

APPENDIX B

DISCUSSION OF FATIGUE MITIGATION REGULATIONS

Prelude and Overview

The Federal Aviation Administration released its final rule regarding flightcrew member flight time and duty time regulations on December 21, 2011. This release comes months overdue, largely due to the time allotted for part 121 cargo operators' lobbying efforts to exempt themselves, in whole or in part, from the regulations whose purpose is to ostensibly remedy the dangerous industry trends regarding pilot fatigue and preventable aircrew errors descending from fatigue.

The original "Notice of Proposed Rule Making" (NPRM) came about due to political fallout from the Continental Connection / Colgan Air 3407 aircraft crash on February 12, 2009, where two under experienced pilots misdiagnosed and inappropriately responded to an approach-configuration stall, resulting in the loss of aircraft, all 49 persons on board the Q400, and one person on the ground. Rather than using the opportunity to discuss the primary danger to the flying public, outsourcing of pilot expertise for the purposes of cost cutting, those with regulatory oversight authority used the opportunity to issue regulations under the guise of fatigue abatement.

Fatigue abatement is an issue whose time is long overdue, and genuine efforts to address that issue is welcome by all part 121 pilots. However, both the NPRM and the "final rule" do not address the underlying issue of "pilot pushing" by the part 121 certificate holders, which is the root-ball of the fatigue issue. Instead, the final rule codifies much of the pilot pushing and will do little to ameliorate the present trajectory of pilot fatigue and preventable errors due to fatigue.

Continental Connection 3407 was a preventable crash, but it was not due to fatigue, as the pilots of Colgan Air 3407 were inferred to be fatigued, based solely upon where they slept, rather than how they performed, or any other

evidence.¹ What impairment they displayed was swept aside as insignificant, and fatigue was inserted as the unofficial, but underlying cause. While the NTSB explored the experience level and aptitude of the crew, nothing was stated in the final summary that would indicate that the dangerous trend of eschewing expertise as a cost-cutting measure is the underlying cause of the deaths of 50 people, and poses a risk for the entirety of the passenger transportation system of the United States.²

Instead, we have been given an entire regulatory bulwark attempting to address a problem that does exist, but falsely uses the Continental Connection 3407 crash as a pretext. Even so, an entire “carve-out” has been allowed for the very segment of part 121 that is most prone to fatiguing flying, while at the same time, reduces rest for the most fatiguing flying in part 121 passenger carriage (international), and increases “time on task” for domestic operations.

Even more ominous is the entire concept of tailor-made exemptions to the regulatory text, under the guise of an “equivalent level of safety.” Combine this with the new requirements for formalized pilot certification of “fitness for flight,” without effective legal protections against coercive actions by the certificate holder, and the entire concept of self-assessment is removed.

Safety will be outsourced to the lowest bidder and pilots will be nothing more than disposable functionaries with the responsibilities to make operational dreams come true against the unforgiving backdrop of physiological reality.

§ 117.1 Applicability

The tardy release of the “final rule” was to allow the part 121 cargo carriers an opportunity to sell the idea that they should be immune from increased regulatory oversight regarding fatigue. Quite simply, this boiled down to

¹ OPERATION ORANGE, *Colgan Air 3407: Questions, Answers, and Discussion*, www.operationorange.org/colganQ&A.pdf

² NTSB Vice Chairman Hart did indicate in his personal statement that the trend of code sharing with airlines staffed by pilots lacking a solid foundation of flight training is a growing concern.

money and how the part 121 cargo carriers would have to spend more money to carry out their current operation. More pilots for the same flying doesn't fit their agenda, so they simply bought an exemption.

We could elaborate on the motives and cynicism inducing actions of the regulatory authorities in Washington, but the IPA (pilot association representing the UPS pilots) has already done this.³ Their response is available on the OPERATIONORANGE.org website, under the masthead menu category of "Supporting Documentation."

We have amended the § 117.1 Applicability text, as well as §§ 121.470, 121.480, 121.500, and 121.583 to remove the exclusivity of passenger operations, so as to include part 121 cargo operations.

§ 117.3 Definitions

The section below provides a discussion on the specific definitions used in the final rule, and where applicable, additions and modifications have been used to address inadequacies in the definitions in the final rule.

Acclimated. The FAA's definition falls short in two aspects. First the definition in the final rule provides for acclimation if the flightcrew member has been "in a theater" for 72 hours. The definition of "theater" only captures that it differs from the flightcrew member's flight duty period departure point by more than 60 degrees of longitude. This is largely a failure of the definition of "theater," for purposes of acclimation.

It is possible, under the final rule definition, that a flightcrew member could be acclimated to the Pacific Time Zone and operate in London, and still be considered "acclimated" and in the "same theater."

Example: Flightcrew member (FCM) is acclimated to UTC -8.

³ Independent Pilots Association, *Additional Points Relating to the IPA Court of Appeals Challenge to FAA Final Flight and Duty Time Rule*, available at www.operationorange.org/IPApoints.pdf

FDP #1: SFO-MEM, MEM-MIA. FCM has experienced 45 degrees of longitude change and three time zones of time change. Result: no theater change.

FDP#2: MIA-GRU. FCM has experienced 30 degrees of longitude change and 3 zones of time change. Result: no theater change.

FDP#3: GRU-LHR. FCM has experienced 45 degrees of longitude change and 2 zones of time change. Result: no theater change.

Questions: What theater is the FCM operating? UTC+0, UTC-2, UTC-5, or UTC-8? If the FCM operates a single-leg FDP that takes him back to MEM, that incorporates 90 degrees of longitude and 6 zones of time change. Was he always on UTC-6, or on UTC-8? If the FCM spent 40 hours in London, did he need to acclimate, since he, by definition, did not change theater because there is only 45 degrees of longitude change between Sao Paulo and London? How does one acclimate to a new theater if one does not change theater?

Such minutiae in the regulations have been exploited in years past by an industry that insisted it was within its regulatory right to *schedule* an FCM for a FDP that included 15:55 of duty, only to have delays take the FCM well past 18 or even 20 hours, and still call it legal. This is an industry that seeks twisted and elastic definitions of “days” and where the term “active pilot” can include a pilot that has been furloughed for years.

There may be instances of a FCM crossing the International Date Line where he or she experiences a 24 hour instant time zone change. Such time zone change, if not coupled with a significant change between other time zones, is not applicable to acclimation. This is best demonstrated by example:

A FCM is acclimated to UTC-10 and operates a flight from HNL to AKL. HNL is UTC-10 and AKL is UTC+12, for a total change of 22 hours. In reality, the body does not distinguish between days, but only hours. The actual change is -2 hours, corrected for one day. These types of circumstances should not be construed to be a change in theater, based upon the time zone definition.

Theater and Acclimated need to be changed to reflect that there are more than two “theaters” on the face of the earth, and due to political considerations, time and longitude are not necessarily congruent. A FCM is acclimated in one time/location until he positively acclimates to another.

Acclimated Local Time. This definition is needed to properly understand the definitions of “acclimated,” “theater,” “nighttime flight duty period,” “physiological night’s rest,” or any other concept where the locality of a flightcrew member’s acclimation is a question. The FAA uses 36 hours as a basis for acclimation, and that definition logically flows from the concept of “acclimated” to the local time where the acclimation occurs.

Crew pairing. This definition is needed to define the limits of a FDP extension due to deadhead transportation for purposes of returning a FCM to his or her crew base/domicile. Without this definition, a certificate holder could abuse the provisions to return a FCM to his or her domicile in order to schedule an FCM to an operational deadhead between flight duty periods, in violation of the FDP time constraints. This is further discussed in § 117.19.

Deadhead transportation. This definition needed to be modified to capture the concept that deadhead transportation cannot be a free ride for the certificate holder. Deadhead transportation taken at the behest of the certificate holder can be fatiguing, as the FCM is likely put in economy class, with all the disruptions associated with that mode of transport. Without limiting the amount of flight segments combined with deadhead transportation, a certificate holder could schedule a FCM to 6 flight segments, with 6 additional deadhead segments, for a total of 12 flight segments. Additionally, being scheduled to operate in the WOCL is fatiguing, by definition. The FCM would either be operating within the WOCL, subsequent to a deadhead segment, or be in a deadhead segment during the WOCL and then scheduled to perform a full FDP.

Limiting the certificate holder to three segments, plus a deadhead segment, all of which are outside the WOCL, is more than reasonable for most scheduling scenarios. If the certificate holder needs to operate more than three flight segments, additional personnel should be scheduled to complete the operation.

The regulatory imperative should be to limit fatiguing situations, not to reduce payroll via the FARs.

Duty. “Short-call” reserve was eliminated from inclusion in the concept of “duty” at industry request. The people who perform “short-call” reserve (ALPA, CAPA, FEDEX-ALPA, SWAPA, and APA) all asked that it be included as duty.

The argument the FAA adopted came from industry, under the reasoning that,

...the only requirement or company task a pilot has on short call reserve is to be available to be contacted. Otherwise, the pilot is free to do what he or she wants and plans the day to take advantage of rest opportunities or any other activities as he or she desires, just as a lineholder would.⁴

This is the reality of a pilot on “long-call” reserve, not “short-call” reserve, and as such, the definition should be changed to reflect that reality.

