



Case Study - It's a long way from Tipperary

By Bengt Collin, EUROCONTROL

Eight months earlier

The Controller was sitting in front of the computer, a battered old grey desktop with one of those bulky 14-inch monitors. The room was warm; at least the heating is working in this old part of the building. Apart from Susan sitting on a brown sofa reading a book at the opposite end of the room, he was alone. Susan was constantly reading philosophy books such as Plato; he preferred the Swamp cartoon magazine instead. But she was OK as long as she did not discuss anything with him.

He clicked himself through a questionnaire. It was one of those multiple-choice type questionnaires which was part of the yearly periodic training he had to pass to keep his licence valid - boring if you asked him. The questions were available weeks ahead of the test, but as usual, he waited until the very last day to practise. He'd invented his own method for passing: if a question was too complicated he memorised which answer option from the multiple choices was the correct one. "What is the lowest obstacle-free altitude to vector an aircraft in the control zone?", He had to remember it was answer option C.



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Two days earlier he had passed the practical part in the simulator without having to do anything. The simulator had a few minor technical problems, time pressure did not allow everybody to work in position. He did not reflect any more about this, the circling approach scenario he found strange, they never used that, why should they? After all, both runways were equipped with ILS so why choose this scenario? He kept quiet; better not to upset anybody by asking stupid questions.

Seven months earlier

The airline had some twenty aircraft, business was brisk, but like most other airlines they had limited resources. Mind you, the introduction of a new aircraft type would help, trouble was new SOPs would have to be developed and written. As the new Chief Training Captain the job fell to him even though he had limited experience in developing them. He had got his training job based on previous experience flying similar aircraft, although not the same type. This was the best they could come up with; having the aircraft on the ground didn't bring in any money. It was decided he would take the lead, assisted by one person from the airline navigation service department.

Together they started the work by using the manual from the aircraft manufacturer, added a few things that he thought were important and briefly checked the SOP from another airline, kindly provided by an old friend of his wife. Good thing that this old friend had been in such a good mood after all that happened, the instructor thought, remembering some unforgettable jacuzzi and champagne events.

Two weeks earlier

The airline bought time at another airline for the initial type rating; six months later he was back for his first recurrent flight training. Following a long briefing, he and a First Officer from the airline spent four hours flying - two hours with him in command, two hours with the First Officer. At the de-briefing his First Officer questioned some of the procedures from the SOP, especially the one on circling to another runway. Well, this is how it is described in the SOP, the instructor leading the debrief answered. The First Officer stayed silent for the rest of the session.

The evening before

It was snowing. The Captain left home at eight o'clock in the evening to get to work; six hours travelling time ahead, it was his own choice. Being a pilot was not easy, gone were the golden days in aviation. He was happy to have a job after all; his wife was happy too but refused to move. "Who knows how long you will stay with this job?" she said, in her warm soft voice; "we can't move just now". "The kids are in school, they have their friends, we have our life here". It was his lot just to accept. He took it day by day nowadays. Perhaps he could get a job nearer home in the future, this thought kept him going. At least the road conditions were OK; he had a long drive ahead of him followed by a flight to his airline airport. This was the standard procedure, he frequently got a lift with the nightly cargo flight, saved both time and money.

Check in at work was 6.00am; from then until 2.00pm he'd be on airport standby. Should give him time to relax

in the briefing room; what he absolutely did not need was five legs to fly before ending up at a hotel in the middle of nowhere.

He should have listened more carefully to his mother advising him to sell hamburgers instead. It stopped snowing.

The night before

1.30 in the morning, their lovely son born four weeks ago was crying, not extremely loud but since everything was very quiet around their house at this time of the night, the Controller could hear it only far too well. He tried to pretend he was sleeping, hoping his beautiful wife would jump out of bed with a smile on her face.

"It's your turn", she said, almost whispering. "I've already been up four times while you have been sleeping". "How can you sleep with this noise?" she continued, turned away from him, pulled the duvet around her and started snoring.

He started by checking the status of the baby, dry, OK then probably hungry. He fed him, started singing English folk songs in his discrete baritone voice, very quiet so as not to wake his snoring wife. "It's a long way to Tipperary, it's a long way to go, it's a long way to Tipperary, to the sweetest girl I know..."; the baby boy threw up on his t-shirt. Was it his song or something else which had made him do it? This is going to be a long night, he thought; I'd better have a cup of tea.

