CIVIL AVIATION AUTHORITY

FOR PUBLICATION

CIVIL AVIATION AUTHORITY
MINUTES OF EXTRAORDINARY BOARD MEETING HELD ON TUESDAY 20 APRIL 2010 AT 16.00

Present:

Dame Deirdre Hutton	**Chair**
Mr A Haines	**Chief Executive**
Dr C Bell*	
Ms G Burrett	
Dr H Bush	
Mr D Gray	
Mr R T R Jackson	
Miss C Jesnick	
Mr M Medlicott*	
Mr R P Mountford	
AVM B North	
Mr M Swan	
Capt R O Whitefield	
Mr R J Britton	**Secretary & Legal Adviser**

***via conference call**

In Attendance:
Mr R Allan
Minute Taker
Mrs A-M Hopcroft
Minute Taker

Mr Mountford declared an interest as a non-executive director of the Port of Dover, which was participating in the repatriation of passengers, but confirmed he had no financial interest. Ms Burrett declared an interest as the long term partner of the Head of Safety for NATS at Swanwick.

I. Chair's Opening Remarks

1. The Chair explained that the volcanic ash situation was fast moving and had changed even since the papers before the Board had been written. Most significantly, NATS had confirmed that it would be prepared to change its position on the basis of guidance from the CAA rather than insisting

on a Direction, which would have required consultation with the Secretary of State.

2. The Chair also highlighted that Rolls Royce had now written to the CAA to confirm agreement to the revised levels of ash tolerance. In addition, Pratt & Whitney had issued a Service Information Letter to operators informing them that they agreed that the ash concentrations proposed by regulators (although left these unspecified) were appropriate. Furthermore, Airbus had written to the CAA and EASA to accept operations in the ash densities (also unspecified) that their aircraft had flown in the previous day.

II. Summary Note - Doc 2010-67 by Dame Deirdre Hutton

3. This paper was discussed in combination with agenda item III.

III. Background on Volcanic Ash Restrictions Information Paper- Doc 2010-67

4. It was noted that the paper referred to the NATS licence obligation to provide a continuous service and highlighted that the CAA had a duty to enforce this. As a result, there would need to be a discussion at NLMCC with a paper subsequently to the Board. For there to be no question of licence enforcement action for the recent suspension of service, a statement would be needed from SRG to confirm that it had not been safe in the circumstances for NATS to provide a service. It was reported that ERG was currently preparing a note on the licence position. Any statement regarding safety would need to make clear that the suspension of service had been in accordance with the then current safety standards (zero tolerance of volcanic ash) rather than a lack of safety per se. It was noted that the service was now being permitted to resume on the basis of a revised standard.

5. The Chair noted that the Secretary of State had been helpful and supportive throughout and emphasised that the CAA's decision must be based on safety and the public interest.

IV Consolidated Safe Return to Flight Plan – Doc 2010-69 by Mr Mark Swan

6. Mr Swan noted that it was important for the Board to understand collectively the issues impinging on operational flying. It was highlighted that NATS had zero rated Instrument Flight Rule clearances in response to the spread of volcanic ash and that UK airspace had not been formally closed. There had been some Visual Flight Rules flying but none involving Commercial Air Transport (CAT).

7. It was reported that during the volcanic ash situation, the UK military had been extremely co-operative, a number of equipment manufacturers had been very helpful, and corporate aviation operators and General Aviation had acted responsibly.

8. It was noted that Class G airspace had been monitored throughout and had shown no significant increase in activity, in particular with no evidence of CAT traffic trying to avoid the NATS restrictions by flying outside controlled airspace.

9. It was highlighted that the core problem was that there had been unknown quantities of volcanic ash in the atmosphere and the effect of varying levels of volcanic ash on aircraft had not

been previously established.

10. The UK had been seeking a harmonised approach in Europe from Air Navigation Service Providers and National Aviation Authorities. These efforts had not been entirely successful thus far but there had been extremely good co-operation with the Irish authorities in the context of the UK-Ireland Functional Airspace Block.

