the cumulative annual PAP device report which shows **actual time used** (rather than a report typically generated for insurance providers which only shows if use is greater or less than 4 hours). Target goal should show use for at least 75% of sleep periods and an average minimum of 6 hours use per sleep period.<sup>1</sup>

In addition, the FAA requires that the aviation medical examiners (AMEs) evaluate and triage every applicant for a medical certificate into one of 6 groups:

- If the applicant is on a Special Issuance Authorization for OSA
  - Follow AASI/SI for OSA
  - Notate in Block 60; and
  - Issue, if otherwise qualified
- If the applicant has had a prior sleep assessment
  - If the airman is under treatment, provide the requirements of the AASI and advise the airman they must get the Authorization of Special Issuance;
  - Give the applicant Specification Sheet A and advise that a letter will be sent from the Federal Air Surgeon requesting more information. The letter will state that the applicant has 90 days to provide the information to the FAA/AME;
  - Notate in Box 60;
  - Issue, if otherwise qualified
- If the applicant does not have an AASI/SI or has not had a previous assessment, the AME must:
  - Calculate BMI; and
  - Consider American Academy of Sleep Medicine (AASM) risk criteria
  - If the AME determines the applicant is not currently at risk for OSA
    - Notate in Block 60; and
    - Issue, if otherwise qualified
  - If the applicant is at risk for OSA but in the opinion of the AME the applicant is at low risk for OSA, the AME must
    - Discuss OSA risks with applicant;
    - Provide resource and educational information (see: [https://www.faa.gov/pilots/safety/pilotsafetybrochures/media/Sleep\\_Apnea.pdf](https://www.faa.gov/pilots/safety/pilotsafetybrochures/media/Sleep_Apnea.pdf) ), as appropriate;

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<sup>1</sup> Federal Aviation Administration. Guide for Aviation Medical Examiners. Decision Considerations Disease Protocols – Obstructive Sleep Apnea (OSA). AME Assisted Special Issuance. [https://www.faa.gov/about/office\\_org/headquarters\\_offices/avs/offices/aam/ame/guide/media/AASI.pdf](https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/media/AASI.pdf) Accessed 9/12/2-019.

- Issue, if otherwise qualified; and
  - Notate in Block 60
- If the applicant is at high risk for OSA,
  - Give the applicant Specification Sheet B and advise that a letter will be sent from the Federal Air Surgeon requesting more information. The letter will state that the applicant has 90 days to provide the information to the FAA/AME;
  - Notate in Block 60; and
  - Issue, if otherwise qualified
- If the AME observes or the applicant reports symptoms which are severe enough to represent an immediate risk to aviation safety of the national airspace
  - Notate in Block 60
  - **THE AME MUST DEFER<sup>2</sup>**

## D. DETAILS OF INVESTIGATION

### 1. Purpose

This investigation was performed to evaluate the copilot for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

### 2. Methods

The FAA blue ribbon medical file, transcript of the interview with the copilot, primary care records, polysomnography records, a download from the copilot's CPAP machine, and the investigator's reports were reviewed.

#### FAA Blue Ribbon Medical File

According to the FAA blue ribbon medical file, the 51 year old male copilot's last medical examination before the accident was dated 10/29/2018. At that time, he reported 4300 hours of civilian flight, that he had a medical disability for previous military service involving injury to an ankle and knee, and that he had had a kidney removed for kidney cancer in 2010. He reported no use of medications and no chronic medical conditions. He did not report the use of CPAP; the form does not specifically ask about the use of medical devices. At the time, the copilot was 71 inches tall and weighed 219 pounds. No significant abnormalities were identified on the physical exam and the aviation medical examiner (AME) placed him in the "not at risk" category for sleep apnea after his evaluation. He was issued a first class medical certificate limited by a requirement that he have glasses available for near vision.

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<sup>2</sup> Federal Aviation Administration. Guide for Aviation Medical Examiners. Decision Considerations Disease Protocols – Obstructive Sleep Apnea (OSA)  
[https://www.faa.gov/about/office\\_org/headquarters\\_offices/avs/offices/aam/ame/guide/dec\\_cons/disease\\_prot/osa/](https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/dec_cons/disease_prot/osa/) Accessed 9/12/2019.

Review of the older applications and examinations for medical certificates demonstrated he had never reported his sleep apnea or his use of CPAP to the FAA.