6.00 a.m.

He'd arrived at the airline briefing room at half-past two in the morning, got some rest on the crew room sofa. At

six o'clock he had a quick wash, put on his uniform while sipping his double espresso. I don't feel too tired after all he thought, starting to read the morning paper that had just arrived. Another glorious victory for my favourite team he noted, this will be a great day.

6.30 a.m.

At 5.30 the Controller had had to wake his wife to tell her that their son was finally asleep. "Why wake me up to tell he is sleeping?" she asked. He arrived at the tower in a more or less unconscious condition one hour later. Earlier that month he had had some days off, looking after his son. Some of his colleagues couldn't understand what it was like having small children; they just did not accept that you sometimes needed to stay at home. To be fair one reason for this was that one or two colleagues frequently used small children as an excuse for taking a day or two off; strangely this often happened on sunny summer days. Anyhow here he was, ready for duty. But tired.

7.00 a.m.

The lady at the crew check-in, in her early forties, was well dressed and always very nice. She called for him, looked at him with a discrete professional smile; "sorry to disturb you dear, we need a Captain for the eight o'clock flight to Noselake, it is one of our new aircraft and you are the only qualified Captain available".

For a moment he thought about saying something, but finally decided not to. He checked the name of his First Officer; he'd never worked with him before. Fairly new, that was all he had on him.

Sometimes the newcomers have things more up to date; he tried to cheer himself up, he often did. If no one gives you feedback, do it yourself.

8.30 a.m.

ILS runway 14 was out of service, it had been since yesterday - planned maintenance work which had been known about for a long time. The stiff south-easterly wind meant that ATC needed to continue using runway 14. Normally the aircraft should be vectored to final runway 14 for a straight-in approach, but because of the relatively low cloud base they used ILS runway 32 followed by circling to runway 14. "You have all been trained in that procedure in the simulator" the supervisor told them. Although knowing this had been six months ago, he kept a low profile. As long as I can park my car close to the building I'm happy.

8.45 a.m.

"Did you know ILS runway 14 is out of service?" he asked his First Officer. "They say it's published in a NOTAM, I haven't seen it". The time for briefing before the flight being short, he did not blame himself or his First Officer for having missed it. His First Officer did not reply. They started the descent.

9.04 a.m.

They broke cloud at 1000 feet; the reported visibility of 3000 metres was probably correct. Not that they thought about it at the time, more what they could remember at the interview afterwards. He turned left for a right-hand circuit runway 14; the First Officer reported this to the tower Controller.



Case Study - It's a long way from tipperary (cont'd)

"Nice to be on the ground soon", he said to the First Officer, "I need some fresh air, I feel sleepy". He noticed lower clouds ahead, he couldn't turn closer to the airport, this would make the inbound turn too steep, instead he continued towards the west. "Can you still see the airport?", he asked his First Officer. The First Officer looked out of his right window, "No, I actually lost it", he replied after a few seconds. The ground was still visible though, but without any point of reference.

9.05 a.m.

He was sitting comfortably in his chair in front of his working position. If the aircraft doesn't disturb me on the frequency I could have a quick nap, he mused. He then laughed to himself, if this was the worst problem he could think of, he did not really have any problems at all. Now, where was the aircraft? He looked out and all he saw was clouds. For a moment it was like his heart stopped, he looked on his radar screen and relaxed, there it is way out west, the pilot needs to turn inbound soon, "A-Line 123 turn right towards final runway 14".

Two months later

"You were lucky, you passed just over a mast, did you know that?". The investigator talked to them in a calm, friendly way. "Well, let us start with your description of what happened".

As a matter of routine he also asked the pilots (and later the controller) about the 24 hours prior to the incident: "Did anything in particular happen? Did you sleep well?" etc. Yes, they all did. S

Case Study Comment 1

by Dragan Milanovski

This unfortunate incident with a lucky outcome involved tired professionals who made omissions days before the event.

