



June 13, 2022

Mr. Torsten Klimke
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Head of Unit B-3; Innovation & Research
European Commission
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Sent via email: Torsten.Klimke@ec.europa.eu

RE: Ongoing failures of the “FACTS” aircraft cabin air studies funded by DG MOVE

Dear Mr. Klimke:

On behalf of our collective more than five million members representing cabin crewmembers, pilots, and other airline workers across the EU, we are writing to document our long-standing and ongoing concerns with the “FACTS” cabin air research which has been funded and – in our view – significantly mismanaged since its inception in 2016.

Before we outline our concerns, it is important to remember that the FACTS projects only exist because of a design flaw in all jet aircraft other than the Boeing 787; a design flaw first recognized in the 1950s. The flaw enables engine oils and/or hydraulic fluids to contaminate the source of the breathing air (bleed air) being supplied to all passengers and crews to breathe. Our members, along with the flying public, are thus exposed to engine oil and hydraulic fluid fumes that come with product label warnings like “[d]o not breathe mist or vapour from heated product” and inhaling fumes “[m]ay cause delayed neurotoxic reaction.” In addition, some of the engine oil constituents are confirmed carcinogens and reproductive toxins. Inhaling these fumes has caused some of our members to become either impaired or incapacitated inflight, compromising flight safety. In other cases, our members have suffered health effects ranging from short-term to career-ending.

The problem of oil and hydraulic fluid fumes in the bleed air has also resulted in investigations conducted by more than 12 air accident departments around the world. Their reports include over 50 formal safety recommendations and findings to industry and the aviation regulators (like EASA), including the installation of contaminated air warning systems on all jet aircraft. To date, though, EASA has ignored these findings and recommendations. As a result, the commercial interests of aerospace companies - some of whom are FACTS project members – have been protected, but airline workers and passengers are not protected from fumes.

Our collective concerns about the FACTS research started in late 2016 when the DG MOVE first put the proposed project titled “Investigation of the quality level of the air inside the cabin of large transport aeroplanes and their health implications” out for tender. It had an extremely short timeline, which limited the number of tenders and quality of the bids. The funds were soon awarded to an industry and consultant consortium including Airbus, Honeywell, Fraunhofer, TNO, RIVM, ADSE, IRAS, and VITO. The over-arching objective of the FACTS research was “to ascertain potential safety and health risks resulting from the contamination of bleed air in both “[Cabin Air Contamination]-events” and routine flight conditions.” For decades, our organizations have worked to document and mitigate the effects of crews and maintenance workers being exposed to – and sickened by – engine oil and hydraulic fluid fumes, so this research project was of significant interest to us. However, after reviewing the research proposal, we immediately recognized that it would not provide useful insights into either the toxicity of engine oil fumes or the safety and health impacts, nor would it further the development of exposure control measures.

In Oct. 2016, the GCAQE submitted a complaint (No. 1802/2016/CEC) to the EU Ombudsman about the proposed research. More than two years later (Dec. 11, 2018), the EU Ombudsman’s office closed the case, noting that if the GCAQE was still dissatisfied once the study was published, then the organisation could submit another complaint at that time. Also in Oct. 2016, the ETF wrote to the Director-General of DG MOVE regarding the failure to invite input from either the CEN/TC 436 committee or the Sectoral Social Dialogue Committee for Civil Aviation (SSDC) with which the ETF has liaison status. The ETF asked to become part of the steering committee of this project, as it has in previous projects initiated by DG MOVE on aviation working conditions. As well, the ECA and EurECCA asked to be part of the process and formally raised concerns regarding the flawed approach of FACTS. All these requests were either denied or ignored. Some of our colleagues and independent experts were asked to attend briefings with EASA and DG MOVE. They advised both agencies of the shortcomings of the proposed approach; however, these concerns were again ignored.

The FACTS research study was conducted from Dec. 2016 through Dec. 2019. It was funded by EU taxpayers at a cost of about two million euros. In Dec. 2020 - a full year after the study concluded, and four months after the final report was apparently published - you wrote to the GCAQE regarding the FACTS study. You noted that the project “did not fully meet the existing expectations” such that EASA was preparing a follow up project. You assured the GCAQE that they would be “systematically invited to these discussions” and thanked the GCAQE for their participation and contribution. Despite these assurances, just four days later (Dec. 15, 2020), DG MOVE issued a tender for “FACTS 2” (“EASA.2020.HVP.17: Cabin air quality assessment of long-term effects of contaminants”) with no notice and no discussion or input from either the GCAQE or other worker groups.

In addition to significant problems with the study design and implementation, DG MOVE and EASA failed to address airline workers’ concerns as follows:

1. It was clear as early as Oct. 2016 when the research project was put out for tender that the proposed research would not answer outstanding questions or address airline workers’ concerns about the health and flight safety impacts of onboard exposure to oil and hydraulic fumes. Our organisations repeatedly raised that point starting in 2016 and we were repeatedly ignored;

2. DG MOVE invited labour groups to attend a meeting in Brussels on Dec. 12, 2019 to “have an open discussion on next steps.” GCAQE and ECA attended. At that meeting, DG MOVE acknowledged the limitations of the FACTS study, noting that the FACTS had “failed” in that it had not produced new or useful information and it had not met DG MOVE expectations. At that meeting, EASA and DG MOVE asked the union groups for their input on what should happen next, but our input was not acted upon;
3. EASA invited the GCAQE and ECA to attend its Jan. 30-31, 2020 workshop in Cologne to discuss the FACTS report. We attended but there was almost no discussion of the FACTS study and no mention of the report;
4. DG MOVE notified the union groups that the FACTS final report would be published in early 2020. In fact, the final report is dated Aug. 31, 2020, but we did not receive it until late 2021, despite making multiple written requests starting in early 2020; and
5. In March 2021, the Head of Aviation Safety at DG MOVE (Joachim Luecking) wrote to the GCAQE, stating that EASA would organise a meeting, “when this follow-up study will have delivered its results.” The meeting did not materialize. Further, as of March 2022, access to additional information on the FACTS website was closed and, soon after, even the basic information had been removed.