11. A number of options for addressing the issue had been considered in discussions in Eurocontrol and it had been agreed that there would be limited no-fly zones although there had been no agreement on the parameters and zone boundaries or how the co-ordinated European regulatory oversight was to be established.

12. It was now proposed that the UK adopt the position agreed by Eurocontrol (which was initially a CAA proposition) with a no fly zone based on an ash concentration of 2x10E-3 g/m3 (together with a 60nm buffer zone), a restricted zone (subject to national oversight) and a clear zone. This would lead to a very large reduction in the no-fly zone but it would require manufacturers to confirm that the concentrations of volcanic ash which would now be found outside the no-fly zone would not adversely affect their equipment. In addition, operators' Operations Manuals reflect the previous international guidance, which means that there would need to be agreement through EASA so that aircraft operators were not flying outside of their licences. Whilst discussions are on-going with EASA, the option to operate with reduced no-fly zones had been based on the CAA's best judgement following recent test flights and an analysis of previous encounters with ash. An extraordinary meeting of EU transport ministers had agreed to the no fly zone concept the previous day.

13. The paper outlined the proposed procedure to enable start up of operations. It required the operator to undertake a risk assessment and set up procedures, including operational procedures and increased inspections of equipment. ATC would have to ensure that the level of permitted traffic reflected the possible need for an aircraft to take avoidance action if it encountered increased concentrations of volcanic ash and instrumented aircraft would be used to monitor the actual level of particulate in the atmosphere.

14. It was noted that conference calls had been held throughout the last four or five days with world experts to assist in developing the new approach.

V Available Empirical Data and Experience of non-European Operators – Doc 2010-70 by Ms Gretchen Burrett

15. The paper outlined the best available empirical data including recent experiences from Alaska and some of the operational mitigations used by Alaska Airlines.

16. It was noted that the proposed permitted levels of ash were three orders of magnitude lower than those that had contributed to the KLM loss. No problems had been detected in recent days with aircraft that had carried out test flights within the ash cloud and instrumented aircraft, followed by

operators' aircraft, would be carrying out test flights to establish the actual levels of volcanic ash encountered during the flight and the effects of those levels on the operators' aircraft.

17. It was reported that Eurocontrol had added a 60 mile buffer around the no-fly zone which would otherwise have been yielded by the new approach and that this was partly to reflect the six hourly updates of the zone. It was noted that the boundaries of the no-fly zone would be monitored with instrumented aircraft to confirm that the ash concentration is what would be expected.

18. It was highlighted that it was not known at what level of contamination a critical failure would occur and that the CAA needed to be assured that equipment manufacturers would pursue their research to establish that level as soon as possible. Whilst this was agreed, it was noted that the required inspection regime should pick up any early signs of potential problems.

19. In response to a question about whether the volatility of the ash concentrations was captured by the Met Office model, it was noted that the model was effective on volumes of airspace affected but not as effective on the levels of particulate. The six hourly updates of the airspace appeared to be satisfactory in terms of assessing the situation but that if a greater degree of volatility was established then this could be reviewed. The appropriateness of six hourly updates were further discussed and it was noted that the model was sophisticated in identifying the extent of the ash cloud and that this, together with the 60 mile buffer, should ensure that the opening and closing of airspace was done in an appropriate manner. In addition, operators are likely to add their own buffer to the forecast no-fly zone. It was also highlighted that the Met Office publishes its forecast 18 hours in advance, which provides an ability for operators to plan.

20. The uncertainty of the risk profile as the aircraft flies through airspace was further discussed and it was noted that the engine and airframe inspection regime would be able to capture cumulative damage. In addition, the Met Office's predictions were felt to be robust and no material anomalies with the model had been identified.

21. It was queried whether airspace plans should be revised to accommodate the possible increased need for pilots to manoeuvre in the event of ash cloud detection, e.g. should there be a reduced flow rate or increased separation. It was confirmed that in Oceanic airspace the separations had been increased and flow rates were being reduced, however it was felt that problems should not be encountered in the airspace within which flight is to be permitted.