The Captain wrote the SOP for the airline's new aircraft type. This was the best that the airline could come up with, but was it enough? The fact that the Captain accepted the task suggests he was probably up to the job. He even went to the trouble of asking a favour from an old friend, and checked briefly the SOP of another airline. It is not quite clear why the other airline's SOP was "briefly checked" and not in detail (Were the jacuzzi and champagne memories too distracting?). The new SOP was probably not perfect, but we can hardly blame the Captain for that.

Where he could have done more was at his first recurrent flight training, when the First Officer questioned the circling to another runway. As the new chief training Captain, he should have considered the comments made by the First Officer and the procedure from the SOP should have been crosschecked. Especially in this case, with him being aware that there could have been omissions in the new SOP. Instead, he ignored the situation when the procedure from the SOP was used as an excuse by the instructor leading the debriefing.

The Controller received the yearly refresher training, which it turns out was not as effective as expected. The fact that he invented his own method to pass the test suggests that the questions could have been poorly designed (a competent Controller found some of the answers complicated), but this is not an excuse for the Controller's

unprofessional behaviour. The circling approach that was "never used" was included in the practical training (obviously for a reason). But if it was considered important, the training should have been re-scheduled following the technical problem with the simulator, to allow everyone to work in position.

The incident took place several months later caused by the shortcomings in the circling procedure in the new SOP and in the Controller's refresher training. Other circumstances, such as scheduled ILS maintenance, poor pre-flight briefing and complex meteorological conditions also contributed to the event. Nevertheless, I still have the feeling that the incident could have probably been avoided if both the Captain and the Controller had not been seriously suffering from fatigue.





The Captain was suffering from cumulative fatigue due to irregular hours, uncertainty, long night commutes and poor quality sleep (on the crew room sofa). The Controller experienced sleep loss on the night before the shift. In both, the effects on human performance are similar, including reduced attention, increased reaction time, poor vigilance, short-term memory impairment and reduced flexibility.

This explains why the Controller "drifted away" in position (the comfortable seat contributed too) instead of following the aircraft visually. He probably would have made the call earlier and prevented the incident.

It also explains why the Captain did not see the NOTAM before the flight, did not consider the visibility at the time of the approach and reacted slowly to the low clouds, while thinking about enjoying the fresh air after landing.

Can situations involving tired pilots and Controllers be prevented?

From early in training, Controllers learn that good sleep is vital to fight fatigue, as well as proper nutrition, stress control and regular exercise. Despite all the efforts made, a situation where the Controller feels tired at work (for any reason) is unavoidable. Most of us can still do the job at an acceptable level while being a little tired. To make things more complicated we all have different thresholds and we

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all deal with fatigue in a different way. Some cope more effectively than others. Some will never admit suffering from fatigue and try to push the limits of the human body, others will exaggerate the effects even when being a little tired.

Managing fatigue has become even more difficult for pilots. "Gone are the golden days in aviation". Irregular lifestyle, maximum hours, long commutes and being away from home have become standard. Not forgetting less and less attractive employment conditions and the ever-increasing production pressure.

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RECOMMENDATION:

The fatigue and sleep management training package seems like a good idea to start with. However, more needs to be done.

Most of the training packages on the subject that I have seen increase awareness of the effects of fatigue and deal with tips and tricks on how to manage fatigue. However, refreshing knowledge periodically and increasing awareness will not prevent the rare exceptions, where tired professionals work in position. Sooner or later everyone will find himself/herself in a situation where the fatigue management strategy has failed and, you feel tired and have to go to work (remember the poor Controller from this story?). Then you will have to answer the following questions: How tired are you on a particular day? What does it take to declare yourself unfit for work due to fatigue? Where do you draw the line? 



Case Study Comment 2

by Razvan Guleac

Reading the article made me think that actually these circumstances are far from uncommon. In some of the cases, incidents like the one presented here happen, in other cases, such incidents are “missed” by a narrow margin, being mitigated by the implicit design buffers or safety nets, which are nevertheless not intended to compensate for procedural or operational errors. From all the angles of the story (controller, airline, pilot), a flavour of the problem is taking shape: CIRCLING.



