

The attached documents to this submission include copies of the exchange of correspondence between Mr. Estabrook and NASA officials from September 1995 through March 1996. After exhausting all FOIA appeals with the NASA Administrator and his General Counsel, Mr. Estabrook filed suit in Federal Court to seek relief from NASA's denial of his FOIA request. A copy of that complaint immediately follows these comments for your Administration's inspection. This suit was funded by the Independent Pilots Association, due to its mutual interest in "back side of the clock" scheduling and flight safety.

During the litigation of the FOIA lawsuit, NASA agreed to release certain documents in its possession. Some of those responsive documents include earlier drafts of the TM, as well as NASA correspondence, which are all attached as Appendix D to these comments.

COMMENTS OF MARK S. ESTABROOK

The FAA's proposal to amend existing regulations to establish one set of duty period limitations, flight time limitations, and rest requirements for flight crewmembers engaged in air transportation flies in the face of the conclusions published by NASA in the August 1994 Technical Memorandum (TM) "Crew Factors in Flight Operations VII: Psychophysiological Responses to Overnight Cargo Operations." For example, NASA concludes in this study that:

"Flying at night required crews to sleep during the day. Daytime sleep episodes were about 3 hrs (41%) shorter than nighttime sleep episodes, and were rated as lighter, less restorative, and poorer overall. The incidence of sleeping more than once in 24 hrs tripled on days with duty, compared to days without duty. Overall, crew members averaged 1.2 hrs less sleep per 24 hrs on duty days than on pretrip days. Laboratory studies suggest that this sleep restriction, combined with the poorer sleep quality, would decrease waketime alertness progressively with the number of days of reduced sleep."

Although NASA scientist Dr. Mark Rosekind was one of the authors of "Crew Factors in Flight Operations VII," he also co-authored another 1995 NASA Technical Memorandum entitled "Principles and Guidelines for Duty and Rest Scheduling in Commercial Aviation," that included guidelines and recommendations which the FAA adopted in its current NPRM. In "Principles and Guidelines," Rosekind seems to ignore the results of his own previous work in "Crew Factors in Flight Operations VII," as detailed in the last paragraph of the operational overview:

“These data, collected during scheduled flight operations, support the conclusion that nighttime flying imposes different physiological challenges than daytime flying. Wherever possible, these differences should be taken into account in trip construction, with particular attention being given to the timing and duration of rest periods, and the number of consecutive nights of flying.”

After reviewing the NASA research, there appears to be a risk to safety if current scheduling practices at Federal Express and perhaps other “overnight” carriers continue. I see no relief from that risk to safety by this NPRM. In fact, I see MORE of a threat to safety if this NPRM is implemented.

I also believe that Dr. Rosekind was asked to author *“Principles and Guidelines,”* at a time when he authored scientific conclusions significantly different for overnight cargo pilots. The data is so different between the two groups of pilots that it seems impossible to write homogenous scheduling guidelines; it seems implausible NASA would overlook the significant differences. Thus, “back side of the clock” scheduling regulations could not be adequately addressed in *“Principles and Guidelines.”* In fact, the FAA's proposal to amend existing regulations to establish one set of duty period limitations, flight time limitations, and rest requirements for flight crewmembers engaged in air transportation appears flawed from the beginning. “One size fits all” scheduling regulations cannot be tailored to overnight cargo pilots and their daytime counterparts simultaneously. Each type of flying places different demands on safety.

Both NASA and the FAA must feel industry pressure to have upcoming changes in FARs minimize costs and increase productivity. Such goals may be so far in opposition to public safety that a third party such as the National Transportation Safety Board, Congress, a Federal court, or the media might have to intervene on behalf of overnight cargo or late-night passenger carrying pilots.

Consider the following conclusions from *“Crew Factors in Flight Operations VII”*:

“If late off-duty times are unavoidable, then layovers need to be longer (the present data suggest at least 19 hours), to accommodate a second sleep episode in the evening.”

The FAA's proposed FARs will result in an increase in flight and/or duty time with a corresponding decrease in crew rest for overnight cargo pilots, while NASA research demands the exact opposite. Is this why “back side of the clock” flying is not being addressed in this NPRM? NASA scientific conclusions suggesting 19-hour layovers for late off-duty times, for

example, are not found in this NPRM, and if implemented, might cause industry officials to belabor the costs ad infinitum. Nevertheless, NASA suggests 19-hour layovers are scientifically necessary.

Although politically expedient phrases such as “One Level of Safety” sound appealing to the general public, those of us who fly high speed jets on the “back side of the clock” around the world know such slogans ring hollow and are not scientifically founded. Flying at night and sleeping during the day produces a larger accumulated sleep debt, which, when compounded over time, creates unsafe flight conditions for crews, passengers, and the general public. This is well-established by NASA research on fatigue related performance decrements, and can be compared to drunken or sedated pilots at the controls of aircraft. Therefore, the FAA’s exclusion of “back side of the clock” flying and its related scientific research from the NPRM will significantly and adversely affect flight safety.

