



FEDEXMEC
Air Line Pilots Association, Int'l

Environmental Standards Committee

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June 1, 2016

From: Capt. Bob Avery, Environmental Standards Committee Chairman

Newsletter #3

Update on Company discussions, recap of issues, and a way forward

Fellow Pilots,

Interest in Environmental Standards Committee (ESC) issues remains high. After [ESC newsletter #2](#), these questions and concerns continue to be raised by the crew force:

- How did a scenario developed where ALPA is appealing to FedEx to resolve known health and safety issues in our workplace?
- By far most requested: Pilots want more information on specific health and safety issues mentioned in past correspondence.
- Who is responsible for guarding our health at work?
- What is the logical path forward?
- Is FedEx serious about addressing these issues?

This newsletter addresses these concerns and questions. Future newsletters will discuss details of health and safety issues and what we can do to help ourselves.

How did this scenario develop?

To put the current situation in perspective, here is a recap of how we got to where we are today.

Health and safety concerns on board our aircraft were first brought to the attention of Flight Ops leaders in March 2013. In October 2014, a letter was delivered to FDX Flight Ops management outlining specific threats and issues.

Upon receiving the Oct. 2014 letter, FedEx Regulatory Affairs (Legal) assembled a team of specialists and directed an investigation of issues outlined in the letter.

One year later (Oct. 5, 2015), FDX Regulatory Affairs sent a letter to our MEC Chairman stating that an investigation had been conducted and that FedEx procedures were appropriate, met manufacturer's recommendations, complied with or exceed all applicable regulatory requirements and provided for the health and safety of pilots. No other details about the investigation were disclosed.

The ESC disagreed with the conclusions of the Oct. 2015 Regulatory Affairs letter based on substantial data and evidence, including laboratory testing, that was not reviewed by the investigation team. Because the large discrepancy between the Regulatory Affairs conclusion and ESC data, evidence and information, the ESC petitioned ALPA leadership to request a meeting with FedEx Legal and Flight Ops leaders for the purpose of presenting the ESC information.

After consultation with FDX management, that meeting occurred on March 31 of this year. The ESC presented the data and evidence to FedEx Legal, Flight Safety, FDX Maintenance and Aircraft Engineering and Flight Ops senior leaders. This briefing was reported to the crew force in [ESC newsletter #2](#). After the ESC presentation, FedEx leaders agreed to accept and examine ESC information, revisit all issues and continue to meet with ALPA.

Following the March 31 briefing, the ESC forwarded more supporting data and evidence to FedEx Regulatory Affairs and Flight Ops senior leadership. We have since been told that FedEx Flight Ops and Legal leaders will meet to discuss how to proceed, then will be back in contact with ALPA. We optimistically anticipate follow-on meetings with FedEx and the opportunity to participate in achieving solutions to the issues presented.

More details on health and safety issues in focus:

Following is a summary of issues that have been presented to FedEx Legal and Flight Ops senior leadership.

1. **Contaminated Air:** Our ventilated air is contaminated with toxic substances, according to laboratory testing. Contaminants found so far are known causes of respiratory and neurological illnesses. We cannot say the contaminants are causing illness in anyone—only a doctor can, but we can say that the contaminants tested are toxic.

This situation is worsened due to the removal of HEPA filters from all FedEx aircraft (except the B-777, in which HEPA filters are integral to the air system and cannot be removed) and ventilation systems that have never been routinely cleaned at FedEx, as aircraft manufacturers say should be done. These shortfalls allow a black ultra-fine graphite-like material and other particulate matter to accumulate throughout the ventilation system. Laboratory testing of this particulate matter taken from a FedEx MD11 revealed the presence of black carbon and fiberglass. Both are toxic and both can have serious short and long term ill health effects, especially in the respiratory system. Fiberglass has been called "the new asbestos."

An example of particulate matter clogging our air systems can be seen [in this photo](#) looking inside the cockpit ceiling main air supply vent in one MD11 and [this photo](#)

looking into the same vent from another angle. [Another photo](#) (taken in 2013 before the Aircraft Cleaning Program started) shows the same material in the cockpit door vents where it accumulates as air passes through. The matter is not this thick in MD11 door vents today because the vents are frequently cleaned under the Aircraft Cleaning Program. But the matter builds again after cleaning indicating it is ever-present in the ventilation system. This particulate matter is present in many of our aircraft across our fleets.