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The first aspect that draws the attention is the controller training for the renewal of the ATC licence. Not all the scenarios are necessarily comprehensible or within “normal” limits, but then again, are they supposed to be? The goal is to tackle non-routine and difficult cases that most of the time will not be encountered; however, when they occur, they could potentially lead to critical situations. Sometimes, it is possible that, with seniority, controllers

will be less encouraged to challenge such scenarios. Partly because human beings usually don't like getting out of their comfort zone, but perhaps also due to the fact that it is not easy to admit not knowing or understanding the details of a specific situation. The method developed by the controller I find dangerous, since it might induce the feeling that everything is OK as regards knowledge and best practice, which obviously it is not!

The second “enabler” of the incident is, in my view, the airline's standard operating procedures (SOP) for the newly introduced aircraft. SOPs might prove to be genuine safety issues if they are not given the right level of importance, both in developing and applying them. Returning to our story, we can see that both elements were overlooked. The development was entrusted to the chief training captain, who had limited experience in writing the operational documentation (sometimes it is said that writing technical and operational documentation is an art in itself). Although the basis for the development was not wrong (the aircraft manual, a similar SOP from another airline), important references, such as the ICAO SARPS, e.g. PANS-OPS (Doc 8168, Vol. I), the European Union Regulation, e.g. EU-OPS 1, etc. were





not considered. A second element of no lesser importance is the recurrent flight training following the initial type rating. The feedback from the first officer questioning the procedures (circling included) was dismissed with too much ease, considering the fact that this was based on a newly developed SOP which needs, if not as part of its validation, at least as a best practice, a 'flight check'. The reply of the leading instructor at the debriefing falls under those "chicken-and-egg" situations: the SOP was perhaps not entirely adequate, but how can you improve it if you don't accept feedback?

The scene set-up on the day of the incident is a classic: ILS RWY 14 unserviceable (maintenance) and meteorological conditions requiring an initial approach to RWY 32 followed by a circling to land on RWY 14. However, as classic as it may seem, neither the crew (with their limited experience of the new aircraft, including its operating procedures), nor the approach / tower controller (who did not bother to reflect more on the simulator exercise on circling) were ready for it. The controller's thoughts at the beginning of the long-gone and almost forgotten simulator scenario were "never used that, why should they?" And this is in fact true. The preferred options for approaches are: precision (ILS), non-precision / RNAV and, only if none of the above is available, visual manoeuvring (circling) option.

There is one element that might not score highest in the overall enabling factors, but which is quite important: the lack of awareness concerning the ILS RWY 14 "out of service" NOTAM. In this particular case, a correct and thorough pre-flight briefing would have

allowed the crew the time to digest the approach conditions and options at the destination airport. This would have probably not achieved much, but would have slightly alleviated the decision-making process in the critical phase of approach, where the cockpit workload is very high and does not allow much time for the "unexpected".

Since circling is used, most of the time, as a back-up procedure and often has limited track guidance, continuous visual contact with the runway environment is essential.

Nevertheless, the most critical issue that comes out of this story is for me the actual execution of the circling procedure. Since circling is used, most of the time, as a back-up procedure and often (as in this case) has limited track guidance, continuous visual contact with the runway environment is essential. This is the only reference the pilot can rely upon, in a procedure where the trajectory / position of the aircraft is less accurate, at least until the very last turn and alignment for the final approach and landing. The fact that the first officer said that he had lost visual contact with the airport (the captain not being in a position to have this view, due to his left-side position with the airport on the right side) should have triggered the decision to initiate the missed approach

for the procedure (ILS RWY 32) from which the circling has been initiated. Instead, the pilot in command continued the approach, placing the aircraft outside the protection area designed for this procedure.

The last (but not the least) element was the controller's interference with the circling procedure, manifested by the "turn right" instruction to the crew. Apart from the fact that when he did this he assumed responsibility for the terrain / obstacle clearance of the aircraft (as opposed to the procedure where the pilot is responsible for maintaining the operating minima), his action could have been confusing for the pilots, who did not expect vectoring.

RECOMMENDATION:

The qualification and recurrent training (both theoretical and practical) of the pilots regarding circling has to be regarded as being of the utmost importance, both personally and at airline level. The execution of a circling manoeuvre requires conformity with the Procedures for Air Navigation Services (e.g. PANS-OPS) recommendations and certainly adherence to the aircraft operators' SOPs. Which, in turn, have to be correctly developed.

