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NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Colgan Operations Bulletin FOPPM #09-001
Subject: Crewmember Fatigue

(4 Pages)



OPERATIONS BULLETIN FOPPM # 09-001

TO: All Users of Colgan Air's Flight Operations Policy and Procedures Manual (FOPPM)

FROM: Director Flight Operations

SUBJECT: Crewmember Fatigue

ISSUED: 04-29-2009

EFFECTIVE: Upon Receipt

BULLETINS IN EFFECT: 08-001; 08-002; 08-003; 08-004; 09-001

ASSOCIATED BULLETINS: None

INSTRUCTIONS:

Insert Bulletin #09-01 in front of the FOPPM

PURPOSE:

Safety of all employees, safety of flight, employee welfare, and overall good health of all employees, are key concerns to Colgan Air. Managing fatigue is one of the most critical elements of maintaining a safe operation. Recognizing fatigue and its effects on human performance is important, but preventing fatigue is equally essential. The purpose of this bulletin is to educate crewmembers on what causes fatigue, how to recognize the signs of fatigue and how fatigue affects performance, and how to combat fatigue by properly utilizing periods of rest.

COLGAN FATIGUE POLICY

The Colgan Dispatch Release requires that each Captain confirm that he or she is "physically qualified for this flight." In signing this Release, the Captain is certifying that he or she is not fatigued and is otherwise physically capable of completing the flight safely. While other crew members do not sign the Dispatch Release, it is also a violation of Colgan policy for any crewmember to conduct a flight when fatigued or otherwise physically incapable of completing the flight safely.

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Colgan Air recognizes that there may be occasions and/or circumstances where a Crewmember's ability to accept or complete an assignment is altered by fatigue. While our concerns are oriented to serve safe operations, we need to review all of the known factors which have led to a call of Crewmember fatigue and any resultant operations impact. This information will facilitate the development of fatigue history and identify factors which led to fatigue. We can then evaluate fatigue and its relationship to operational considerations which

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may improve our planning and prevent recurrence. When a Crewmember is unable to complete an assignment or reassignments because of fatigue, he/she must accomplish the following:

- Immediately notify SOC and the Operations Duty Officer.
- Complete the Crewmember Fatigue Form. Within 24 hours of being released from duty because of declared fatigue, FAX or deliver the completed form to the Chief Pilot or Duty Officer at: (703) 331-3116.

CAUSES OF FATIGUE

Fatigue is most often the result of a lack of sufficient sleep for the body and brain to rest and recharge itself. The amount of sleep necessary for good health maintenance varies among all individuals, and also can vary depending on the activity performed prior to that sleep. A normal day of activity might require six hours of sleep for an individual, but a day of heavy physical activity might require seven or even eight hours of sleep for the body to recharge. Whatever the amount of sleep required, if the body receives less than needed, a sleep deficit occurs.

A sleep deficit is also cumulative. That is, if you lose an hour of sleep each night for six days in a row, your cumulative sleep deficit at the end of the week is like missing an entire night of sleep, and your body will need to 'catch up'. Many people never quite catch up with lost sleep and as a result, spend much of their waking time in a sleep deficit state, often with a lack of alertness to do their jobs to the best of their abilities.

A second cause of fatigue is an interruption of the body's 'circadian rhythm', which is the body's self-regulating internal clock. This causal factor for fatigue is often associated with a changing schedule that requires the body's natural rhythms for sleep or wakefulness to be interrupted by working at times of the day outside the normal range. Most often, an interruption of circadian rhythms is caused by working during periods in the night instead of normal daylight hours, but circadian rhythms can also be upset by crossing time zones, and traveling overnight, whether flying as a crewmember or a passenger. If the circadian clock is moved to a different schedule, for example when crossing time zones or changing from a day work shift to a night shift, the resulting "sleep phase shift" requires a certain amount of time to adjust to the new schedule. This amount of time depends on the number of hours the schedule is shifted, and the direction of the shift. During this transition, the circadian rhythm disruption or "jet lag" can produce effects similar to those of sleep loss.

Transmeridian flights across time zones can result in significant circadian rhythm disruption. When flying in a westerly direction the pilot's day is lengthened. When flying east, against the direction of the sun, the pilot's day is shortened. Thus the physiological time and local time can vary. Symptoms of jet lag are usually worse when flying from west to east as the day is artificially shortened. It takes about one day for every time zone crossed to recover from jet lag. When circadian disruption and sleep loss occur together, the adverse effects of each are compounded.

RECOGNIZING FATIGUE AND ITS EFFECTS ON PERFORMANCE

Fatigue is a threat to aviation safety because of the impairments in alertness and performance it creates. "Fatigue" is defined as "a non-pathologic state resulting in a decreased ability to maintain function or workload due to mental or physical stress." Several studies of fatigue have been made during the past 60 years with similar general observations:

- As fatigue increases, the body's motor responses slow significantly, and reaction time deteriorates.
- As fatigue increases, so does forgetfulness, irritation, and poor communication.