Ever wonder why you can take a shower, put on a clean white uniform shirt, then end the flying day with a gray ring around your shirt collar? Natural oil and perspiration from your body keep your neck and collar moist and sticky. Constantly moving your head causes frequent contact between your neck and collar, trapping the graphite-like material suspended in the air on your collar to create the stain. You may also notice gray soap suds when you wash your hands in your hotel room after a day's work. What you are seeing on your collar, on your hands and in the vents and doors is the ultra-fine material that coats everything in the cockpit and is constantly present in the air we breathe.

Fume Events are another type of air contamination. When dozens of pilots were asked if they had heard the term, "fume event," all said no. When they were asked if they have ever smelled the pungent dirty socks, stale gym locker, or moldy cheese smell, all said yes—a number of times. This type of odor created during a fume event is a primary indicator that toxic substances are being released into the ventilation system.

According to multiple documents, including those published by the FAA, ICAO and reputable technical sources, fume events emitting these types of odors are typically caused by engine oil or hydraulic fluid leaking into the pneumatic system, then becoming pyrolyzed (thermally decomposed) when exposed to extreme heat from within the pneumatic system. When this happens, chemical synthetic oil additives such as tricresyl phosphate (TCP) or tributyl phosphate (TBP) are released. Both chemicals are toxic and both can do short and long term health damage to the respiratory system. TCP is a known neurotoxin.

Air samples and particulate mater wipe samples taken by the ESC from several MD11 aircraft were sent to the University of British Columbia, School of Population and Public Health, Faculty of Medicine for testing. Results confirmed the presence of TCP and TBP. The report states, *"The data presented here show that there are bleed air contamination problems within the aircraft monitored. Flight crew members are exposed to this through the inhalation of the air as well as through dermal exposure...It should be emphasized that the agents identified in this report are not only toxic by themselves, but are also indicators of many other agents that are produced due to the pyrolysis of bleed air contaminants."*

Fume events producing the odors described above are typically the result of mechanical irregularities or failures—such as over servicing oil systems and weak or

failed engine oil seals allowing oil to enter the pneumatic system where it becomes pyrolyzed. Fume events happen in all commercial airliners except the B-787 Dreamliner where cabin air is supplied by electric compressors, not from the engine via the pneumatic system. No airline can prevent fume events caused by pneumatic system design issues. However, important steps should be taken to mitigate health risks and train pilots and maintenance on this threat.

Most pilots consider a “dirty sock” odor fume event an unpleasant nuisance and are oblivious to the potentially serious medical effects of this type of contaminated air exposure. Pilots should be aware that adverse health side effects or illness following a fume event could be a result of the event. Ill health effects can occur quickly or can take up to 24-48 hours before becoming obvious. If ill health due to a fume event is suspected, proper medical attention should be considered.

This document, [Management of Exposure to Aircraft Bleed-Air Contaminants Among Airline Workers](#), funded by the FAA and written by a group of medical professionals, is an excellent discussion on exposure to pyrolyzed engine oils and hydraulic fluids. The report discusses health effects associated with exposure, symptoms, evaluation of health effects and treatment and reporting.

Pilots have been reminded through recent Flight Ops hot-topic communications that FARs require an AML write-up for every mechanical irregularity or failure. Given that fume events are the result of mechanical irregularities or failures, to not write up a fume event is a willful violation of FARs.

Since fume events are a threat to health and safety, a flight safety report is required (FOM 2.15 Mandatory Reports, indications of smoke, fumes, fire or odor). Filing an ASAP report rather than a FSR should be considered since the FAA will automatically be notified of the event through the ASAP program.

FedEx should train pilots to recognize and understand the events so they can be properly reported. Maintenance should be trained to understand the cause of the events so appropriate fixes can be implemented. [ICAO Circular 344, Guidelines on Education, Training and Reporting Practices related to Fume Events](#) provides guidance to airlines on reporting, as well as education and training of flight crews and AMTs to enable them to prevent, recognize and respond to the presence of fumes, particularly aircraft air supply system-sourced engine or auxiliary power (APU) oil or hydraulic fluid fumes.

Fume events and contaminated air largely go unreported at FedEx due to our pilot’s lack of basic knowledge surrounding this issue. This is something we can correct beginning immediately. It is important that you use the term “Fume Event” in the AML and FSR or ASAP report.

This document, [Contaminated Air Overview \(GCAOE\)](#), provides a good description of how fume events are created.