“Short-call” reserve has many encumbrances to the pilot being free to do whatever he or she wants and take advantages of rest opportunities as he or she desires. The pilot can be called at any time and put into a rest period, so as to obligate the pilot to be prepared for an assignment at odds with his or her most recent sleep opportunity. The pilot can be called away at a moment’s notice for a flight obligation lasting anywhere from a few hours to well over a week. Often times, “short-call” reserve obligates the pilot to be continuously awake during the WOCL, for days on end.

Just ask any of the thousands of mainline pilots, who have been consigned to “short-call” reserve for the past decade, what they think of reserve not being considered “duty.” Their answers will align with the priorities of the various pilot associations, and against those who write reserve availability schedules.

⁴ Final Rule, pg 48

It is understandable that certificate holders wish to be able to assign “short-call” reserve with impunity and avoid the scheduling inflexibility associated with “long-call” reserve. It is unreasonable to pretend this flexibility isn’t coming at a cost to a flightcrew member.

As such, all reserve, other than “long-call” reserve, has been added back into the definition of “duty” to reflect the realities associated with this kind of scheduling flexibility.

The phrase “on behalf of” is substituted for “as required by” in order to align it with the more appropriate use of the term in the definition of “flight duty period.”

Fatigue. The FAA’s definition of fatigue needs to be enhanced to capture a larger spectrum of fatigue inducing events and provide a solid foundation for a flightcrew member to stand upon in the event he or she sees fit to reject an assignment due to self-assessed fatigue. The definition is largely lifted from the Aeronautical Information Manual, Section 8.1-1. This definition is already in use by the FAA, and as such, should not cause any undue distress on any party, since this definition has been in place for years.

The absence of effective protection afforded a flightcrew member who self-assesses too fatigued to accept an assignment is problematic, and is a place where pilot pushing can be practiced by certificate holders looking more at their bottom line than at flight safety.

There is more to fatigue than simply getting a legally proscribed sleep opportunity. Additionally, the entire fatigue abatement regulatory bulwark does not address the concept of chronic fatigue, whereby a FCM could still be fatigued, even after a rest period sufficient to clear acute fatigue has been completed.

By having a more comprehensive definition of fatigue, the entire air transportation infrastructure can benefit from having well-informed pilots and certificate holders on the subject of fatigue. If we continue with an incomplete definition, situations may arise where a certificate holder insists that a FCM is not fatigued because other fatiguing aspects of the FCM’s recent activities are not captured by such a definition. This invites abuse,

distrust, and needless use of grievance procedures, arbitrations, and courts.

The broader spectrum of the enhanced definition serves to underpin the “whistleblower” protections inserted throughout the regulatory text and elsewhere in the “Fair Treatment Of Experienced Pilots Act - Part 2.”⁵

Fatigue risk management system (FRMS). This definition was eliminated because it has no applicability to a concept that is removed from the regulatory text. FRMS is discussed further later in this appendix.

Flight duty period (FDP). Deadhead transportation was added to the FDP because it cannot be counted as rest, nor a duty-free period. It goes directly to the operations of the certificate holder. There is no reason not to include deadhead transportation in a FDP, regardless of its proximity to flight segments. Transporting crewmembers for operations should be treated as an operational event, and covered by the concept of a flight duty period. It matters not if the deadhead transportation is stand-alone, prior, or subsequent to the flight segment.

We have considered that deadhead transportation for purposes of training, without an associated flight segment are administrative in nature, rather than operational, and have expanded the definition of FDP accordingly, so long as the certificate holder separates the two by a legal rest period per § 117.25.

To allow the certificate holders a free ride for stand-alone deadhead transportation, undertaken for operational concerns, invites abuse and is not keeping with the scheduling features of Section 4 of the “Fair Treatment of Experienced Pilots Act - Part 2.”

It was also necessary to emphasize that airport/standby/immediately assignable reserve is always part of a FDP, regardless of its outcome. Avoidance of confusion on this issue is essential, in order for pilots and certificate holders to work together under this concept.

⁵ www.operationorange.org/FTFEPFulltext.pdf

The problem of returning a FCM to his home base/domicile or city of residence subsequent to a FDP needed to be clearly solved. It is unreasonable to think that a FCM cannot volunteer to extend his FDP, for the sole purpose of returning to a place of his or her choosing, without incurring unreasonable restraint upon the certificate holder. Forcing a pilot to stay in a hotel, for no other reason than to perform an unnecessary regulatory duty, when neither the certificate holder, FCM, nor the traveling public benefit from such an arrangement is unreasonable.

Flight time. This definition was needed for flight time limitations to have any meaning. The traditional definition was expanded to capture cognitively intensive responsibilities pilots have prior to aircraft movement, and to incorporate any means by which the aircraft is moved.

Home base/domicile. This definition is inaccurate because a FCM can begin a duty period at any airport in the world. Pilots normally begin “crew pairings” at the airport associated with their home base, or what is often called a “domicile.” Flight duty periods are components of a crew pairing.

Lineholder. This definition needs clarification to distinguish between assignments given within the context of reserve and those that are given through some other allocation process that normally affords the pilot the ability to properly plan for the schedule.

Reserve duty. This is the compliment to the definition of lineholder, as assignments to flight duty periods come with relatively short notice. The FAA constructed a framework for reserve availability to be categorized in one of three ways. The longer the lead time to report for a FDP, the more the FCM has ability to react and rest for the purposes of reporting fit for duty. This increased ability for the FCM to prepare allows the certificate holder to avoid having some of the fatiguing aspects of reserve duty count against the various regulatory limits designed to capture and limit fatigue in its flightcrew members.

Conversely, the more flexibility the certificate holder has in assigning reserve flying to a FCM, the less ability the FCM has to prepare and the more fatiguing that kind of reserve availability becomes, especially when taken in the aggregate of several days at a time.

“Long-call” reserve presents the least fatiguing set of circumstances; “short-call” reserve presents an intermediate amount; and “airport standby” reserve is the most fatiguing. Long-call is likely used for assignments that are known a day in advance, but were not able to be assigned through the certificate holder’s methods for assigning flying to lineholders. Short-call likely represents flying that becomes known on relatively short notice, too short to be covered by “long-call,” and “airport standby” gives a certificate holder the ability to cover flying with little or no interruption to the schedule.

Since the FAA acknowledges that “airport standby” reserve requires a FCM to be at a place of the certificate holder’s choosing, there can be little doubt that this is the primary driver for the definition of “airport standby” reserve. The FAA uses “the airport” as the place for reserve, but a certificate holder may choose to hold the pilot off-premises, and it would be unreasonable to assume that holding a FCM at a hotel, or “suitable accommodation” in close proximity to the airport would constitute “short-call” reserve. The industry was successful in pushing to have “short-call” reserve removed from the definition of “duty,” because the industry believes “short call” reserve allows the FCM to have wide latitude in ordering the affairs of his or her day.

The requirement for a pilot to report within a short period, even though the certificate holder does not dictate the location the FCM must wait for an assignment, may constitute “airport standby” reserve, rather than “short-call” reserve. If a certificate holder requires a 90 minute report time for LGA, JFK, and EWR, there is little doubt the pilot will not be able to remain within the bulk of the area for local pilot residences.

The better criterion for divining the difference between “airport standby” reserve and “short-call” reserve is the reasonable proscription on the location of the pilot during the reserve availability period.

“Reasonable proscription” would vary based upon location and circumstance. We used the criterion of the reasonable and customary local area for pilot residences, since this would be the natural location for pilots to remain, if they were allowed to choose. Time constraints (i.e. 2:00 hours from notification to report) may be insufficient to capture this concept, since

two hours in New York City can be difficult with JFK, LGA, and EWR all eligible for reserve flying. A FCM may live in upper Westchester and be 2 hours from LGA, but 3 hours from EWR. At times, the traffic congestion leading to JFK can be 2 hours after entering Long Island.

Two hours may fully encompass local pilot residences for MSP, or DFW, but not for NYC, Los Angeles, Chicago, or San Francisco. What is reasonable for ONT may not be reasonable for LAX.

This is not to be construed to include distant residences, that can only reasonably be used via air transportation, as “local,” even if many pilots choose to live in a distant location. Pensacola and Jacksonville would not be considered “local” to ATL based pilots, but Naples may be local to MIA. This would have to depend on both the certificate holder and the pilot corps each attempting to be reasonable enough to fulfill their obligations to the other, in order to sustain the both intentions of “short-call” reserve (certificate holder’s schedule reliability and pilot’s ability to choose a reasonable location to await an assignment).

It is understood that “short-call” may not necessarily keep a certificate holder’s schedule fully intact, as there exists many scenarios where notification and response times may exceed the time necessary to prevent incurring a delay. The FAA outlined the concept of “airport standby” reserve to give certificate holders the ability to minimize delays caused by crew staffing irregularities. This flexibility comes at a price for both the certificate holder and the pilot.

The definition is intentionally vague for purposes of encouraging both parties to make reasonable efforts to distinguish between “short call” and “airport standby” reserve. Were it not, the definition of the two would fill volumes in order to cover every airport, set of driving conditions, modes of transportation, times of day, density of pilot residences, etc.

In order to prevent confusion and subsequent grievance proceedings, the type of reserve availability the pilot is assigned to perform shall be determined prospectively, otherwise it shall be assumed the pilot is in “long-call” reserve availability.

Rest facility. Onboard rest facilities need to be able to provide the rest for which they are intended and for which operational flexibility is granted. The FAA's definition of Category 1 and 2 rest facilities do not ensure that they are reasonably comfortable and suitably padded for rest. Economy class seating needs to be affirmatively removed from the possibilities of onboard rest facilities, lest certificate holders retain "sleep experts" that will find rest in the middle seat of economy class is just as restful as business class or first class, and stacked-deck arbitration proceedings affirming those findings.