The exclusion of relevant scientific research is ironic, considering much of the pressure on the Administration to revise the relevant FARs was due, in part, to the results of an accident investigation conducted by the National Transportation Safety Board (NTSB) at Guantanamo Bay, Cuba. The NTSB cited scheduling FARs as a contributing factor in that crash, further burdening the FAA with the need to revise flight and duty time regulations. The NTSB recommended the FAA:

“Expedite the review and upgrade of flight/duty time limitations of the Federal Aviation Regulations to ensure that they incorporate the results of the latest research on fatigue and sleep.”

I feel this NTSB recommendation is being ignored in this NPRM.

The critical August 1994 NASA Technical Memorandum (TM) “Crew Factors in Flight Operations VII” must be added to the body of NASA scientific research upon which the NPRM is based, since it is the previously stated intention of the Administration to rely upon applicable NASA research.

Since the documents obtained in my FOIA lawsuit against NASA reveal that the conclusions contained in the August 1994 draft of the Technical Memorandum (TM) “Crew Factors in Flight Operations VII” were apparently revised due to special interest communications between NASA researchers and Federal Express Corporation, I contend that all other subsequent drafts of the August 1994 NASA (TM) “Crew Factors in Flight Operations VII,” including the December 1995 and February 1996 versions, be disregarded by the FAA in

its construction of Flight Crewmember Duty Period Limitations, Flight Time Limitations and Rest Requirements. I am shocked that the scientific method at the Ames Research Center seems to have been compromised in favor of "special interest science." In fact, a January 27, 1995 letter to Branch Chiefs, Flight Management and Human Factors Division at the Ames Research Center, from the AF/Chief, Flight Management and Human Factors Division, specifying the "Publication Review Policy" for TMs, contains the following directive:

"All publications MUST be reviewed by the cognizant Branch Chief. Your signature attests to the fact that you have reviewed the document and found it correct as far as possible, valuable in some sense, and a valid representation of NASA research. You should also ensure that the form FF427 for NASA HQ has been completed. In addition, your review must ensure that programmatic or political issues are dealt with appropriately."
[Emphasis added]. [See Appendix D-17]

If the scientific researchers at NASA are required to be "politically correct," how can they avoid compromising the scientific method? How can NASA TM reviews based on political correctness serve the public's interest in safety or the Administration's responsibility to write sound regulations?

The results of the study were delayed from the 1987-88 time period, when the data was initially collected, until December 1995, when the first of several "final" versions was published by NASA. Coincidentally, my first FOIA request of NASA for the TM was sent in September 1995. I can only wonder whether the TM would have been published prior to the end of the comment period for the FAA's NPRM without my FOIA request prompting NASA to publish it.

When subsequent comparisons of the December 1995 version of the TM were made with the August 1994 version, I realized significant changes in the text had occurred. After numerous letters to NASA met with resistance, I was finally informed in March 1996 they would not comply with my request, and I was free to seek judicial review in the Federal courts.

After receiving my complaint and a motion for preliminary injunctive relief and discussing the case with the Federal judge assigned to the case, NASA reversed itself and agreed, out of court, to release documents it acknowledged to have in its position. I have attached the relevant documents for your administrative review and inspection, as well as forwarded copies to Federal Express Captain R. Donald Wilson for his comments below.

COMMENTS OF R. DONALD WILSON

I am a Federal Express DC-10 Captain. I was Assistant Chief Pilot, Flight Administration, from 1985 through 1988. In that capacity, I was assigned the task of coordinating with our pilots the NASA research for their Technical Memorandum (TM) "Crew Factors in Flight Operations VII: Psychophysiological Responses to Overnight Cargo Operations," at Federal Express. I also served as the FedEx ALPA Master Executive Council (MEC) Chairman from February 1993 through January 1995, and commented to NASA on the August 1994 "Crew Factors in Flight Operations VII."

I have reviewed much of the material associated with "Crew Factors in Flight Operations VII." I have also reviewed the TM as presented to Federal Express and ALPA in August 1994 and the December 1995 TM.

I have looked specifically at the October 4, 1994 letter from Mr. Clive Seal, Vice President, Federal Express Flight Operations, to Mr. Victor Lebacqz of NASA-Ames [See Appendix D-10] ; my September 28, 1994 letter to Dr. Mark Rosekind of NASA-Ames [See Appendix D-9]; and Mr. Lebacqz's response to the Seal letter almost a year later with the included "Detailed Response..." [See Appendix D-11]. I am both angered and amazed that a purportedly independent scientific study can be so easily compromised by the apparent acceptance at face value of remarks by a corporate party with profit at stake in the study. I believe the letters tell a clear story without too much comment from me, but I will provide you with my observations in the interest of flight safety.

As my letter to Dr. Rosekind states, I was the Assistant Chief Pilot who acted as liaison in setting up and administrating the fatigue study at Federal Express. There was a clear understanding that the data and scientific conclusions would be shared with all interested parties, would be unbiased, and would only keep confidential the actual identity of the study participants with their respective data. That confidentiality protected both the participant and his freedom to be candid about the subjective effects of fatigue on his performance (certain non-subjective biomedical measurements were gathered as well).