#### Toxicology

Routine DOT post accident toxicology testing was performed on urine collected from the copilot at 13:25 on 3/4/2019. Results were negative for any tested-for substances.<sup>3</sup>

#### Post Accident Interview with Investigators

During an interview with investigators following the accident, the copilot reported having had a procedure in 2006 for snoring that was unsuccessful, and he was offered and continued to use CPAP as treatment. He believed he had not used it the night before the accident as he had been delayed getting to the hotel.

In addition, the pilot reported having been diagnosed with the flu on February 23 and having to call out sick. March 4<sup>th</sup> was the first day he returned to work.

#### Personal Medical Records

According to personal medical records from the copilot's primary care physician for the period between 3/4/2016 and 3/4/2019, the copilot had a single visit dated 11/6/2018. At that time, he reported a history of surgery in 2010 for renal carcinoma (kidney cancer), elevated liver enzyme tests in 2013, and low testosterone diagnosed in 2012. In addition to surgery to remove a kidney, he had had a tonsillectomy as a child and surgery for snoring in 2007. He reported using no medications. No significant findings were identified on the physical or laboratory exam. Viagra was prescribed to treat reported erectile dysfunction.

#### Polysomnography results

The copilot underwent a formal polysomnography (sleep study) in June 2012. During the test he had an apnea/hypopnea index (AHI) of 20 episodes per hour.<sup>4</sup> In addition, over 4 hours and 14 minutes of sleep, his oxygen saturation dropped below 91% 60 times, with a nadir of 80%

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<sup>3</sup> DOT urine drug testing is limited to identifying urinary metabolites of amphetamine, methamphetamine, cocaine, codeine, morphine, heroin, phencyclidine (PCP), methylenedioxyamphetamine (MDMA), methylenedioxyamphetamine (MDA), methylenedioxyethylamphetamine (MDEA), tetrahydrocannabinol (THC), oxycodone, oxymorphone, hydrocodone, and hydromorphone.

<sup>4</sup> An apneic episode is the complete absence of airflow through the mouth and nose for at least 10 seconds. A hypopnea episode is when airflow decreases by 50 percent for at least 10 seconds or decreases by 30 percent if there is an associated decrease in the oxygen saturation or an arousal from sleep. The apnea-hypopnea index (AHI) sums the frequency of both types of episodes per hour. An AHI of less than 5 is considered normal. An AHI of 5-15 is mild; 15-30 is moderate and more than 30 events per hour is considered severe sleep apnea.

oxygen saturation. The sleep physician diagnosed moderate obstructive sleep apnea and recommended the use of CPAP.

#### CPAP Download

The copilot provided a download of his CPAP use between January 22 and April 21, 2019 (90 days). Over this period, he had used the device on 79 days (87.8% of days) for an average of 5 hours and 52 minutes (on days used). However, on 32% of the days used (25 days), he had used the device for fewer than 4 hours.

According to a conversation with support for the copilot's CPAP device, dates are considered to last from noon on the date given until noon the next day. As a result, the daily use graphic provided in the download indicates the copilot had used the device for less than one hour on 2/26, had not used his CPAP on 2/27, 2/28, 3/1, or 3/2, and had used it for only about 90 minutes on 3/3/2019.

### **D. SUMMARY OF MEDICAL FINDINGS**

The 51 year old copilot had reported previously having surgery to remove a cancerous kidney, and being on disability from the military for orthopedic issues. He reported no use of medications and did not report his diagnosis of OSA or use of CPAP to the FAA. The AME at his last medical examination before the accident found him "at no risk" of OSA. Similarly, the copilot had not reported his diagnosis of OSA or use of CPAP to his primary care physician.

Routine DOT post accident toxicology testing was performed on urine collected from the copilot at 13:25 on 3/4/2019. Results were negative for any tested-for substances.

According to personal medical records, the copilot had been diagnosed with moderate OSA following a sleep study in 2012 and had been using CPAP since. A download from the copilot's CPAP machine demonstrated he had used the device on 79 days of 90 days (87.8% of days) for an average of 5 hours and 52 minutes (on days used). However, on 32% of the days used (25 days), he had used the device for fewer than 4 hours.

The daily use graphic provided in the CPAP download indicates the copilot had used the device for less than one hour on 2/26, had not used his CPAP on 2/27, 2/28, 3/1, or 3/2, and had used it for only about 90 minutes on 3/3/2019.