Suitable accommodation. Under the FAA's definition of suitable accommodation, a temperature-controlled, darkened warehouse with reasonably thick walls to provide a measure of sound mitigation, filled with 200 reclining chairs, fold-out sofas, or plywood and 2x4 tri-bunk beds constitutes a suitable accommodation. This may be suitable as a temporary Red Cross facility to house victims of a hurricane or other natural disaster, but it is hardly restful for the purposes of extending a FDP for pilots flying over the WOCL.

The necessity of single-occupancy should be self-evident, but the industry prevailed, and a rest facility that resembles more of a chicken-coup, or primitive battle field hospital is now permissible, under the guise of ameliorating fatigue. Strangely enough, the FAA stated in its discussion of "SPLIT SLEEP" that it is assumed:

...split duty sleep does not involve sleep fragmentation, but rather a restriction on the total amount of sleep provided during the night. A flightcrew member engaging in split duty sleep will presumably not have his or her sleep cycle intermittently disrupted.⁶

This would be welcome news to anyone having to share a small room, such as a "crash pad" or "crew room," with a middle-aged, overweight captain whose snoring and restlessness can push a light sleeper to the brink of incivility.

⁶ Final Rule, pg 182

The definition has been amended accordingly. If pilots are to be asked to extend duty periods that span the entirety of the WOCL, all parties are to take the limited rest they are afforded in a more serious manner.

The certificate holders who choose not to provide a genuine accommodation for extending a FDP over the WOCL are welcome to staff their operation accordingly.

§ 117.5 Fitness for duty.

It is already unlawful for a flightcrew member to operate an aircraft in a reckless and dangerous fashion, intoxicated, while under medical disqualification, etc. Paragraphs (a) - (c) likewise prevent a FCM from assuming a FDP while unfit for duty.

Why have paragraph (d), where the FCM has to affirmatively state he or she is fit to fly? Why this redundancy?

Is it because the crew of Continental Connection 3407 failed to certify they were not fatigued when they reported for duty? Was that the reason 50 people lost their lives that February night?

Colgan Air Flight Operations Policies and Procedures Manual required the captain to certify that he or she is “physically qualified for this flight.”⁷ Certification did nothing to change the outcome of Continental Connection 3407, and it is unreasonable to believe it would change the outcome of any future potential mishap. No pilot is going to go through all the effort to get to an airport, pass through the TSA checks, preflight the aircraft, obtain the dispatch release, only to realize he is not fit for duty. If he were not fit for duty, he would have called in sick prior to reporting for his or her FDP, unless pressured by company policy and actions to fly impaired.

The reason the FAA is now mandating that a pilot “affirmatively state” he or she is fit for duty is so the airlines can “affirmatively state” in open court

⁷ National Transportation Safety Board, Loss of Control on Approach, Colgan Air, Inc. Operating as Continental Connection Flight 3407, Bombardier DHC-8-400, N200WQ, Clarence Center, New York, February 12, 2009, pg 105

that any mishap relating to pilot pushing is the fault of the flightcrew member, and not their own procedures and scheduling practices.

This is designed primarily to get the pilot to absorb any fallout from waivers granted under FRMS, as it is inconceivable that the airlines or the FAA will admit to failures descending from waivers of their own regulations.

We are left to wonder why the FAA did not require that the various certificate holders “affirmatively state” that their pilots are not under any pressure to accept flight duty periods they believe they are too fatigued, or otherwise impaired, to complete. Would it not be good for the traveling public to see that a certificate holder “affirmatively state” they hire the most qualified pilots in the industry and are not outsourcing flight safety for the purposes of saving a few dollars?

Colgan Air 3407 was caused by pilot incompetence, lack of training on aircraft safety systems (stick pusher), and pilot inexperience. All three of these factors were known in advance by Colgan Air, and the general problem with the entire “regional airline” model was known in advance to Continental Airlines and the government.

Why no “affirmative statements” regarding these issues?

The reason is that the FAA and industry have put in place a mechanism, called FRMS, which is designed to grant waivers to the FARs without having to go through the normal public commentary process, have margins of safety reduced to that of the lowest bidder, and remove the ability for pilots to resist the effort.

The industry and government will never admit to a failure descending directly from a waiver of their own regulatory structure or company policy, so they need a convenient scapegoat for future disasters of their own making. That is where the pilot comes into the mix.

After all, if a new entrant, non-union certificate holder using EU subsidized aircraft obtains an FRMS waiver to allow it to accomplish unaugmented dual transcontinental flight duty periods (JFK-LGB, LGB-JFK), and those pilots crash the aircraft on approach in the 16th hour of their FDP, the legal

teams for the certificate holder and FAA are going to point to the dispatch release and “affirmatively state” the pilots were not fatigued. They will comb through the mishap pilots’ recent activities and discover that they very well may have been fatigued, and had falsified the dispatch release. This could be inferred from a commute from RDU, or a drive from Nashua, NH. If fatigue and perjury are not applicable, they will find some other reason it was anything other than being assigned a FDP with an “equivalent level of safety” of FDPs with today’s proscriptions.

Paragraph (d) is nothing more than a legal and political fig leaf for industry and government. It is a naked attempt to deflect blame onto the pilots, knowing that the mindset of a typical pilot renders him incapable of admitting weakness from routine activities.

In lieu of the above, we have added meaningful language to paragraph (d) to address the issue of pilot pushing. Since the preceding text of Section 117.5 deals with preventing pilots from being assigned and accepting duty periods for which they are physically unqualified to accept, there should be language to provide a solid foundation for rejection. Adding legal protection for pilots who decline an assignment due to fatigue logically belongs in this section. This would prevent any harassment or discipline being leveled against the FCM for exercising humility and prudence for the benefit of the traveling public and integrity of the air transportation system. To entice certificate holders away from getting a free shot at the FCM, triple damages, along with customary recovery costs and legal fees are specified for any damage incurred by the FCM for declining an assignment due to self-assessed fatigue.

The government sees fit to assess a fine of \$27,500 for each person unduly delayed on an airport ramp. This concept should also be applied for incidents of certificate holders engaged in the illegal practice of pressuring pilots into taking assignments they believe they are not fit to take.

§ 117.7 Fatigue risk management system.

This is the heart of the new regulations being promulgated by the government. The concept is relatively simple: airlines can petition for deviation from the FARs if they can demonstrate their practices deliver an

“equivalent level of safety” dictated by the applicable FAR. On the surface, this seems reasonable enough. After all, what is wrong with an “equivalent level of safety?”

In reality, this is nothing more than handing safety over to the lowest bidder. Airlines will never propose a waiver that costs them additional money. All waivers will be profit driven, and any waiver that is granted will become the new industry standard, as competitive pressures will force all other carriers to follow suit. If a new entrant, non-union carrier using subsidized aircraft is granted a series of waivers allowing it to perform unaugmented, dual-transcontinental flight duty periods, then established carriers using market-priced aircraft will be forced to coerce their pilots into performing the same flying, lest the flying be lost via “code share” or market pressures to the pilots flying with the waiver.

The pilots of other carriers will be forced to make the decision: fly fatigued or not fly at all.

This is pilot pushing taken to a new level. No longer will pilot pushing be limited to unscrupulous flight managers issuing threats over telephones, but now it will be done at the corporate level with executives hiding behind the invisible hand of the market.

How do these waivers for “equivalent levels of safety” get brought to market?

We have no definition of “equivalent level of safety.” This is purely a subjective term, as long as we are not tallying crashes. Air transportation is very safe, and as long as a carrier does not have a smoldering crater to sweep aside, it is a pretty safe bet that the FAA will accept almost any study showing that the airline’s proposed practice is just as safe as the present practice. If the FAA can be persuaded that cargo operations (the most fatiguing operations under part 121) do not necessitate enhanced fatigue abatement regulations, it isn’t much of a stretch to understand that they can be persuaded to see just about anything the heavy hitters in the industry wish them to see.

With cargo carriers being exempt from part 117 regulations, but being

allowed a FRMS, the cargo carriers will be able to avoid any enhanced fatigue abatement regulations, while petitioning to lessen any of the regulations they face without part 117. They will simply be able to choose the “best of both worlds.”

The part 121 passenger carriers will be required to operate under part 117, but will be able to point to the less restrictive operations of the cargo carriers, and attempt to mirror their operations. Once a body of data is obtained showing that the non-117 operations are just as safe as the part 117 operations, it doesn't take a terribly prescient individual to understand that waivers from part 117 will be in process. The passenger carriers will also be able to choose the “best of both worlds,” but they will be required one additional step to get there.

Since the entire concept of an “equivalent level of safety” is vague, the best thing to do is look elsewhere for examples of this concept in use. An example of part 121 certificate holders, or their trade associations, asking lawmakers for waivers descending from “an equivalent level of safety” would likely be the most beneficial.

When the subject of pilot experience was being debated, the industry hotly contested any requirement to establish 1500 hours as the minimum amount of flight time required for a pilot to operate part 121 aircraft. Instead, the industry lobbied fiercely for an equivalent level of education that can be substituted for the objective level of experience. Such educational equivalents, endorsements, and credentials from approved FAA flight schools were brought in to help an industry avoid one of the primary pitfalls of its own making - people lacking interest in pursuing aviation as a career field, due to abysmal compensation and working conditions.