This paper, [*A counterpoint to key misperceptions about exposure to aviation engine oil and hydraulic fluid fumes*](#) (Judith Anderson) systematically reviews the most commonly encountered misperceptions regarding crew health and flight safety hazards of breathing ventilation air contaminated with either engine oil or hydraulic fluid fumes on commercial and military aircraft.

This paper, [*Contaminated Aircraft Cabin Air*](#) (Dr. Susan Michaelis) gives a broad overview of the subject, covering all salient aspects including the technical history, a discussion of the compounds involved in the contamination, the frequency of occurrence, a survey of attempts to measure the contamination, safety considerations, health considerations, and possible technical solutions to the problem of contamination.

2. **Potable water:** Potable water tanks are not properly serviced causing foreign substances to grow inside the tanks. A bold face *warning* on page 2 of [Tech Ops work card 38-010-00-01](#) states, *"If the potable water system is not drained at a minimum of one time each three days, the growth of bacteria can occur. If bacteria growth continues and you drink the water, illness can occur."* According to Tech Ops sources, potable water tanks on MD11 and B-777 aircraft have never been drained on a scheduled basis. According to mechanics who have serviced the potable water systems during heavy checks (occurring approximately once every 1-2 years), the tank interior walls are frequently coated with a green slimy substance and have a brown sludge floating on the water's surface. Until this issue is resolved, the ESC recommends not drinking coffee from the aircraft's coffee maker. The green metal coffee jugs are routinely washed in a commercial dishwasher in MEM.
3. **Crew Oxygen masks:** Oxygen masks are only cleaned and sterilized once every six years when masks are sent to a third-party vendor for major overhaul. This six-year overhaul cycle complies with mechanical requirements and regulations but the time cycle does not consider potentially serious hygienic issues. Over the six-year period, our masks accumulate a buildup of dried mucus, food crumbs and other foreign substances behind the microphone in the regulator and hose attachment area where you cannot see or clean with a Sani Com. According to our mask servicing vendor, these foreign substances are commonly found in FedEx masks during the six-year overhaul.

OSHA standards do not allow one employee to wear an oxygen mask after another employee until the mask is cleaned and sanitized. Unfortunately, flight crews are not protected by OSHA. In our cockpits, if a mask was used an average of fifteen times per month and you are at the end of the six-year cycle, more than one-thousand people before you have worn the mask and deposited whatever pathogens, mucus, food or other particulate matter they gave up while breathing into the mask.

Recently, three pilots informed the ESC they contracted serious illness after wearing a crew oxygen mask, including a heavy acne-like breakout on their face in the exact print of their mask, staphylococcus (staph infection) that required antibiotics and doctor's care, and an inverted papilloma, a very serious condition that required

surgery and using three months on sick leave. If you have experienced an adverse reaction to wearing the crew oxygen masks, please send your story to the ESC. The more data we have, the more effective we can be.

Many airlines send their mask in for annual cleaning and inspection which significantly reduces the build-up of pathogens and undesirable foreign substances. Besides better controlling the build-up of foreign substances, the annual cleaning and inspection would reduce FedEx's overall cost of maintaining masks, according to our mask vendor.

4. **Use of toxic insecticides:** Toxic insecticides are dispensed on board aircraft with no safety training or warnings for ground crews dispensing the product or flight crews exposed to the product after it is dispensed. The [Material Safety Data Sheet \(MSDS\)](#) for the insecticide sprayed on our upper cargo decks states the material can cause respiratory irritation and further lung damage. The MSDS states a number of cautions and warnings for handling and dispensing the product—but ramp personnel and pilots are completely unaware of these cautions and warnings. The chemical manufacturer has additional warnings and cautions, such as a seven-minute wait period from the time the chemical is sprayed until the aircraft air system is turned on.
5. **Ozone converters:** Ozone converters may not be installed on some of our long-range aircraft. Ozone exposure creates serious respiratory health concerns, especially on long-haul flights and flights operating at higher latitudes. We are standing by to hear from FedEx which aircraft have ozone converters and which do not.
6. **Toilets:** When you board the aircraft, look at the [Aircraft Lavatory Service Record \(LSR\)](#) found in a grey multi-pocket pouch on the inside or outside wall of the toilet. You will find a date and record indicating when the toilet was serviced (blue water change). The blue water manufacturer has stated the fluid should be changed once every 24 hours, given our low volume use. After 24 hours, the chemical begins to break down and foul odors develop due to the buildup of e coli from solid waste and ammonia from urine. Maintenance's standards call for changing blue water every three days. In reality, toilets sometimes go well past the three days. You can see the last blue water change on the LSR.

