U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Chief Counsel

800 Independence Ave., S.W.
Washington, D.C. 20591

AUG 6 2015

Mr. David G. White
[redacted]

Re: Request for Legal Interpretation of 14 C.F.R. §117.5, "Fitness for Duty"

Dear Mr. White:

This responds to your February 2, 2015 letter requesting an interpretation by the Federal Aviation Administration (FAA) of 14 C.F.R. part 117, "Flight and Duty Limitations and Rest Requirements: Flightcrew Members." Your letter raises a series of questions concerning fitness for duty reporting, acclimation, and aircraft rest facilities in the context of an augmented United Airlines B-777 flight assignment that operates from Chicago – Sao Paolo Guarulhos – Houston – Sao Paolo Guarulhos – Chicago.

In describing the scenario, you state that the flight assignment, which requires 4 all-night flights within a 7-day period, is unsafe. You further state that each trip segment lasts about 10 hours and includes a period of maximum sleepiness – the Window of Circadian Low (WOCL).[1]

You note that 3 pilots are assigned to each segment, and that layovers are long and intended to provide for physiological rest on the 3 nights between the night flights. You state that the design of the assignment prevents meaningful rest; each pilot receives a rest break between 2.5 to 3 hours, and the rest is taken in a "Class 1" bunk, or in a "Class 2" seat in First Class, depending on the B-777 model being used. You indicate that in practice, the pilots receive little sleep on the 3 nights between the night flights due to severe disruption of circadian rhythm. You state that the result is an increasing level of sleep debt over the 7 days and increasingly fatigued crews. You assert that this assignment as designed is not consistent with 14 CFR part 117.

Fitness for Duty Reporting

Your first question is whether the required fitness for duty[2] affirmation in §117.5 applies for the entire flight duty period (FDP)[3] or just at the time when the flightcrew member makes

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[1] "Window of circadian low" is defined as "a period of maximum sleepiness that occurs between 0200 and 0559 during a physiological night." 14 C.F.R. §117.3.

[2] "Fit for duty" means "physiologically and mentally prepared and capable of performing assigned duties at the highest degree of safety." Id.

[3] "Flight duty period" means "a period that begins when a flightcrew member is required to report for duty with the intention of conducting a flight, a series of flights, or positioning or ferrying flights,

the affirmation at the start of their FDP. The FAA explained in the preamble to the final rule that the fitness-for-duty affirmation required by the regulatory text applies to each flight segment:[4]

> The requirement that flightcrew members make a written affirmation about their continued fitness for duty applies to each flight segment of the assigned FDP. This is because a flightcrew member who is alert at the beginning of an FDP may become dangerously fatigued once the FDP is underway. Requiring a written fitness for duty affirmation before each flight segment will help ensure that flightcrew members continuously monitor their fatigue levels during the course of an FDP. If, during the course of this monitoring, flightcrew members determine that they cannot safely continue their assigned duties, section 117.5(c) would require them to terminate their assigned FDP prior to the beginning of the next flight segment.
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> 77 Fed. Reg. 330, 350 (Jan. 4, 2012).

Thus, the fit-for-duty affirmation required in §117.5(d) applies for the entirety of each flight segment. It would apply only to the FDP if that FDP included only one flight segment. In your example, the flight crew would be required to make the fit-for-duty affirmation when reporting for the Chicago to Sao Paolo Guarulhos flight segment, and thereafter for each of the remaining 3 flight segments.

This office recently addressed this question in a February 12, 2014 Legal Interpretation from Mark W. Bury, Assistant Chief Counsel for International Law, Legislation, and Regulations, to Charles J. Edwards. For your convenience, we have enclosed a copy. The interpretation, echoing the language of the preamble, found that under §117.5(d), "[a]s part of a dispatch or flight release, as applicable, each flightcrew member must affirmatively state he or she is fit for duty prior to commencing flight."

At the end of your discussion of fitness for duty reporting, you recommend that part 117 be amended to specifically address the expected level of fatigue when making the fit-for-duty affirmation. You write, "If a crewmember reasonably expects to be excessively fatigued upon arrival at destination, the provisions of FAR 117 should provide explicit justification for declining to report Fit for Duty."

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and ends when the aircraft is parked after the last flight and there is no intention for further aircraft movement by the same flightcrew member." Id.

[4]The FAA's March 5, 2013 "Clarification of Flight, Duty, and Rest Requirements," addressed a question concerning a scenario where a pilot reports fit for an FDP that includes 6 flight segments. After the fourth flight segment, however, the pilot notifies the company that he will be too fatigued to fly the sixth flight segment, but will be fit to fly the fifth flight segment. An association asked whether §117.5(c) allows the certificate holder to permit the pilot to fly the fifth flight segment. The FAA responded in the affirmative because §117.5 does not require a certificate holder to second-guess a fitness-for-duty certification made by a flightcrew member. The FAA also stated that the company would not violate § 117.5(c) if it permits the flightcrew member to take off on the fifth flight segment. However, we emphasized that the flightcrew member in this example would be in violation of § 117.5 if he certifies that he is fit for duty when he is actually too tired to safely perform the assigned duties. 78 Fed. Reg. 14166, 14169.