Even worse, the industry played down the value of experience when compared to education. Roger Cohen, president of the Regional Airline Association actually has been quoted saying academic work is "far more useful in training pilots for modern airline operations" than hours spent "towing banners above the beach."

While we do not wish to use this space to debate the merits of increased experience for part 121 pilots, the benefits of such are obvious. Unlike the

fatigue mitigation bulwark adopted by the FAA, increased pilot experience does actually address the core of what killed 50 people in Continental Connection 3407.

This is what an “equivalent level of safety” gets us. We are asked to believe that sitting in a classroom, or attending a favored flight school can represent an equivalent level of safety brought about by experience.

Is it because industry wishes to bestow upon the public a fresh crop of “equivalently experienced” pilots, who have the benefit of sitting through hours of videos and Power Point presentations on what other pilots have done, even if this is at an added expense to their own operation?

Doubtful.

No, the real reason is the industry sees that experienced pilots are going to be more difficult to recruit, and as such will have to raise compensation packages in order to attract those pilots. They don’t care about safety; they care about containing costs and limiting pilot authority.

Why would it be any different under FRMS?

The proposals from industry will be cost driven and only loosely attached to safety.

Today, it will be FDPs that are constructed SEA-SFO, SFO-IAD or ORD-JFK, JFK-LAX. Tomorrow’s FRMS will add an additional leg, since there will be no evidence that it is unsafe. Certificate holders will then fly the dual-transcontinental FDPs, with augmentation, and finally the FDP waiver will allow JFK-SFO, SFO-JFK. To be sure, rest periods will be enhanced to sweeten the package, and then once the waiver is in place, further work will ensue to reduce the rest periods. The augmentation will be on paper only, as the third pilot may never see the inside of the cockpit, and the carrier will use that to justify that only a minimum crew is necessary. Younger pilots at the controls will wear portable heart monitors, after the airline pre-screens the pilot’s health, to ensure the desired results are achieved.

Is this nothing more than unjustifiable, and irrational cynicism on the part of small-minded pilots? Are we to believe the government would not allow such an onerous and manifestly irresponsible practice, at the behest of profit? Should cooler heads prevail on this subject?

The FAA included in its own discussion, the opening that FRMS could allow 30 hour duty periods.

*The FAA notes that this rule technically allows an unaugmented flightcrew member to work on a 16-hour FDP if a 14-hour FDP is extended through the use of a 2-hour FDP extension. However, a 14-hour unaugmented FDP is only permitted during periods of peak circadian alertness, and the 2-hour FDP extension is subject to additional safeguards. A 30-hour FDP is never permitted, **although a carrier could potentially develop an FRMS that allowed a 30-hour FDP in augmented operations.**⁸*

Words fail.

It isn't that we uncovered some secret, back-room plot between the FAA and various airline lobbying groups, or that we were passed classified memos about the future of FRMS. This is right out of the public release on the new fatigue abatement rules. It is right there for the entire world to see, and the pilot associations are asleep at the switch.

If there was ever doubt that the airlines run the FAA, this should serve to remove that doubt. The danger of FRMS is obvious and the only possible justification for allowing such a program is to drive cost containment.

What next? Will the part 121 heavy cargo carriers present an FRMS that justifies removing one of the pilots, reducing cargo-only operations to single pilot? What will be the justification? Part 121 cargo carriers already pay 30% more for pilot labor than their passenger carrying counterparts, and with fewer and fewer quality pilots choosing to pursue part 121 flying as a career path, it will certainly be easy to take their profits and buy an FRMS exemption - just as they did from the rest of part 117.

⁸ Final Rule, footnote 14, pg 33 (emphasis added)

Is the public served, having fully-loaded aircraft, operated by a bleary eyed, single pilot, whose last meaningful rest was sleeping on a cot among 100 other pilots for 3 hours? What happens if that aircraft crashed into a crowded school, or the morning rush hour traffic? After all, the pilot “affirmatively stated” he was not fatigued.

Does anyone think that if cargo operators can reduce their pilot crews to one that the passenger airlines are going to keep two? After all, it might knock \$10 off the ticket price... Doubtful as this may seem, European discount airlines are already preparing for this scenario. FRMS is how it will be sold to Americans, and is how it will be rammed past resistance put up by the pilots.

Another situation that serves to highlight the shortcomings in the relationship the FAA has with the part 121 certificate holders, and the so-called “dual mandate” of the FAA, is the way the FAA turns a blind eye to the intentional fraud committed in order to flout existing regulations.

*...the FAA notes that air carriers **currently** utilize schedules that are **unrealistically optimistic** and do not include sufficient buffers for unforeseen circumstances. It **has been the FAA’s experience** that an air carrier subject to an 8-hour scheduled flight-time limit will sometimes schedule a flight that, **on paper**, lasts 7 hours and 59 minutes when **the air carrier knows that the actual flight will likely take well over 8 hours to complete**. Because many current air carrier schedules are **unreasonably optimistic**, air carriers can prevent many of the pre-takeoff situations listed in their comments simply by incorporating reasonable buffers for unforeseen circumstances into their scheduling practices.⁹*

If the FAA knows the various air carriers are engaged in a profit-driven **intentional fraud** to skirt the regulatory restraints it imposes, why has it continued to countenance such a practice? Why has enforcement action not been taken in order to correct the practice? Is this supposed to change with the new regulations, or will it all be swept away under FRMS?

⁹ Final Rule, pp 142-143 (emphasis added)

Since other nations allow pilots to sleep at the controls, as long as the other pilot is cognizant of the situation, that will certainly be one of the first milestones achieved with FRMS. What was constrained by 8 hours of hard time, is now 9, under part 117, and for those city pairs that are 9:15 or 9:30 apart, why not allow the pilots to each sleep 45 minutes to get their “flight time” under 9 hours? After all, isn’t a pilot sleeping 45 minutes and “flying” 8:30 an equivalent level of fatigue risk as a pilot flying 8:55 with no sleep?

The only thing separating us from that reality is the study by some well-paid “expert” showing that it is “equivalently safe” to 9 hours of flight time, or “micro-augmentation,” or that Air Canada hasn’t crashed as a result.

Skeptical? Here is a passage on the issue from the discussion on pilot flight duty limitations:

*Boeing also endorsed the concept of controlled napping. AMA stated that **controlled in-cockpit naps should be “vigorously encouraged,”** but should not be allowed to increase the maximum FDP. In response, the FAA notes that **there is currently insufficient data about whether a controlled nap could safely be taken by a flightcrew member during an actual unaugmented flight.** As such, the FAA is not prepared to regulate for controlled napping as a mitigation measure **at this time.** Once **more data** becomes available, the **FAA may conduct a rulemaking to add controlled napping to the flight, duty, and rest regulations.**¹⁰*

This is what FRMS will allow. FRMS is “data driven” and will be used to justify cutting margins of safety. Ask yourself, if a FCM is required to certify they are not fatigued for purposes of accepting a FDP, how are they supposed to nap in flight? Is this out of necessity, or will the nap be proscribed? Either way, the pilot is expected to bridge the gap. Any fallout from regulatory shortcomings, or dangerous incidents resulting from such double standards will be borne exclusively by the pilot who “affirmatively stated” he was fit for duty.

¹⁰ Final Rule, pg 132 (emphasis added)

If American Airlines can extend its unaugmented reach to 9:30 using FRMS, won't Delta Air Lines and United Airlines immediately petition to do the same?

We all know that political reality has not changed in millennia. Politicians can be purchased and bureaucrats can be pressured. It doesn't matter the era nor setting - Athens, Rome, London, Paris, Moscow, and Washington. How much can FRMS bring on the open market? Can waivers be purchased, just as route authority can? Can the ATA stand-up a carrier for the sole purpose of driving FRMS, and sell that authority to member airlines? If a concept is just not aligning with physiological reality, can it be brought into favor via purchased legislative horsepower?

In the event those efforts fail and a stubborn FAA Administrator is in place, the certificate holders will just resort to the playbook they use when pilot associations elect strident leadership - wait them out and deal with the more "reasonable" successor.

The stated purpose of the FRMS concept is to grant waivers from the regulations, if the carries finds them to be "not optimal."

*...the option of an FRMS provides flexibility for certificate holders to conduct operations using a process that has been approved by the FAA based upon an equivalent level of safety for monitoring and mitigating fatigue for certain identified operations. A certificate holder may decide to use FRMS as a supplement to the requirements adopted in the rule, or **it may use the FRMS to meet certain elements of this rule for which the adopted regulatory standard is not optimal.***

*The FAA has decided to adopt subsections (a) and (b) of the regulatory text as proposed. Subsection (a) provides for a certificate holder to use an approved FRMS **as an alternative means of compliance with the flight duty regulations** provided that the FRMS provides at least an equivalent level of protection against fatigue-related accidents or incidents.¹¹*

¹¹ Final Rule, pp 103-104 (emphasis added)

The level of irresponsibility in this concept is difficult to grasp, even for those of us with a lifetime of dealing with unscrupulous airline executives. This concept is trying to drive down the cost of safety to enhance airline operations and bottom-line concerns - both of which are at odds with a healthy "safety culture." The fact this is codified is truly chilling.

Keep in mind that this is what came out of the process. The opening position of industry must have been unfathomably pathological.

This could be tamed by allowing all parties veto power over the FRMS waiver. While not ideal, this arrangement could serve as a sanity check on FRMS, but industry would not have it that way.