This recommendation can also be extended to non-precision approach procedures. Even if they ensure a better degree of predictability for the trajectories of aircraft compared to circling, they are still regarded as safety issues which can lead to CFIT incidents. ☐

Case Study Comment 3

by Marie-Louise Berry

Ah!! Just had my siesta and feel so much revived now!..

isn't this a phrase we commonly hear? When fatigue hits us, we all know our brains will not function 100%. The problem nowadays is, do you have enough time to sleep, to get your well deserved rest? I think these are questions which in this scenario both the ATCO and the captain did not spend too much time thinking about. Do we realise the consequences of fatigue?

The ATCO in the story did realise however that he has no choice but to pursue his professional career and to keep his family happy as well. The captain has no choice but to drive for hours on end to get to work. Is there a measuring tape to tell us how much we can push ourselves, and to which limit? Is there an indicator to tell us that now we are tired and our brains will function in a 'slower' mode, and that in our career this might lead to a disaster?

The exhausted controller and father was not having a great day, and to make things worse, on top of his lack of energy he realised that he had followed his periodical training with a pinch of salt. And do we blame the ATCO? Hundreds of questionnaires pass under your hands in night shifts, and we all know they spell 'Boredom' so really, I don't blame the ATCO for shelving his papers for weeks! What is more motivating than a questionnaire??!! The situation did not help much when he realised that on the one occasion he had a chance to try this 'rare' circling procedure, he had missed it due to faulty simulators. Poor ATCO. Knackered and lacking knowledge and experience of this scenario.

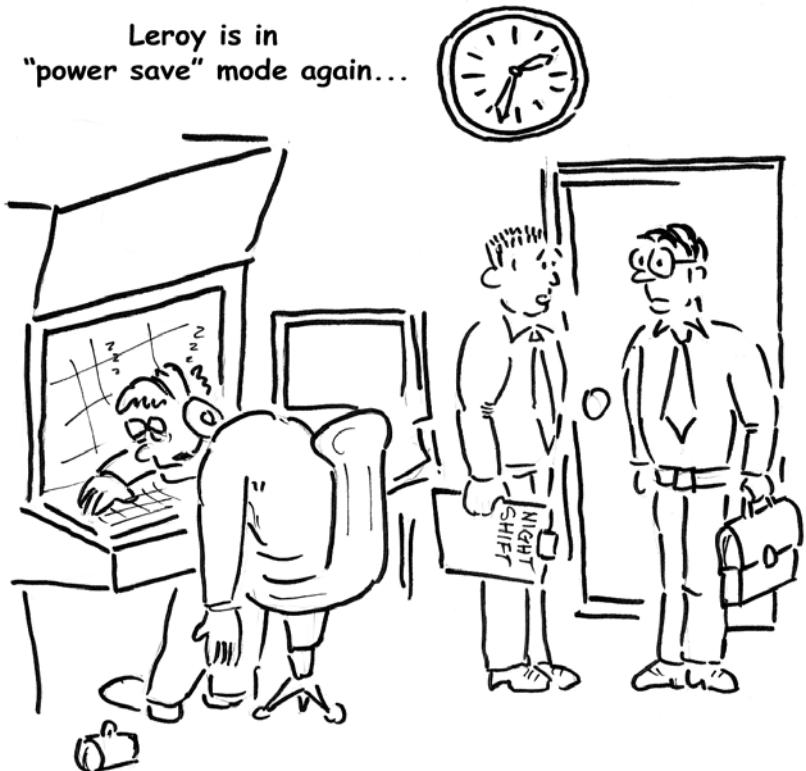
The good old captain, after a long trip to get to work, gets a flight with a new

pilot. Was it the fatigue plus the lack of experience of the first officer that they both missed the NOTAM. Is this something which the good old captain had been doing for years before every flight and now had forgotten! Could it be the effects of fatigue?????????

Was enough attention given to the correct development of the SOP for the new aircraft? Was the SOP a contributing factor to this near-miss?

Like a little devil, the weather is always there to jump out at us when there is something else wrong already, such as in the scenario, where the ILS was out of service.