Please be advised that any such change to part 117 would require notice and comment rulemaking. An individual asking the FAA to adopt, amend, or repeal a regulation may submit a petition for rulemaking to the FAA in accordance with 14 C.F.R. part 11.

Acclimation

In your discussion of acclimation, you state that part 117 is "flawed in its construction" because the rule defines "acclimation"[5] only in terms of time zone changes and is silent on the effects of excessive WOCL flying in a short period of time. You state that the rule is also flawed because it does not consider acclimation in terms of the actual hours of the FDP and the need to acclimate to WOCL flying. You suggest that part 117 should limit the total number of WOCL duty periods during the week even if they are not consecutive.

We note that your question does not seek a legal interpretation of a regulation. As indicated above, any such changes to part 117 would require notice and comment rulemaking.

Rest Facilities

In your discussion of flightcrew member rest facilities on United B-777 aircraft, you state that depending upon B-777 model, the facilities are either "Class 1"[6] or "Class 2."[7] You further state that the United's B-777 Class 1 rest facility has been the subject of numerous deficiency reports and that it does not meet the definition of a Class 1 rest facility. You indicate that these bunk rooms are subject to noise from the lavatory, flight attendant activities, secondary barrier usage, and flight deck entry and exit. You indicate that the B-777 Class 1 facilities have required an exemption (No. 10911) issued by the FAA to permit them to qualify as Class 1 facilities. You express the view that United's B-777 Class 2 rest facilities are deficient because the privacy curtain often fails to provide either darkness or sound mitigation. In short, you argue that United's B-777 rest facilities do not meet the requirements of part 117 and that the exemption granted to United does not address various inadequacies in these rest facilities. In your discussion, you also assert that United is not in compliance with its exemption, because data collected by the carrier's Fatigue Review Committee is flawed. You state that because the data evaluation is only intended to compare one bunk against another, it is faulty because the entire rest facility is inadequate.

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[5] "Acclimated" means "a condition in which a flightcrew member has been in a theater for 72 hours or has been given at least 36 consecutive hours free from duty." A "theater" is defined as "a geographical area in which the distance between the flightcrew member's flight duty period departure point and arrival point differs by no more than 60 degrees longitude." 14 C.F.R. §117.3.

[6] A "Class 1" rest facility means "a bunk or other surface that allows for a flat sleeping position and is located separate from both the flight deck and passenger cabin in an area that is temperature-controlled, allows the flightcrew member to control light, and provides isolation from noise and disturbance." Id.

[7] A "Class 2" rest facility means "a seat in an aircraft cabin that allows for a flat or near flat sleeping position; is separated from passengers by a minimum of a curtain to provide darkness and some sound mitigation; and is reasonably free from disturbance by passengers or flightcrew members." Id.

As above, we note that your question does not seek a legal interpretation of a regulation. You are referring to an existing exemption granted to United to collect data to evaluate rest facilities as Class 1 rest facilities under the carrier's Fatigue Risk Management System (FRMS), as provided for by §117.7.

The FAA's Fatigue Risk Management System (FRMS) approval process requires the applicant to develop an alternative method of compliance (AMOC) and that AMOC must demonstrate an equivalent level of safety against fatigue-related accidents or incidents as other provisions of part 117 provide. 14 C.F.R. §117.7(a). Therefore, the FRMS approval process requires the applicant to undertake equivalency testing to demonstrate the AMOC is equal to, or superior to the testing subject. To accomplish this requirement, the applicant must develop a data collection plan along with a data analysis plan. Additionally, the FAA will model the proposed data collection and analysis operation for validation. Once approved by the FAA, the applicant must collect and analyze all data in accordance with the FAA-approved data collection and analysis plan. See FAA Advisory Circular (AC) No. 120-103A (May 6, 2013), "Fatigue Risk Management Systems for Aviation Safety."

Data collection and analysis may be accomplished subjectively and/or non-subjectively. Examples of subjective data collection include various sources to include crew logs, questionnaires, and sleepiness scales. See AC No. 120-103A, Appendix 2, Section 4, "Data Collection." Examples of non-subjective data collection include actigraphy (actigraph watch) and psychomotor vigilance tasking (PVT). Data collection using both non-subjective and subjection methods are normally preferred. The objective is for the applicant to consistently demonstrate levels of effectiveness and alertness levels that are at or above the minimum acceptable levels.

The applicant will regularly submit their analysis to the FAA in which the sleep scientists will validate the analysis. Essentially, a secondary independent analysis will be conducted by the FAA to validate the applicant's analysis to ensure the results are the same, and this process will continue for a specified period to demonstrate consistency.

This response was prepared by Jonathan Cross, a Senior Attorney in the Regulations Division, Office of the Chief Counsel, and coordinated with the Air Transportation Division of Flight Standards Service. If you need further assistance, please contact our office at (202) 267-8013.

Sincerely,

Lorelei Peter
Acting Assistant Chief Counsel
for Regulations, AGC-200

Enclosure