The FAA does not agree with the Flight Time ARC on imposing a requirement that the FRMS must be terminated or suspended if pilot representatives disagree with the program's purpose. This issue is beyond the scope of the NPRM and pilot representatives independently may raise their issues with the certificate holder.¹²

This does not reflect the reality of modern airline labor relations.

Not all pilots are represented by collective bargaining agents, and as such, those who lack such protections are told what they must do or they are terminated without recourse. Those pilots who refuse an FRMS under the protection of their respective pilot associations will simply be given the ultimatum to either fly under the FRMS or the flying will be outsourced to those pilots who will. Fly fatigued or not at all will be the option.

Even if this were not the case, modern interpretation of the Railway Labor Act, and abuses of the various bankruptcy laws, prevent airline management from having to deal with pilots seeking improvement in their working conditions. Arbitrations are pre-stacked, and bad-faith bargaining by management is supported in the modern practice of labor law under the RLA.

¹² Final Rule, pg 107

The collective bargaining process is broken, and that process is about much more than pay rates. This is why OPERATION ORANGE was developed. The entire FRMS concept is the single greatest threat to the pilot profession since the development of the outsourcing operations used by mainline carriers. We were all sold on the idea that those outsourcing operations were designed to develop markets for the mainline and to bring customers to the hubs where the “real flying” takes place. Decades later, we see that the “feeder” operation has supplanted, not enhanced, the mainline. This was done in a reckless fashion by using inexperienced pilots, and under-regulated, shoddy airlines. The serial gullibility of the various pilot associations enabled this.

Fool us once...

FRMS is a concept that needs to be strangled in its cradle. It is not a benign, flexible system designed to ensure safety. It is a vicious system designed to drive profits at the expense of safety, and pilots of all stripes should act accordingly. We are the last line of defense before a disaster, and the defense starts here.

§ 117.11 Flight time limitation.

The FAA introduces several changes to the existing regulations governing the amount of flight time a FCM can accumulate in a given period. These changes include increasing the amount of flight time a FCM can accumulate during a FDP by one hour, in both augmented and unaugmented operations. This is supposedly ameliorated by limiting the length of the FDP, which is another concept introduced in part 117. The FAA also eliminated weekly flight time limitations and requires certificate holders to self-report if their operations exceeded any of the new limits.

Like much of the final rule, there are some good ideas sprinkled in with some bad ideas. Such is how sausage is made in Washington. The emphasis should not be on how to “craft a deal,” but to enhance safety in a reasonable fashion.

The first issue is the entire concept of increasing “time on task” in the interests of reducing fatigue. If the concept seems to be nonsensical, it is because the concept is nonsensical. The FAA has issued “Table A,” which defines the amount of “flight time” (thus the definition in section 117.3) a FCM may accumulate during any given FDP. This is driven by the time of day the FDP starts, where daytime FDPs are allotted an additional hour over FDPs that have a likelihood of flying into or over the WOCL.

Unfortunately, one of the larger pilot associations used 9 hours as its “opener” when discussing increasing flight times. The industry had the presence of mind to open with “unlimited.” The NPRM proposed 10 hours for daytime FDPs and 9 hours for nighttime FDPs. The existing regulations limit all FDPs to 8 hours of flight time.

Since 10 hours was obviously unreasonable, the FAA did go with 9 hours for daytime FDPs and 8 for nighttime.

In the FAA’s defense, it did seek to capture the fatiguing aspects of such an expansion by limiting the length of unaugmented FDPs, although as we shall see, this needs modification to achieve the stated goals.

The comments in the discussion text of the final rule follow a predictable pattern, and rather than exhaustively refute or support every comment, let it suffice to say that industry commentators believed the idea of shortened duty periods for flying over the WOCL were “not based in science,” while pilot advocates asserted that the concept was well founded. The ATA managed to find two doctors willing to contradict almost every long-held, established precept of human performance and circadian rhythms. Their comments, when divorced from the seriousness of the subject matter, are quite entertaining and help to answer lingering questions on where the tobacco industry goes to find doctors that will state cigarette smoking isn’t linked to adverse health concerns. Thankfully, the FAA dismissed many of the findings of the ATA’s sleep specialists.

Some of the findings in the discussion text of the final rule that are important to this discussion are:

In creating a maximum FDP limit, the FAA attempted to address three concerns: (1) flightcrew members' circadian rhythms, (2) the amount of time spent at work, and (3) the number of flight segments that a flightcrew member is scheduled to fly during his or her FDP.¹³

*First, flightcrew members' circadian rhythms needed to be addressed because **studies have shown that flightcrew members who fly during their window of circadian low experience severe performance degradation.** Second, the amount of time spent at work needed to be taken into consideration because **longer shifts increase fatigue.** Third, the number of flight segments in a duty period needed to be taken into account because flying more segments requires more takeoffs and landings, which are both the most task-intensive and the most safety-critical stages of flight. These takeoffs and landings require more time on task, and as pilots generally appear to agree, "flying several legs during a single duty period could be more fatiguing."¹⁴*

*...the FAA finds that, as NIOSH correctly pointed out, studies have shown **that human performance varies significantly depending on the time of day.** Thus, for example, a NASA report on fatigue in flight operations found that "75% of night workers experience sleepiness on every shift, and 20% report falling asleep." To account for these time-of-day-based variations of human performance, Table B sets FDP limits that are higher for FDPs taking place during peak circadian times and lower for FDPs taking place during the WOCL.*

*Studies have also shown that **after a person works for approximately eight or nine hours, the risk of an accident increases exponentially for each additional hour worked.** According to a series of studies that examined the national rate of accidents as a function of the amount of hours worked, **the risk of an accident in the 12th hour of a work shift is "more than double" the risk of an accident in the 8th hour of a work shift.** To account for this data, the flight time limits in Table A restrict a flightcrew member's time on task to either 8 or 9*

¹³ Final Rule, pg 110

¹⁴ Final Rule, pg 111 (emphasis added)

*hours. Because Table A does not allow a flightcrew member's time on task to exceed 9 hours, the maximum FDP limits in Table B permit an FDP that is up to 14 hours, depending on the time of day.*¹⁵

While many areas of the final rule come under harsh critique, one should not infer that the entirety is without merit. The FAA's concept has many sound facets and the idea of limiting duty, based upon workload and time of day, is certainly among them. This is a regulatory imperative that is long overdue.

That being said, the limits on FDPs need further analysis and amendment.

For example, Table B, is constructed to have almost any FDP that originates in the early afternoon operate into the WOCL. This is a function of both the FDP limits in Table B, and the flight time limits in Table A.

If the higher flight time limitations in Table A are restricted to fewer hours, and various FDP limits are reduced in the higher flight segment blocks that are designed to operate within the WOCL, the new Table B looks different. Under our amendments to Tables A and B, WOCL flying is reduced significantly, and is largely restricted to FDPs that originate exclusively for WOCL flying. Please refer to the expanded Table B depictions at the end of Appendix B.

To prevent long periods of "time on task" from combining with the cognitively depressed region of the WOCL, the higher flight time limits associated with daytime FDPs need to be reduced for any FDP operating within the limits of the WOCL. There simply is not a valid reason to extend "time on task" for a daytime FDP when that FDP operates within the WOCL. This is true for any FDP that is governed by the unaugmented limits found in Table B, regardless of the amount of pilots on board the aircraft.

The ability to find consensus for the endorsement of the FAA's new "9 hour rule" was not easy. Our committee was split between an 8 and 7 hour limitation and the 9 and 8 hour limitation. Indeed, arguing for higher limits

¹⁵ Final Rule, pp 115-116 (emphasis added)

in a proposal that is not squeamish about amending the regulatory text, while at the same time advocating higher levels of safety was difficult to square with the obvious. We found common ground in the fact that current regulations are “scheduled,” whereas the proposed regulations are “actual.”

The practice of carriers scheduling 7:59 for flights they absolutely know will be in excess of 8:00 is quite common. Under the current regulations, 7:59 of scheduled time can be 8:24 of actual time, and the FAA is correct in saying that “actual” time is what is fatiguing, not scheduled time. The realities of current regulations and the intentional scheduling fraud countenanced by the FAA do not have a realistic “hard” limit on daily flight time. We already operate in a world where all FDPs are capable of flight times in excess of 8 hours, provided the airlines are not called to account for their unrealistic scheduling practices.

Moreover, it can be truthfully said that the nighttime FDPs will actually need to be reduced under the new regulations, since “8 hours” is now a hard limit, rather than a scheduling target. This still leaves the concern about how 9 hours will result in FDPs with more flight time than the current practice - fraudulent or not.

Rather than push forward without consensus, it was shown that in other areas of the “Fair Treatment Of Experienced Pilots Act - Part 2” the concept of structuring the fatigue regulations in such a manner that financial restraints will be hit long before hard operational restraints will be hit is a primary theme. Marrying compensation and fatigue abatement serves to write fatigue abatement in a language where airline managers have great fluency - money. In the “Pay and Scheduling” section of the proposed legislative draft, airlines will be required to pay “premium” pay to pilots that fly combinations of high numbers of duty periods and flight hours. This premium pay serves as a financial restraint against pushing pilots into fatiguing situations, since fresh pilots are cheaper to fly than pilots with high levels of FDPs and flight time.