So in addition to the captain's fatigue and the first officer's lack of experience, the weather could only make things worse. The positive thing about the captain is that he did admit that he felt sleepy.



It is common for understaffed systems to force ATCOs/pilots to work overtime, thus leaving them tired; therefore work schedules should be revised in order to prevent ATCOs and pilots from being tired on the job.

We should act responsibly with ourselves and note our limit of exhaustion. Fatigue is associated with mental (and/or physical) shortcomings. This could potentially lead to a decrease in mental attention which could be disastrous in tasks which require constant concentration.

Fatigue is a threat to aviation safety, but it is a normal response to lack of sleep and long shifts where the most effective treatment is adequate sleep. Fatigue is rarely mentioned in our ATC world, it seems that we are born to learn how to deal with it the best we can; however, bear in mind that when an incident happens, your level of consciousness is the first thing that will be questioned!

.....shouldn't you go and have a power nap now??... I will sing a song for you... it's a long way from Tipperary.....la la la...

RECOMMENDATION:

Be honest with yourself - if you are tired, admit it. Also, make your colleagues (supervisor) aware of your situation. After all, it is YOUR responsibility to be fit for work. ☺

Case Study Comment 4 by Captain Ed Pooley

The main finding from this incident should be that the captain failed to prepare for and carry out his duties as an aircraft commander in an acceptable way. And that is not just a single failing but an attitude-to-the job problem. That he was not 'rescued' from a potentially dangerous circumstance of his own making by the controller is unfortunate but is secondary, since any aircraft commander retains sole responsibility for the safety of his aircraft even when under orders from ATC in controlled airspace.

However, the majority of sub standard human performance by professionals in aviation can be associated with the context for the performance of their duties provided by their employer. In this case, we know that the captain worked for an airline which had failed to risk-manage its operation in an appropriate way. On the evidence provided, the new chief training captain was not 'fit for purpose' in that post.

In any properly managed airline, even quite a small one, he would not have been appointed – or if he had would have been removed from his post fairly quickly once his lack of the necessary qualities for such a senior appointment became apparent. Remember that, in any properly regulated jurisdiction, a candidate for the post of chief training captain for an AOC holder would be subject to pre-approval

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Case Study Comment 4 (cont'd)

by the regulator. Anyway, with my own perspective clear, let's look at the three main players one by one, taking note of the institutional contexts:

The **Chief Training Captain** is the root of the problem. Unfortunately, because he provides a clear indication of the relative importance accorded to operational safety generally at this operator, it is unlikely that his fellow senior managers in flight operations were of a radically higher calibre. Pilots in an airline are recruited and managed according to various priorities. Because these priorities affect them all and result from the collective style and substance of the flight operations management team (who themselves will be influenced by the priorities of their corporate general management) the majority of the pilots in each airline will share a common outlook on operational safety. Pilots are people who can be inspired (or otherwise) by the grasp (or otherwise) which those who run the company have of the operational challenges they face. If inspired, they will try especially hard to deal with their challenges, so that the airline can prosper by minimising its corporate exposure to the business risks, both direct and indirect, which follow a fatal accident.

Our chief training captain adopts an approach to his SOP task which is flawed. Of course one starts with the manufacturers' aircraft type manuals. But the procedures of 'another airline' should be an irrelevance at the outset of the process. The way to proceed is to carefully consider the generic aircraft type procedures provided against the existing general operating procedures of one's own airline as already approved by the regulator. Some 'issues' will probably arise and should be resolved by careful adjustment of one or other set of procedures, using extreme care before adapting any of the manufacturers' generic procedures, since these will



have been subject to very careful construction if for no other reason than that of product liability. Any changes which the reviewing manager - in this case the chief training captain - feels are needed should have been peer reviewed before adoption. Peer review is not achieved by adding the assistance of "one person from the ...navigation services department". And whilst, if my earlier argument that the senior flight operations managers in any given team are likely to be of similar calibre is true, the effectiveness of peer review may be reduced, at least it spreads the responsibility.