I was shocked when, at the last moment, FedEx management attempted to exclude all but themselves from review of the draft TM. We at FedEx ALPA were subsequently afforded a separate briefing by Dr. Mark Rosekind. Both management and FedEx ALPA were then asked to comment on the study. Captain David Wells commented on behalf of the FedEx ALPA

Safety Committee, and I submitted a synopsis of other pilot observations on behalf of those pilots present at the briefing.

Sonny Thompson signed FedEx management's response on behalf of Clive Seal. I am doubtful that either of them actually composed most of the very technical response attributed to Mr. Seal.

After reviewing both my comment letter and the Seal letter, I believe most Federal Express pilots would support my observations and conclusions. I would ask, however, that the Administration look at Mr. Lebacqz's almost blind acceptance of Mr. Seal's statements to the apparent exclusion of my comments. In fact, I never received any acknowledgment of my comments at all, and I can only suspect that it is because they contrast with FedEx management's interests in greater productivity and lower costs.

I would call attention to the second paragraph of the Seal letter, which states:

"...we are constantly introducing new techniques and operational changes to reduce the demands on our crew members. We do so by listening to our crew members and our Flight Safety Department, and by monitoring innovations within our industry."

That sounds nice, but ask most FedEx line pilots -- or a management pilot, for that matter -- to point out the actual ways this statement has been applied. **Management has actually disciplined pilots for being fatigued.** Perhaps FedEx thinks statements of philosophy, slogans, and CRM or corporate directives can alleviate the problems associated with circadian disruption and sleep debt accumulation. The actual application is more akin to "we're going to teach you the meaning and terms of sleep deficit, and we're directing you to not be performance impaired due to fatigue." The Administration must know that airlines cannot address human physiology with slogans and directives, but must instead rely on sound, scientific research and its application to flight operations.

In short, I do not believe there is any substance to the claims made in the Seal letter. We DO NOT have longer layovers to address circadian disruption/shift; we DO have a management trying to push us to our limits. The NASA-Ames observers did not note "decreased performance" in the pilot subjects because they were specifically told NOT to evaluate "performance" since they were not Check Airmen. That left it to the pilot to freely evaluate any decrease in his own performance. While some did, it is well known that self-recognition of fatigue-related performance decrement can be as difficult as self-recognition of the results of hypoxia.

Finally, and once again, I find it very troubling that FedEx management sought to inject itself into the results portion of the study -- both to deny pilot access to the draft and again in the close of the Seal letter. Even more problematic is the acceptance by NASA, at face value, of representations by management when contrary observations were also in evidence through Captain Wells and myself.

I hope these observations are helpful to the Administration. I think in most ways the attached letters speak for themselves. I believe most of our pilots, and certainly those of us who were study participants, would find the Seal letter void of real substance. With NASA's acceptance of that letter into the final TM, I view the published TM as tainted and in conflict with public safety.

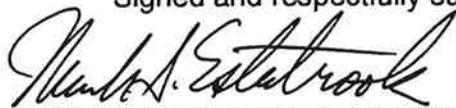
CONCLUSION

It is our contention that the conclusions drawn in the final version of the Technical Memorandum (TM) "Crew Factors in Flight Operations VII: Psychophysiological Responses to Overnight Cargo Operations" have been compromised by changes prior to its publication and distribution. Those changes were requested by FedEx management in their letter of October 4, 1994 to Mr. Victor Lebacqz. Mr. Lebacqz accepted those changes and deletions without asking for supporting data from FedEx management, and without regard to other comments submitted by FedEx ALPA. Additionally, NASA's own publication review policy, evidently directs such behavior by mandating that "*political issues are dealt with appropriately.*"

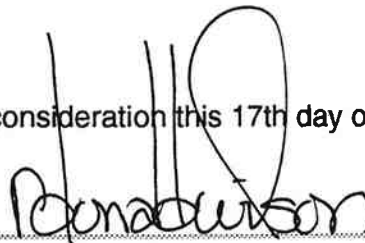
The undersigned individuals, Mark S. Estabrook and R. Donald Wilson, request that the Federal Aviation Administration cancel implementation of NPRM Notice 95-18, Flight Crewmember Duty Period Limitations, Flight Time Limitations and Rest Requirements, until such time as the scientific conclusions contained in the August 1994 publication of the Technical Memorandum (TM) "Crew Factors in Flight Operations VII: Psychophysiological Responses to Overnight Cargo Operations" can be incorporated into the proposed Federal Aviation Regulations. Failure to do so will inevitably raise further legal review by the courts and Congress of the FAA's arbitrary construction of Federal Aviation Regulations in contradiction of its own previously stated public policy of reliance on relevant NASA scientific research. Submission of these comments, and the attached NASA TM, should place the FAA on notice that serious safety issues are at stake and that the lives of "overnight" pilots, their

cargo or passengers, and the populations they fly over may be at risk if the proposed NPRM is implemented in its current form.

Signed and respectfully submitted for your consideration this 17th day of June, 1996.



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