If we continue with this concept with respect to, not only monthly flight time and duty time, but also daily flight time, the ability to effectively entice certificate holders to shy away from scheduling up to the regulatory limitations is met. This also serves to solve the problem the FAA has openly

admitted it has purposefully failed to address, since operating in vicinity of hard limitations will now carry an immediate financial penalty.

The solution is simple: any time a FCM operates an unaugmented FDP in excess of 8.000 hours, the certificate holder will pay the pilot an additional hour of premium pay, regardless of how long over 8.000 hours the FCM accrued flight time. 7:58 hours of block time will cost the certificate holder 7:58 minutes of pilot compensation. 8:01 will cost the certificate holder 9:01. 8:59 will cost the certificate holder 9:59.

Since the various airlines are willing to commit intentional fraud, for the purposes of reducing payroll, we believe this is an effective way to create soft limits they will respect.

§ 117.15 Flight duty period: Split duty.

The objections we have with the FAA regulations on split duty descend from the intentional safety reducing aspects of the entire concept of split duty, when compared to installing a fresh crew. We understand and acknowledge that increasing manpower to accommodate an overnight split duty period is undesirable for the industry.

The inconvenient fact remains that these split duty periods are used almost exclusively by cargo carriers, and that its sorting activities occur at places co-located with pilot domiciles. It is unrealistic to believe cargo sorting takes place in random places, and that pilots cannot be scheduled to originate duty periods to carry out the “second half” of the schedule. If the second part of the split period is short enough, the crew that performed the first part is capable of continuing. If the second half is too lengthy for the original crew, prudence dictates that a fresh crew is, by far, the safer option.

Safety costs money. It always has, and always will.

The pattern of the discussion in this section is consistent with the patterns in other discussion areas: industry objects to safety regulations and questions the science behind them, whereas operators request a greater margin of safety.

In this section, ALPA-FEDEX stated that a minimum of 4 hours is necessary until the science behind “split sleep” (naps) is more settled¹⁶. This should carry much weight, since these are the human beings that will be asked to extend their over-WOCL duty periods in accordance with industry wishes. FAA bureaucrats, airline accountants, gun-for-hire “sleep experts,” and industry lobbyists will not be operating hundreds of millions of dollars of high performance capital equipment in and out of foggy destinations on 2 hours of sleep. These people will be sitting in judgment and running damage control when an MD-11 lands long and leads the news cycle for the next 36 hours.

The so-called “experts” are people who have read various studies and conducted experiments with human lab rats. The genuine experts are the professional pilots that do this every week, for years on end, and who know their limitations. These are the people that will die if the science behind reduced split sleep is faulty or outcome-based.

There is no reasonable scenario where passenger operations necessitate WOCL napping to continue a FDP. Passengers do not shuttle to and from airports during their WOCL, so the loading and sorting parallels do not exist with the cargo carriers. At least there is a rational excuse to consider cargo-based split duty, whereas no excuse exists for passenger operations.

The FAA wisely constrained split duty to over-WOCL operations, since it would be a naked productivity grab if such an arrangement were to exist during daytime operations. While we do advocate “one level of safety” among cargo, mainline passenger, and outsourced passenger operations, we understand this provision has special applicability with cargo operations, and can countenance a separate standard. That being said, such split duty provisions should err on the side of prudence, and specifically eliminate its applicability to scheduled passenger operations.

The text has been amended accordingly to reflect the non-applicability to passenger operations.

¹⁶ Final Rule, pg 179

§ 117.17 Flight duty period: Augmented flightcrew.

Much was made of the distinction between the pilots occupying control seats during the landing. Through reasoning which is not quite clear, especially in light of the realities of a fully integrated crew concept, we are left to wonder why the “non-flying” pilot is not required to have the same rest as the “flying” pilot.

The modern part 121 crew concept does not distinguish between individual effort and that of the team. Both pilots are responsible to each other for the safe handling of the aircraft.

The non-flying pilot is just as valuable and the duties assigned to him are just as prone to cognitive erosion, if not more so, as those assigned to the flying pilot. This is especially true if the non-flying pilot is the captain. It is important for the non-flying pilot to provide a full backup to the flying pilot and stand ready to take control of the aircraft, in the event the flying pilot becomes disoriented or fixated. The only way the non-flying pilot can see the potential hazards coming in a timely fashion is to be as refreshed as the other pilot.

The provision to reduce the amount of rest required for the non-flying pilot, especially in the context of a FRMS, is borne of bean counters, not safety experts.

Those who crafted this provision failed to ask themselves what would happen if the crew planned for Pilot A to be the “flying pilot” and Pilot B to be the “non-flying” pilot, and for reasons that did not present themselves until the approach phase of the flight, Pilot B needed to assume the “flying” duties. If the rest provisions were inadequate to make the switch, the PIC is now in a position of being forced to declare an emergency, in order to deviate from the applicable FARs.

Is this the intent?

Both pilots occupying a control seat during landing need the same rest, just as they need the same qualifications. The text has been amended accordingly.

Adding Augmentation For Problematic Rest Periods.

Lengthy longitudinal transits over the WOCL, combined with the scheduling conveniences of part 121 operations often yield an undesirable rest period, where the FCM is asked to rest twice in a period unsuitable for dual rest. If the rest period was shortened, the FCM could both recover and prepare simultaneously; lengthier rest periods afford a period for recovery and a period for preparation.

This was pointed out by OPERATION ORANGE in our “Fatigue Mitigation Response,” published on OPERATIONORANGE.org in October of 2010. The relevant discussion follows.

The General Discussion [NPRM] tangentially mentions the problem with long duty periods broken by a layover that is not long enough to fully recover and prepare for the next duty period. At issue is when pilots are required to fly into their WOCL and sufficient restorative or preparatory sleep is not available. This is seen during flights commonly known as “redeyes,” or flights that typically move Eastbound late at night to arrive at their destination in the early to mid morning. This problem is compounded by operational requirements necessitating a layover of approximately 24-28 hours.

A typical example would be a flight leaving a mid-continental hub with Hawaii as a destination. These operations are sensitive to passenger travel preferences with the Westbound leg originating mid-morning and arriving in Hawaii in early afternoon. This allows passengers opportunities to arrive at their resort destination during reasonable hours. The return leg is dictated by the same features, as passengers need time to depart their destinations during normal hours to arrive for their mainland flight. These flights typically leave in the late afternoon/early evening and arrive at the mid-continental hub in the early morning.

The aircraft arriving in Hawaii in the early afternoon will be serviced for the next few hours and prepared for the return leg. The pilots who arrived in mid afternoon will typically retire in the early evening, sleep a full night, and then rise in the early morning, which is

mid/late morning on their normal circadian clock. Those crews now have approximately ten hours before they report for a full night's duty back to the Central Time Zone, which depending on the time of year is either a 4 or 5 hour differential. The leg requires a duty period anywhere from 9 to 11 hours and will fly over the entirety of the WOCL.

The crew is conducting the terminal phase of flight after being awake for 21 hours and having worked through the entire WOCL, which is the exact scenario we are told is highly fatiguing.

The crew could ameliorate the fatigue by taking a mid-afternoon nap and then recovering from the trip while at home, but that nap falls short of the standard for pre-duty rest for crew pairings assigned by the certificate holder. In fact, any similar operation, especially one that has a large longitudinal transit, will encounter similar problems. Pilots can easily recover and prepare for long duty periods if the scheduled rest period is between 11 and 18 hours, as recovery and preparation are done simultaneously. Additionally, pilots can recover and prepare if the rest period is generally over 33 hours, as they can have two full nights of sleep.

Operational realities of passenger air transportation normally assign 24 to 28 hours of rest, due to aforementioned scheduling priorities, which allow pilots to either fully recover, or fully prepare, but not both. As mentioned earlier, augmentation is used to bridge the resting requirements of human physiology with the operational realities of passenger air transportation, and this is a place where more pilot augmentation is necessary.

We petition that any two consecutive flight duty periods in the same crew pairing, which are greater than 6 hours each, with an intervening rest period less than 33 hours but greater than 18 hours, and which either flight duty period penetrates the WOCL (0100-0559) by more than 90 minutes, or any penetration for duty periods in excess of 8 hours, have augmentation in the manner currently practiced for duty periods with 8 to 12 hours of "hard time" for the flight duty period which operates within the WOCL.

*This allows for pilots to recover and prepare for longer duty periods, reduce the incidents of chronic fatigue, and have an extra pilot in the cockpit for the critical phases of flight. It would exempt the vast majority of domestic duty periods because the WOCL is rarely penetrated and most domestic operations are sufficiently flexible to avoid 18-33 hour layovers.*¹⁷

We have added text covering this scenario, as it has been missed by pilot associations, regulators, legislators, and management.

The subject of augmentation is well discussed in the final rule, but industry continues on its reckless campaign to codify productivity grabs and completely disregard safety. As we have said before, augmentation should be for the sole purpose of bridging the incongruencies between human sleep physiology and global airline operations. It should never be allowed for purposes of cramming two flight duty periods into one, or lengthening flight duty periods when other crewmembers are available for relief.

The industry has proposed, and the FAA has allowed, certificate holders to schedule augmented flight duty periods for domestic operations. The reasoning is that flying across a political border does not induce fatigue, so why not allow augmented FDPs whenever scheduling considerations warrant?