Unlike ground-based toilets, aircraft toilets waste does not go away when flushed, but continues to stir in a small pot of fluid. In the case of an Airbus or B-777, the pot of water is only about 2.5 gallons. It does not take long for human waste on a hot ramp to become unbearable and unsanitary.

The ESC recommends that captains check the LSR immediately upon boarding the aircraft. If the toilet stinks, or if the toilet has not been serviced in an acceptable amount of time (you be the judge), one radio call to maintenance will normally result in a lavatory servicing cart in less than 15 minutes (at a FedEx hub airport). If you cannot get a blue water change due to your remote location, make an AML entry so servicing will occur at the next possible opportunity.

We wince at toilet odor when we board the aircraft, complain to each other, and then work our shift within a few feet of a malodorous toilet. Remember, this unpleasant condition can often be eliminated with one quick radio call. If we won't take the time to call for a service or write up a malodorous toilet, we are getting what we have accepted.

7. **Lack of soap and water for hand washing:** 75 percent of our aircraft do not have soap and water for hand washing. We spend our workday touching many dirty things, then use the toilet, then eat our catering with our bare hands—without having the ability to wash our hands with soap and water. No other FedEx employee is expected to accept these conditions because these conditions are not allowed under OSHA rules. Hand sanitizer was never intended to replace soap and water and will not remove grease, grime and other particulate matter. OSHA does not allow this substitution and the FDA highly discourages it.

It is unlikely FedEx will put potable water back in 75% of our airplanes, but hand soap could be supplied to all aircraft and bottle water can be used for washing hands. The existing unacceptable hygienic condition can be quickly cured by adding a soap holder and bottle of soap to all aircraft without potable water. Hand sanitizer should be kept for those who see a need for it. This simple and inexpensive fix would completely eliminate this serious hygienic issue.

Inexpensive solutions are readily available for most of the issues presented. Most would be eliminated if FedEx would comply with standard airline industry practices, adopt hygienic and health standards granted to every U.S. industrial worker by law (OSHA) or, in the case of potable water, simply comply with existing Tech Ops published procedures.

Future newsletters will discuss more details and supporting data and evidence on each of these matters.

Who is responsible for guarding our health at work?

First, consider the fact that health and safety are indivisible in our world of operating complex aircraft around world, around the clock.

Many pilots ask why OSHA is not involved. Ironically, OSHA protects pilots everywhere on FedEx property except on board the aircraft they are operating. OSHA has jurisdiction over flight attendants but not pilots on board commercial airliners. If FedEx pilots were protected by OSHA, issues and threats we are discussing could not exist. Under current circumstances, we can only depend on FedEx leadership to provide occupational health and safety standards guaranteed by law to every other worker in America and taken for granted by every FedEx employee, every day they work.

Our demanding profession is complicated by a number of unavoidable health and safety threats such as inverted circadian rhythm cycles, fatigue, radiation, hazardous cargo and others. Any risk that can be avoided should be avoided. To reduce our exposure, we are asking FedEx to eliminate, or at least mitigate to the maximum extent possible, the manageable health and safety threats we face daily. We believe the following FedEx policies concerning health and safety, created and handed down by FedEx executive leadership, support our request:

- **The FedEx Express (USA) Personnel Policy and Procedure Manual** (The People’s Manual), Section 8-1, Corporate Safety, states that FedEx Express is dedicated to the principle that its employees are its most important asset. Therefore, one of the primary concerns in the performance of all work is the safety and health of all employees. Guidelines in this paragraph state: All levels of management are responsible for providing and maintaining a safe and healthy work environment.
- **The FedEx Code of Business Conduct and Ethics**, Health Safety and Environment chapter, states that FedEx is committed to providing a safe and healthy workplace and that all employees are responsible for reporting unsafe or unhealthy conditions. Managers are responsible for addressing unsafe or unhealthy conditions.
- **A commitment from Mr. Dave Bronczek**, CEO of FedEx Express, is stated in a Safety Policy Letter posted on five-foot billboards at the entry to MEM Flight Ops, IND Flight Ops and other places around our system. Mr. Bronczek’s letter discusses our *“Safety Above All”* culture and the FedEx pledge to improve employee satisfaction and loyalty by ensuring a safe working environment. The letter charges every employee with the responsibility for maintaining a safe and healthy workplace and affirms FedEx’s commitment to resolve unsafe or unhealthy conditions quickly. Mr. Bronczek states, *“We will provide the necessary financial and human resources for the implementation of this safety policy.”*

Given this guidance, we are confident our Flight Ops leaders will actively engage with a program to eliminate manageable health and safety threats in our work environment.