The conduct of the chief training captain during his subsequent recurrent training detail provided further evidence of his own lacklustre performance in helping set the scene for this incident. The instructor pilot demonstrates the complete absence of the inquiring mind so vital for all instructors when he 'puts down' the queries of the first officer and the chief training captain stays silent too. This serves only to reinforce the picture of a poorly-led flight training team who know their place and feel unable to pursue a debate on SOPs because, presumably, they know who keeps them in their instructor role whether directly as employees of the operator or indirectly as employees of a third part training provider...

I have already attributed the incident directly to the **Captain** of the aircraft whilst pointing out that this is the

Whilst the actions and attitudes of every professional pilot and controller are their own and professionalism is an essential feature of task focus, the ethos prevalent in an employing organisation counts for a lot too.

beginning rather than the end of the analysis. No surprise in such an airline that he displays such an unprofessional approach to his job. In a well-run carrier, commuting to work by flight crew is controlled by company rules, sometimes but not always because of regulatory expectations. In other situations like the one here, personal responsibility is all that remains of the defence against fatigue. Lodgings, or even a flat near the place of employment (or maybe a night in a hotel - they aren't all expensive) is the correct alternative to driving through the night or taking a flight or other transport in the period immediately before the commencement of a duty period. The 'not-getting-away-with-an-airport-standby' routine is not the first time it's happened and neither is a crew pairing you've never had before. The latter in particular shouldn't make any difference at all to



So what about the "rescue service", our similarly fatigued **Controller**? Most of the time, pilots who fail to follow an air-borne procedure when on an IFR flight plan in controlled airspace can rely on the watchful eye of a wide-awake controller to act as their "guardian angel". But unfortunately, this time only fate separated the aircraft from the mast



the effectiveness of flight deck teamwork in a well managed airline. But whatever 'sort' of airline one works for, not making yourself vulnerable to fatigue is an essential piece of personal insurance as an aircraft commander when there is (nowadays) probably something like a 95% chance that a flight will be uneventful if SOPs are applied and only a 5% chance that it will be 'interesting'.

In respect of the circling approach which went wrong this time, there was inadequate pre flight planning, an inadequate approach briefing and, clearly, a level of teamwork on the flight deck which was also inappropriate. The response to some marginal weather conditions by the aircraft commander was sloppy - but by then we see him exhibiting the signs of (inevitable) fatigue. This wouldn't have mattered if it had been the usual straight-in approach to land off the ILS - which of course it usually is....

they missed. The controller had adopted an unprofessional attitude to his fitness to commence duty comparable to that of the commuting captain.

There is another player on the fringe here too, the **Investigator**. Since our case study ends with the investigation, it is also worth acknowledging that collecting meaningful evidence about off duty activities prior to an incident on duty can be difficult, especially if the relevant circumstances are other than the simple matter of commuting. Perhaps for that reason, it has often been overlooked (or, as in this case, been the subject of cursory leading questions during the interview) unless a fatal accident is being investigated with the greater rigour with which such investigations are usually prosecuted.

Finally, before I offer my recommendation, please remember where I started out. Whilst the actions and attitudes of every professional pilot and controller are their own and professionalism is an essential feature of task focus, the ethos prevalent in an employing organisation counts for a lot too. In this case study, we see an airline which is being badly run not (I suspect) simply because of our old friend 'commercial pressure' but because the senior managers there have failed to implement robust measures which will provide for appropriate levels of risk management. The appointment and performance in-post of flight operations managers could be the place to start the necessary safety improvement. At the ANSP, similar managerial deficiencies can be seen with incompetent managers presiding over a not-fit-for-purpose controller training and assessment regime which brings out the worst in the controllers who are subject to it.

RECOMMENDATION:

Just one? It's a difficult call with so many of the theoretical defensive barriers compromised. But given that the ultimate responsibility of an airliner captain for the safety of their aircraft is exercised as an agent of their employer who determines the selection to and support for this role, I will go for a one-off external assessment of the overall safety of flight operations at the airline. The results of this will need to be taken seriously by the airline's general management who will need to sanction the changes in corporate priorities and operational process that are likely to be needed. Almost all professional pilots (and controllers) and their managers are 'can-do' people and they need to be both carefully appointed and then appropriately managed. This Case Study has strongly suggested institutional weakness as much as individual failings – and the ANSP involved is not far behind the airline in my assessment. S