Pilot associations rightly oppose such a preposterous arrangement, as does Captain Sullenberger. For domestic operations, the availability of replacement crews, along with the flexibility of the operation, do not justify an arrangement whose purpose is to bridge the fatiguing nature of long-haul flying with the physiological limitations of human operators. Domestic augmentation is nothing more than poor operational risk management, and the precipice of the slippery-slope of FRMS to eventually gain presently unthinkable limitations on flight/duty time.

We see this for what it is.

¹⁷ OPERATION ORANGE, *Fatigue Mitigation Response*, www.operationorange.org/fatigueresponse.pdf, pp 14-15

If management is so concerned about augmenting domestic flying, they are welcome to do so, as it would be unreasonable to tell them they are not allowed to augment a flight of their choosing. However, they should not be allowed to avail themselves to the FDP and flight time extensions allowed by such an arrangement, since the purpose is to extend flight duty periods when fresh crews are reasonably available.

The FAA is correct that ATL-MEX is a shorter length than PDX-MIA. MIA-GCM, LGA-YYZ, and JFK-STT are all relatively short flights, for which augmentation is not necessary. Augmentation for LAX-BOS is only needed if the airline wishes to operate a return segment, collect FRMS data, and eventually operate BOS-LAX, LAX-BOS as a single, unaugmented FDP.

Accordingly, the text has been appended to reflect this reality. To use Table C, and flight times in excess of unaugmented limits in Table A, the FDP shall not both originate and terminate within Canada, the continental/contiguous United States, Mexico, Bermuda, Bahamas, or the various Caribbean islands.

§ 117.19 Flight duty period extensions.

Unforeseen circumstances are quite common when operating scheduled flight operations, and reasonable allowances should be made for a certificate holder to recover the schedule. Pilots also wish to stay on schedule, as predictability is a rare luxury in their line of work.

Once again, we need to distinguish between augmented and non-augmented operations, and whether or not the FDP extensions will increase time spent operating within the WOCL.

The decision to change the frequency of FDP extensions from once per rolling 168 hour period to once between 30 hour rest periods is a system that will invite abuse from an industry with a rich history of such abuses. By governing such extensions by 168 hours, both the 30 hour rest period is met, along with a defined time to entice certificate holders away from scheduling practices reasonably shown to invite extensions. If a 30 hour

break is all that is needed prior to another aggressive scheduling event, the certificate holder will be able to schedule up to three per week, just as SkyWest (a high frequency, regional airline) requested.

The requirement for justification of the FDP extension is not sufficient to incentivize a certificate holder away from such practices. It will just generate more paperwork for low-level schedulers and FAA inspectors. Unless a viable and reliable sanction comes with being a “frequent flyer” of FDP extensions, this is nothing more than an administrative burden that will be borne over the cost savings of aggressive scheduling. If the FAA did not police the intentional fraud of carriers scheduling 7:59, knowing they would be well in excess of such limits, it is not a persuasive argument that the FAA will reliably enforce an unspecified corrective action called for within this section.

Prohibition of unaugmented FDP extensions into the WOCL, or on high-cycle FDPs serves to keep the duty time limitations in Table B within the original fatigue abatement mandate. By allowing two additional hours, FDPs originating in the early/mid afternoon, which presently are unable to reach within the WOCL, will find that their most cognitively intensive segment occurs during the period of maximum performance degradation. Rather than making Table B overly complex to reflect a two hour variable, it is administratively less complex to simply prohibit extensions into the WOCL.

Flight duty period limitations and extensions may result in unintended consequences of requiring FCMs to remain at hotels when there is no further work to be done. This would cost the FCM time and the certificate holder the expense of lodging and transporting the FCM.

It is possible that a crew pairing is constructed in a manner where the last flight segment is either scheduled deadhead transportation taken as “stand-alone” deadhead transportation in its own FDP, or the last flight segment that was cancelled for operational or marketing concerns. It would be pointless to keep a FCM in a hotel room for no other reason than to satisfy fatigue regulations that offer no further benefit to the public, FCM, or the air transportation system.

To provide for an extension of a FDP, for the sole purpose of returning a FCM to his or her home base/domicile, or airport associated with his or her residence, specific text in the regulations is warranted.

It is important to note that the text is constructed to prevent returning the FCM for purposes of starting a new crew pairing, FDP, or ground-based training/administrative activities earlier than would be permissible without the extension. The extension is also done at FCM request, and cannot be forced upon the FCM. This also prevents a certificate holder from attempting to schedule the extension as part of their regular operations.

Additionally, no FCM should be subject to coercion of any form for not accepting a FDP extension. The SIC is just as prone to fatigue and just as responsible to report well rested and fit to complete the FDP. An extension may not be acceptable for reasons that have not weighed upon the PIC.

As before, language has been inserted to protect the FCM, in the event he or she refuses an extension of the FDP.

§ 117.21 Reserve status.

Reserve categorized as “airport standby/immediately assignable” reserve is the most restrictive form of reserve for the FCM, and the most fatiguing, since the FCM has the least amount of control over his surroundings and events. Once a certificate holder assigns such duty, it can only be stopped in the same manner any other FDP is stopped - by releasing the FCM into a legal rest period.

The existing text is unclear on this point, as a certificate holder could release the FCM into another form of reserve, and then reduce its exposure to “flight duty” into some other form of “duty” or even the specific lack of “duty” of “long-call/assignable” reserve. This is a wrinkle in the text that needs to be ironed out.

The proposed text also clearly defines “short call” reserve as duty, because that is the most descriptive term for how the FCM is responsible to the certificate holder. If the certificate holder were to contact the FCM in “short

call” reserve, and the FCM responded to the call by reporting he is unable, due to being preoccupied with a child’s sporting event, desire to attend a Christmas party, intoxicated, etc., the certificate holder would rightly bring about disciplinary action to remedy the condition. The condition was failing in his duty to being prepared to accept an assignment in accordance with the applicable collective bargaining agreement.

The various types of duty specific to the differing categories of reserve needed to be clearly delineated, lest a flurry of arbitrations attempt to clarify the definitions.

The FAA dismissed the concern over the shifting of reserve availability periods, since it provides for rest per section 117.25(e). This is unpersuasive argument for not limiting shifting of reserve.

“Short-call” is done within the context of a defined availability period, and as any pilot familiar with this form of reserve knows, the most likely scenario for utilization occurs in the early hours of the availability period. Once the initial few hours pass, the FCM becomes increasingly less useful to the certificate holder, since any assignment will need to be shorter and shorter to confine itself to the restraints of the availability period. This is why certificate holders schedule many layers of availability periods and assign them to different FCMs, ensuring that there is always someone available for lengthier duty periods.

By allowing a certificate holder to “reset” a reserve FCM every 10 hours, they could reduce staffing by having a FCM start an availability period, and when the initial hours have past without an assignment, release the FCM into a rest period, and reassign him an availability period later in the same day. This can go on indefinitely, and would greatly reduce the amount of “duty” the FCM accrues.

Example: FCM is assigned a RAP with a beginning of 0400 and a termination at 1759. FCM retires at 2030 and falls asleep around 2115. At 0600, the FCM wakes when the certificate holder contacts the FCM and releases him to a rest period per 117.25(e), and a new RAP at 1600. This is done for the purpose of keeping the FCM asset viable for another duty period, since the early morning bank of departures were adequately staffed,

but uncertainty still remains for the later evening departures.

The FCM now is required to rest for 10 hours, of which the entire period is *available* for a sleep *opportunity*. Due to physiological constraints, the FCM is unable to sleep, as he just finished sleeping for almost 9 hours.

The certificate holder notifies the FCM at 1915 that he is required to report for an unaugmented, 2 segment FDP beginning at 2150 and scheduled to terminate at 0825. The FCM must now, according to § 117.5(b), decline the FDP, and explain to the certificate holder why, after 20 hours of rest in the past 22, he is fatigued.

The airline notes this incident marks the third time in the calendar year this particular FCM has reported fatigued, and initiates disciplinary proceedings. The certificate holder maintains that other FCMs are similarly scheduled, have not reported fatigued, and that company wide fatigue calls are down significantly since a new fatigue abuse tracking system was installed. Had the certificate holder been restricted from scheduling another RAP until 2400, and had notified the FCM by 1400, the FCM would have had a reasonable, but less than ideal chance to achieve some meaningful rest prior to the start of the next RAP.

Certificate holders have a powerful incentive to shift RAPs in a manner not conducive to rest, and must be prevented by regulation from doing so. By limiting the start of subsequent RAPs to 20 hours after the beginning of the previous RAP, there can be some semblance of an alignment between the operational tempo of the certificate holder and human physiology.

For the same reasons listed in the above scenario, a FCM on “long call” reserve needs to be afforded protections against report times which are not aligned with his or her sleep period. “Long call” reserve does not count against the FCM’s “duty” limitations, since it affords the FCM the greatest flexibility in ordering his activities.

If a call comes in immediately after the FCM’s sleep period, and requires a report time 12 hours later, the FCM will be likely be fatigued during the FDP. If the FCM is allotted an 18 hour lead on an impending FDP, he has the ability to rest prior to reporting for the FDP. Should this call come hours after the sleep period, it may be beneficial for all if the 18 hour lead time

was reduced to 12 hours. The FCM will be cognizant of what time he or she can report for the assignment, and should be able to waive part of the rest period, if the situation calls for it. Since the FCM is not in any given sleep/awake schedule, it is entirely at the discretion of the FCM when sleep occurs. As such, since the certificate holder has no reasonable way of tracking such decisions, the notification is largely a random occurrence.