22. It was noted that the issue of volcanic ash had been under consideration by ICAO for many years and that the CAA seemed to be coming to a different conclusion within a few days. It was important that the CAA was satisfied with its decision making so that it had a basis on which it could tell passengers that they could fly safely. In response, it was noted that the ICAO process had been protracted and that there had previously been a lack of engagement with the process by manufacturers and operators. It was also emphasised that additional flight test data was being acquired and, should it match expected conditions, coupled with the conservative assumptions put

forward by engineering specialists, then the CAA would have a continuing sound basis on which to base its decisions. Furthermore, it was noted that the assurances from manufacturers concerning the revised standard also gave confidence in the decision. It was highlighted that the CAA would continue to monitor the situation and would be able to respond quickly and revise its position if new data emerged.

23. It was highlighted that at the time of the discussion some manufacturers had not endorsed the new standard and it was questioned how this impacted the operators of equipment made by these manufacturers. It was felt that there was a sufficient weight of advice to show that the standard is robust and therefore for operators to undertake their own risk assessment.

Post meeting note: other manufacturers subsequently agreed to the new standard

24. During discussion, it was emphasised that it was important to establish and maintain due process. It was noted that following the Eurocontrol meeting the previous day (where a harmonised approach of a no-fly zone, a restricted zone and a clear zone had been agreed, subject to national oversight) it appeared that some States had permitted flights before the national oversight arrangements had been established.

25. The continuation of data gathering was welcomed and it was noted that there were four instrumented aircraft and six ground stations available for this purpose. In addition, France had announced that it was keen to co-operate with the data gathering exercise.

26. It was noted that a number of reports in the media had referred to certain aircraft, including a Finnish F-18 and a UK helicopter, with damage attributable to volcanic ash. It was clarified that the conditions to which these aircraft had been subjected were not known and that the information about the incidents was unclear. In particular, further investigation was being carried out with regard to the UK helicopter incident.

27. In response to a question regarding making the data gathered by the CAA public, it was confirmed that this would be the case. It was suggested that, given its pan-European nature, EASA should be the focal point for the collection of international data and that it appeared willing to take on this role.

28. It would also be important for the CAA to be in a position to explain the development of its position and how the no-fly zone came to be so significantly reduced.

29. It was questioned whether the restrictions adopted by the US Federal Aviation Administration should be incorporated into the proposals, but it was felt that the majority of these would already be covered by the risk assessment that operators would be expected to undertake. It was felt, however, that ICAO and FAA data should be reviewed in order to synthesise best practice.

30. In drawing the discussion to a conclusion, the Board discussed whether they were content to agree with the proposed way forward. The Board agreed that they were satisfied that they were making an evidence based decision but asked that the following be incorporated:

- more instrumented flights around the edge of the no-fly zone and pre and post flight aircraft inspections, with the nature and extent of these inspections to be established.
- a unified approach across Europe.
- traffic limitations
- an audit trail of the CAA's decision making
- the ability to review the decision should equipment manufacturers feel that they could no longer support the proposals.
- clarity as to what the CAA expects of operators.

31. Subject to the incorporation of the above, the Board was content to agree the proposal of moving to a risk factor of 10^{-16} based on the data that had been collected and the manufacturers' statements. The resulting no-fly zones would be established on maps delineated by Eurocontrol, which would include a 60 mile buffer. The CAA would clearly set out what was required of airlines, continue test flights with instrumented aircraft to gather data to validate the Met Office model and work with EASA so that they could lead the pan-European co-ordinated work. The CAA would require reporting of any volcanic ash related occurrences and would incorporate the Alaska lessons into the mitigating measures. In addition, the CAA would establish a mechanism by which engine inspection data could quickly be fed back and ask engineers to work to a time limit to verify the data and to establish the levels of ash concentrations at which critical failures may occur.