What is the logical path forward?

With concurrence of our MEC leadership, the ESC proposed a new investigation of environmental conditions on board FedEx aircraft be conducted in an open and collaborative environment that would include the ESC and consider all data and evidence available. This ALPA proposal, delivered to Flight Ops leadership and Regulatory Affairs in April, would focus on protecting the health of FedEx pilots and the safety of our airline while being mindful of corporate objectives, limitations and conditions that are not controlled by FedEx.

Cleaning up the immediate health and safety threats and issues is the priority. After that, we need a long-term sustainable program to maintain acceptable health and hygiene standards on board our aircraft.

In our profession, cleanliness, hygiene, health and safety are inseparable. Based on this certainty, the ESC proposal further recommended that aircraft cleaning and occupational health and safety initiatives be organized and administered by a single workgroup. We believe the workgroup should be co-lead by Tech Ops, as the service provider or overseer of third-party aircraft cleaning vendors, and Flight Ops as the quality assurance arm representing the customer. Through Insite (formerly the POR system), every pilot would be encouraged to actively participate in this innovative program affecting their health and quality of life on a daily basis.

This concept has already been proven effective. When the FedEx Aircraft Cleaning Program (ACP)

was initiated in early 2013, Flight Ops leader's communications encouraged pilots to participate in the ACP through the POR system—and they did. PORs immediately jumped from 2-3 per month to over 100 per month. This gave Tech Ops the information they needed to effectively attack the problems and Flight Ops real-time feedback of actual conditions and resolutions. When circumstances called for more attention or an innovative solution, the joint Tech Ops/Flight Ops ACP team engaged and resolved many issues. The co-lead ACP team was innovative, successful and game changing with regards to hygienic conditions on board our aircraft. Then, for unknown reasons, Flight Ops participation in the ACP was completely eliminated and the entire program was returned to Tech Ops. Removing the customer from the process put us back on a course that created the need for the ACP in the first place.

Based on sound management principles and past proven success, the ESC firmly believes that combining aircraft cleaning and environmental issues under a permanent project, co-lead by Tech Ops and Flight Ops, is the most logical and sustainable approach to resolving issues that have plagued our crew force for decades and remain unresolved today.

In summary, ALPA's proposal to FedEx for moving forward remains unchanged:

- Open a channel of communications so the ESC can communicate information and data with the appropriate FedEx managers and departments. (This was accomplished with our March 31 briefing.)
- Form and support a collaborative investigation committee, to include the ALPA ESC, that will research environmental threats in a meaningful way.
- Receive FedEx's commitment that any health and safety threats identified will be eliminated, or at least mitigated, to the maximum extent possible.
- Establish and support an ongoing Aircraft Cleaning Program and Environmental Standards Program co-lead by the customers - the pilots.

Is FedEx serious about addressing these issues?

Since our March 31 presentation, Flight Ops leadership and Legal opened the door by agreeing to accept and review ESC data and supporting evidence, and to continue discussions. Since then, all communications have been positive and encouraging and we continue to believe our Flight Ops leaders will act in the best interest of the crew force. We are optimistically waiting for the next step.

Final thoughts

As highly trained and skilled professionals held to the highest standards and shouldering large responsibilities for property, life and assets of our company, we deserve the dignity of a clean and healthy work environment. As line pilots, we will live every workday of our careers on board FedEx aircraft. For many, that means thirty or more years. It is in everyone's self-interest, not to mention the interest of our families who depend on our health and career for their financial security and wellbeing, to get involved and stay involved with this project. More information on how to do this is forthcoming.

We invite all feedback from the crew force. If you have a question, a story, an opinion or a work environment issue you think should be addressed, please forward your comments to FedEx-ESC@ALPA.org or call the ESC chairman anytime.

About the FDX ALPA Environmental Standards Committee (ESC)

The ESC was established to foster acceptable hygiene and health environmental standards in our pilot workplace. The ESC mission is to research, document, report on and positively impact health, safety and hygiene related environmental threats and issues that exist on board the aircraft we fly. We will work in a diligent, responsible and professional manner with a sharp focus on our reason to exist - guarding the health of every FedEx pilot, every day they work.

We live forever the standards we accept today. Fly safe and fly healthy,

Capt. Bob Avery

Environmental Standards Committee Chairman

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