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- Poor decision-making may occur, as well as mistakes in judgment.
- Comprehension difficulties can also occur, which could lead to fixation.
- Vigilance may be reduced.
- Mood swings can occur.

One of the most insidious aspects of fatigue is that we do not easily recognize the effects in ourselves right away. We may not even recognize the effects in our co-workers, which means a fatigued crew may not realize the effects of fatigue in themselves or others in the crew because they are all suffering from the same impairment. Fatigue and sleepiness may be less evident to a pilot due to stimuli such as noise, physical activity, caffeine, nicotine, thirst, hunger, excitement, and interesting conversation. Sleep-deprived pilots may not notice sleepiness or other fatigue symptoms during preflight and departure flight operations. However once underway and established on altitude and heading, sleepiness and other fatigue symptoms tend to manifest themselves.

As fatigue progresses, episodes of "microsleep" occur, which are involuntary sleep lapses lasting from a few seconds to a few minutes. These absences of concentration can have significant hazardous consequences in the aviation environment. Fatigue can also mimic the effects of alcohol. Being awake for 17 hours can have a similar effect to having a blood alcohol level of .05% in terms of reaction times and judgment.

When you are fatigued and unable to perform your duties as a crewmember, it is imperative that you acknowledge your physical limitations and declare yourself 'Fatigued'.

COMBATING FATIGUE BY EFFECTIVELY UTILIZING REST

There are some significant steps that a pilot can take to avoid fatigue prior to reporting to work and to counter fatigue while working.

First and foremost is to ensure sufficient quality sleep is achieved during rest periods. There is no substitute for sleep when recovering from fatigue, but the quality of the sleep is extremely critical. In order to assure good sleep,

- Avoid eating large meals prior to going to sleep.
- Avoid using products with caffeine, including cola beverages.
- Avoid nicotine.
- Avoid alcohol three hours or less before sleep. Although alcohol may initially help you go to sleep, it can inhibit deep sleep and cause sleep disruption.
- Vigorous exercise more than three hours in advance of sleep can help achieve a deeper sleep, but exercising less than three hours prior to sleep can have the adverse effect of inhibiting sleep due to adrenaline and elevated body temperature.
- When in a hotel, close curtains, keep the room dark, turn off cell phones and other devices that could interrupt your sleep.

- Ensure you plan at least six hours of sleep, and more if your personal routine normally requires it for optimum performance.

In order to counter fatigue while working, several techniques are helpful:

- Drink plenty of water and stay hydrated. Dehydration intensifies fatigue.
- Maintain physical activity as much as possible. When between flight segments, walk around to refresh alertness.
- Keep the cockpit temperature low.
- Snack occasionally to keep blood sugar elevated.

And last, it is imperative that every crewmember reports to work rested, refreshed and ready to begin his or her duty day, especially after having had days off. Although commuting from a remote home to a base is a common practice, it is incumbent on all airline professionals to plan their commuting trip to allow themselves ample time to rest and recover from their transit to Base. This is a significant requirement for crewmembers traveling across time zones or traveling overnight to be in position for the next day's flights. **COMMUTING TO ARRIVE AT A BASE WITH EITHER INSUFFICIENT REST TO PREPARE FOR FLIGHT DUTIES, OR TO ARRIVE WITH MINIMAL TIME BEFORE A DUTY DAY BEGINS IS INAPPROPRIATE FOR YOUR RESPONSIBILITIES AS A PROFESSIONAL PILOT!**

Colgan maintains a policy of non-punitive action for declaring fatigue. Fatigue Reports will be forwarded to the Safety Department only, and any pilot who feels there is a potential punitive action pending for a declaration of fatigue should contact the Safety Department immediately. Although all crewmembers have an obligation to utilize rest periods to be ready for duty, Colgan will not penalize anyone for utilizing the option of declaring fatigue. Your safety and the safety of your co-workers and passengers demands that you prepare yourself for duty by ensuring you take full advantage of rest periods. There is no substitute for the highest levels of safe operations.

PROCEDURE:

When a Crewmember is unable to complete an assignment or reassignments because of fatigue, he/she must accomplish the following:

- Immediately notify SOC and the Operations Duty Officer.
- SOC will immediately remove the fatigued crewmember from all duty.
- Within 24 hours of a fatigue notification a crewmember must submit a report on colganairsaftey.com or complete the Crew Member Fatigue Report found in the FOPPM, page 3-125 within 24 hours and fax to (703) 832-0069.

For any questions regarding this Bulletin please contact the Chief Pilot, the Director of Flight Operations, the Vice President of Flight Operations, or the Safety Department.