In addition to the official FACTS report, some of the authors published a peer-reviewed study of the in-vivo toxicity component in June 2021,¹ but their paper contains what we consider to be a series of errors. First, their tests did not mimic onboard conditions such that their data have limited, if any, relevance. And second, their chemical analyses reported, (1) the presence of TCP in TCP-free oil; (2) the presence is TCP in hydraulic fluids; (3) the presence of a TCP-alternative additive (PIP 3:1) in oils that contain TCP; and (4) the presence of TBP in engine oils. In subsequent email correspondence, the authors of the paper confirmed that their sampling system had been contaminated, but they failed to acknowledge these errors and complications in their published paper and did not report it at all in the official FACTS report.

Despite the failures of the FACTS study, DG MOVE funded some of the same researchers to do “FACTS 2” from Dec. 2021- Dec. 2024. Per information on the EASA website,² the current phase of the research is projected to cost 1.5 million euros and is titled “Cabin air quality assessment of long-term effects of contaminants.” Of particular concern is that FACTS 2 is being managed by Sven Schuchardt who demonstrated a lack of objectivity on this subject as the lead author on the 2017 EASA cabin air quality study.³ In that report, Dr. Schuchardt wrote that “the so-called ‘Aerotoxic Syndrome’ remains completely incomprehensible” (p. 109, EASA report) and he called for a long needed study to “end the misguided discussion on cabin air quality once and for all” (p.111, EASA report).

¹ He, R., Houtzager, M., Jongeneel, W., Westerink, R., & Cassee, F. (2021). In Vitro Hazard Characterization of Simulated Aircraft Cabin Bleed-Air Contamination in Lung Models Using an Air-Liquid Interface (ALI) Exposure System. *Environment International*, 156, 106718. <https://doi.org/10.1016/J.ENVINT.2021.106718>.

² EASA, 2022. “Cabin air quality assessment of long-term effects of contaminants” Posted on EASA website: <https://www.easa.europa.eu/research-projects/cabin-air-quality-assessment-long-term-effects-contaminants#group-research-project-details>; last accessed on May 15, 2022.

³ EASA, 2017. Research project: CAQ preliminary cabin air quality measurement campaign, Report no. EASA_REP_RESEA_2014_4. Prepared by Schuchardt, S., Bitsch, A., Koch, W., Rosenberger, W. for the European Aviation Safety Agency, Cologne, Germany. Available online at <https://perma.cc/9C77-L3EY>.

As of this writing, the EASA website claims that the general objectives of FACTS 2 are to “enable step-advances in the analysis of the issues raised by contamination events resulting from oil leakage (incl. oil pyrolysis products) on board commercially operated large transport aeroplanes and the potential toxicological risks in light of the existing European standards and legislation on the quality of indoor air and professional exposure limits.” It is important to note that the deliverables for FACTS 2 are basically the same as for the original FACTS study. Presumably, this is in large part because, per the consortium’s own admission, four of the five original (2016-2019) FACTS deliverables “could not be carried out in their entirety within the study period” (p. 7, FACTS report), including bleed air contamination simulator tests, engine test stand trials, in-vitro screening, and in-vivo screening.

EASA and DG MOVE have both refused to speak at the 2017, 2019, 2021 and 2022 Aircraft Cabin Air Conferences (ACAC) about either FACTS or FACTS 2, even though both projects were/are funded with public money. To our knowledge, the findings have not been reported at another public conference. The ACAC Conference Director, Tristan Loraine has submitted a complaint to the EC Commissioner for Transport and is awaiting their response.

We never expected this study to deliver new or worthwhile data because it was designed not do so; in that way, it was successful. Part 1 cost EU taxpayers two million euros and, not only was it a failure, but the results were effectively kept secret until after Part 2 was funded and underway. It is unclear how DG MOVE has justified funding some of the same researchers who failed to complete FACTS to now conduct FACTS 2.

Given this background, our three organisations – as well as the European Cockpit Association (ECA) - call on DG MOVE and EASA to do the following:

1. For publicly funded research projects like this, ensure balanced input from non-industry stakeholders on an oversight committee at all stages of the process. The project appears to have been conceived and carried out by industry (e.g., Airbus, Honeywell, etc.) and their partners which has produced a biased outcome;
2. From airline workers’ perspective, there is an urgency to mitigate fume events given their flight safety and health consequences. For this reason, it is important that research is targeted to answer unanswered questions which will move the field forward instead of repeating research that is an unhelpful distraction. The current project should be reframed so that the primary focus of oil fumes/cabin air research is on mitigating exposure, not just defining exposure; and
3. DG MOVE should require and ensure transparency throughout study design, data collection, and data reporting.

In the FACTS final report, the authors claim that their research was needed to address “persistent uncertainties” regarding fumes although the “uncertainty” has been created by industry. In contrast, crewmembers are unequivocal that breathing oil fumes can have a negative impact on flight safety (i.e., pilot impairment/incapacitation) and crew health, and that exposure should definitely be prevented. To date, from 2016 – 2022, DG MOVE appears to have spent more than 3.5 million euros for industry to conduct

research, which has not benefited crews or passengers. We would like to propose a constructive meeting with EU officials, EASA and DG Move responsible persons, in which we could openly discuss and address these issues and focus on defining solutions. We await your response.

Sincerely,



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