Since this is an area outside the control of the certificate holder, and the certificate holder may benefit from reduced notification time, the potential exists for coercion. The FCM must be protected from such coercion in a manner similar to other areas where a certificate holder has an incentive to trump self-assessment authority.

In instances where a FCM in “long call” reserve is assigned a RAP, the same 18-12 hour rest requirements apply, since a FDP may begin at the onset of the RAP. To allow shorter lead times for RAPs, a loophole would exist allowing the certificate holder to accelerate the report time of a FCM by assigning a shorter rest period for the RAP, and then immediately assigning a FDP from the RAP.

§ 117.23 Cumulative limitations.

The FAA removed the weekly flight time limitations, while keeping the daily, monthly, and annual flight time limitations. We are told this was due to the new cumulative “duty” limitations serving as an effective governor on fatigue of this sort.

This regulation serves to limit the amount of weekly flying a pilot can perform, with a second crew pairing often being dropped due to the illegality of scheduling a pilot to exceed the weekly 30 hour limit. With this removed, the certificate holders will not need to staff additional pilots to perform the flying. Very few conflicts presently exist due to daily, monthly, and annual flight time limitations, and with “preferential bidding systems” being imposed in bankruptcy proceedings, the only remaining “conflicts” the airlines have to manage are those due to “30 in 7.” We would like to think this has nothing to do with the certificate holders not wishing to lose availability of pilots due to “30 in 7” limitations of the present regulations.

Under the new regulations, there is nothing stopping a FCM from accumulating 54 hours in a 7 day period. This is an 80% increase over the present regulations. It is flatly unreasonable to believe this is anything other than a naked productivity grab and a serious departure from the stated goal of reducing fatigue.

Two fatigue metrics are required because fatigue can come two ways. Efficient scheduling would be capped by weekly flight time limitations (time on task), and inefficient scheduling/reserve would be capped by weekly “duty” time limitations (time not resting).

Four duty periods, each having 8 hours of flight time, brings the FCM to 32 hours. If two additional hours are allotted for contingencies, 34 hours becomes a reasonable limit. The same can be said for augmented FDPs containing 10 hours of flight time.

Weekly flight time limitations have been inserted to reflect this need and have been increased, primarily due to the weekly duty limitations imposed by the new regulations. To hit the higher flight time limitations, certificate holders will be required to schedule efficiently.

§ 117.25 Rest period.

The discussion concerning the time the rest period starts followed the usual pattern, with industry groups stating they have little control over when a crew arrives at a hotel or suitable accommodation and wanting actual rest to be scheduled rest. Pilot associations favored an approach by measuring rest according to the actual time spent at the hotel or suitable accommodation .

This is only applicable to the regulatory standard when the rest period is at its minimum. When longer than required rest periods are scheduled, there is little fuss over fractions of an hour lost to traffic, unreliability of transportation, post-flight obligations, etc. Asking crew members to bear the burden of truncated rest periods is not consistent with the new approach to rest being measured by actual conditions.

Additionally, the FAA specifically excludes transportation to and from a suitable accommodation as being deadhead transportation, while at the same time not defining such transportation as duty. Since the mark of the beginning of the rest period is when the FCM is released from “duty,” we are left to conclude the industry advocates prevailed in the argument and such transportation is now included in the rest period. Under the FAA’s definition of flight duty period, the FDP begins when required to report for duty, which would not include transportation to the airport from a suitable accommodation. Whether intentional or not, this will be the interpretation of the various airlines, and the text needs to reflect this oversight to prevent “scheduled” rest, as is practiced in the current regulatory paradigm.

Putting the onus on the FCM to only require an 8 hour sleep opportunity will necessarily truncate the time allotted for other rest activities, such as nourishment, hygiene, “wind-down,” and exercise. This is how chronic fatigue builds.

Certificate holders track every aspect of a flight duty period. They keep massive data bases on average taxi-out, taxi-in times, as well as knowing, to the minute, how long a given flight segment will likely last. They can accurately predict the differences between ground times for weekends vs. weekdays, and flight segments during winter vs. summer. This is how they generate the data for federal judges when they believe pilots are engaging in illegal slow-downs. It is not unreasonable for them to likewise build a data base on average transit times to and from the hotels they choose. If they incurred frequent next-day delays, due to underestimating transit times, they will adjust the times and reschedule. As long as the pilots absorb the difference, the airlines will not change their schedules.

This provision is nothing more than taking undue advantage of the “mission hacker” proclivities of the average airline pilot.

The FAA has imposed a single standard for pre-FDP rest in § 117.25(b). It has declined to provide for additional rest for crews arriving in a new theater, or operating within the WOCL. Its primary justification for such descends from its belief that the 30 minute penalty imposed in the limits in Table B account for the lack of acclimation. However, this provision does nothing to provide rest. It only shortens the subsequent duty period by an

amount the certificate holder can extend without generating any notification to the FAA, nor incurring any penalty going forward for extending a FDP. The slight-of-hand reads thusly:

*The adopted regulations providing FDP limits for augmented and unaugmented operations address acclimation. For an unacclimated flightcrew member, the maximum flight duty period in Table B is reduced by 30 minutes and the flightcrew member enters the applicable FDP table based on the local time at the theater in which the flightcrew member was last acclimated.*¹⁸

*An extension in the flight duty period under paragraph (a)(1) of this section of more than 30 minutes may occur only once prior to receiving a rest period described in § 117.25(b).*¹⁹

In reality, there is no truncation of a FDP by 30 minutes. The certificate holder only loses its ability to extend by 30 minutes without self-disclosing to the FAA. Keep in mind that this only applies to the outer limits of the FDP, not the scheduled FDP.

Since the regulations do not provide other meaningful accommodations for an unacclimated FCM, the rest period should be extended to a minimum of 13 hours and remain so until the FCM is acclimated, at which point rest dictated by § 117.25(b) applies. This gives the FCM the ability overcome the greater disturbance of time zone desynchronization by effective wind down, nourishment, exercise, and sleep.

The same principle also applies for FCMs that have operated through their WOCL, as the body has absorbed a far more fatiguing set of circumstances, and by extending the rest period in the short-term, longer-term building of chronic fatigue can be avoided, or at least ameliorated. Under the new regulations, the FAA only presumes acute fatigue, when their own document to airmen on the subject addresses both acute and chronic fatigue.²⁰

¹⁸ Final Rule, pg 226

¹⁹ § 117.19(a)(2).

²⁰ Federal Aviation Administration, *Aeronautical Information Manual*, Section 8.1-1-1.e.3, 8/25/2011

Table B to Part 117—Flight Duty Period: Un-augmented Operations
(expanded for every hour)

Time of Start (acclimated)	Maximum Flight Duty Period (hours) for Lineholders Based On Number of Flight Segments						
	1	2	3	4	5	6	7+
200	9	9	9	9	9	9	9
300	9	9	9	9	9	9	9
400	10	10	10	10	9	9	9
500	12	12	12	12	11.5	11	10.5
600	13	13	12	12	11.5	11	10.5
700	14	14	13	13	12.5	12	11.5
800	14	14	13	13	12.5	12	11.5
900	14	14	13	13	12.5	12	11.5
1000	14	14	13	13	12.5	12	11.5
1100	14	14	13	13	12.5	12	11.5
1200	13	13	13	13	12.5	12	11.5
1300	12	12	12	12	11.5	11	10.5
1400	12	12	12	12	11.5	11	10.5
1500	12	12	12	12	11.5	11	10.5
1600	12	12	12	12	11.5	11	10.5
1700	12	12	11	11	10	9	9
1800	12	12	11	11	10	9	9
1900	12	12	11	11	10	9	9
2000	12	12	11	11	10	9	9
2100	12	12	11	11	10	9	9
2200	11	11	10	10	9	9	9
2300	10	10	10	9	9	9	9
0	9	9	9	9	9	9	9
100	9	9	9	9	9	9	9







-  originates within the WOCL
-  does not operate within the WOCL
-  terminates within the WOCL - likely flight time limited
-  terminates within the WOCL - likely duty period limited
-  high likelihood of terminating in WOCL
-  operates over the entire WOCL

Table B to Part 117—Flight Duty Period: Un-augmented Operations
 (as amended by OPERATION ORANGE, expanded for every hour)

Time of Start (acclimated)	Maximum Flight Duty Period (hours) for Lineholders Based On Number of Flight Segments						
	1	2	3	4	5	6	7+
200	9	9	9	9	9	9	9
300	9	9	9	9	9	9	9
400	10	10	10	10	9	9	9
500	12	12	12	11	10	10	10
600	13	13	12	12	11.5	11	10.5
700	14	14	13	13	12.5	12	11.5
800	14	14	13	13	12.5	12	11.5
900	14	14	13	13	12.5	12	11.5
1000	14	14	13	13	12.5	12	11.5
1100	14	14	13	13	12.5	12	11.5
1200	13	13	13	13	12.5	12	11.5
1300	12	12	12	12	11.5	11	10.5
1400	12	12	12	11	11	11	10.5
1500	12	12	12	11	10	10	9
1600	12	12	12	11	9	9	9
1700	12	12	11	11	9	9	9
1800	12	12	11	11	9	9	9
1900	12	12	11	10	9	9	9
2000	12	12	11	10	9	9	9
2100	12	12	11	10	9	9	9
2200	11	11	10	10	9	9	9
2300	10	10	10	9	9	9	9
0000	9	9	9	9	9	9	9
0100	9	9	9	9	9	9	9