Introduction

1. Whilst I have met some members of the local community, for others this will be our first contact since I took over the role of Air Officer Air Mobility from Air Commodore Jon Ager earlier this year. I would therefore like to take this opportunity to state my views on the subject of environmental noise and to summarise our progress in reducing our noise output over the last 12 months since Jon Ager last wrote to you.

2. Since taking up my appointment, the issue of noise has continued to receive my highest attention, and through my meetings with local community representatives, I know how important this issue remains for you. Whilst I cannot remove the noise impact of Brize Norton, or reverse the decision to base the C130 Hercules or the forthcoming A400M Atlas aircraft here, what I can do is ensure that we do everything that we can to reduce the impact upon our neighbours. Operations and training along with the required aircraft maintenance, must continue in order to support our nation’s Defence requirements; so my desire to reduce noise will always be constrained by the output I must deliver. However, we should not and must not, produce more noise than is required. It has therefore been essential that we put in place any changes that we can which might have a beneficial impact on noise and which do not unreasonably constrain our operations. It is also important that we understand the noise footprint generated at Brize Norton, how this has been reduced by the changes we have made, how it might change in the future and what opportunities remain for further improvement. This letter will summarise and explain the significant improvements in noise reduction that have been achieved this year, and will outline where we are now and the continued way forward.

3. You will be aware that following the transfer of the Hercules Force from RAF Lyneham to RAF Brize Norton in 2011, my staff have made great strides in understanding the noise that the Hercules generates and have introduced many measures to reduce the noise experienced by the local community. However, the 2012 noise survey report showed us that more needed to be done. Acting on the information gathered in the first technical report released in October 2012, a number of initiatives have been introduced to help mitigate the levels of noise generated by Hercules aircraft:

   a. A permanent Environment Noise Working Group was established on Station to drive forward improvement in both controlling the generation of noise and in noise amelioration.

   b. Aircraft engine ground runs are no longer to be routinely conducted on bays 70-82.

   c. Rigorous restrictions on engine ground runs continue in place to ensure that only those essential to operations were conducted at night, and only then when authorised by a member of the Station Executive.

   d. Additional resources are now in place to enable the Station to tow Hercules aircraft to areas on Station as far as possible away from the surrounding communities, before engine ground runs are conducted.

1 http://www.raf.mod.uk/rafbrizenorton/rafcms/mediafiles/169E269C_5056_A318_A8A9EDB1E9397E22.pdf
e. Limitations on the use of reverse thrust for Hercules aircraft on landing were introduced. Hercules aircraft are no longer permitted to routinely use reverse thrust to park on bays 70-82.

f. Training flights are now conducted during the daytime period, weekdays only unless they are essential to operations. Those operational training flights conducted outside of this period are authorised by a Station Executive or his nominated deputy.

4. To quantify and understand the positive effect these noise mitigation initiatives were having on the noise generated by Hercules engine ground runs, a subsequent noise survey was conducted in February and March 2013. Due to the abnormal north-easterly prevailing winds during the testing, the specialists were unable to gather a fully representative record of the engine ground runs conducted during the survey; consequently, a further survey was conducted in June and July 2013. I am today releasing the technical report which gives the results of these latest rounds of survey work.

Legislation and Regulation

5. The report is a technical one, designed for a specialist audience, so it will help if I explain some of that technical detail. The primary legislation concerning environmental noise is the Environmental Protection Act 1990, from which the MOD has an exemption for noise emitted from operational and training activities - in essence covering all engine ground run noise generated at RAF Brize Norton. However, the MOD endeavours to act as a good neighbour to our local communities and has implemented its own policy covering environmental noise - Joint Service Publication (JSP) 418, the MOD Corporate Environmental Protection Manual. Some of you may be familiar with this manual which is publically available. JSP 418 outlines that MOD activities shall, as far as reasonably practicable be conducted:

‘so as to minimise the noise generated whilst achieving operational imperatives (including those which are an operational necessity . . ), to reduce disturbance to local communities including residential areas (both Service and public) together with impacts on domestic animals and wildlife and their habitat.’

6. JSP 418 also sets guidance for tolerable levels to which the MOD should attempt to attenuate noise below. These thresholds are:

a. Daytime – 66 dB(A) average.

b. Night-time - 48 dB(A) average and 80 dB(A) Maximum.

Noise Measurement Results

7. Last years AMEC report published in October 2012 provided the following readings:

<table>
<thead>
<tr>
<th>Area</th>
<th>Daytime average – dB(A) (0700 – 2300 hrs)</th>
<th>Night Average – dB(A) (2300 – 0700 hrs)</th>
<th>Maximum at night – dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alvescot</td>
<td>55.0</td>
<td>48.0</td>
<td>82.8</td>
</tr>
<tr>
<td>Bampton</td>
<td>48.1</td>
<td>37.2</td>
<td>72.3</td>
</tr>
<tr>
<td>Brize Norton</td>
<td>58.7</td>
<td>52.0</td>
<td>87.9</td>
</tr>
<tr>
<td>Black Bourton</td>
<td>68.1</td>
<td>59.2</td>
<td>92.1</td>
</tr>
</tbody>
</table>

8. The latest technical report, which I have placed online, contains a large amount of detail and analysis. During February - March and June - July 2013, a series of noise measurements and modelling was completed by AMEC Environment and Infrastructure at the request of RAF Brize Norton. The noise recorded during the survey period produced the results given in the table below.
<table>
<thead>
<tr>
<th>Area</th>
<th>Daytime average – dB(A) (0700 – 2300 hrs)</th>
<th>Night Average – dB(A) (2300 – 0700 hrs)</th>
<th>Maximum at night – dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alvescot</td>
<td>55.3</td>
<td>48.1</td>
<td>79.3</td>
</tr>
<tr>
<td>Bampton</td>
<td>47.7</td>
<td>41.6</td>
<td>71.4</td>
</tr>
<tr>
<td>Brize Norton</td>
<td>55.5</td>
<td>49.7</td>
<td>80.8</td>
</tr>
<tr>
<td>Black Bourton</td>
<td>56.5</td>
<td>50.4</td>
<td>79.0</td>
</tr>
</tbody>
</table>

**Meteorological Modelling**

9. A study into the potential level of noise mitigation to be achieved from matching aircraft orientation and geographical positioning to meteorological conditions (predominantly wind direction) is detailed in the latest technical report. The modelling identifies the best locations on the airfield from which to conduct engine ground runs during a variety of meteorological conditions. This initiative will help planning staffs identify the locations on the airfield, taking operational requirements into account, best placed to conduct engine ground runs and further minimise noise propagation.

**What do the Results Indicate?**

10. The most recent results contained in the report demonstrates that the recommendations implemented as a result of the 2012 report have had a marked improvement on the level of noise experienced by local communities. However, like my predecessor I am not complacent, and more still needs to be done. Whilst the report shows that the mitigations we have put in place have reduced average noise levels during the daytime to below the MOD guideline tolerable levels, the night time results, although much improved, show that those figures in bold continue to exceed the MOD guidelines. However, the latest report details further noise mitigation procedures that can be employed to further reduce noise levels for Hercules engine ground runs. These recommendations have already been implemented where operationally possible. The report also demonstrates that not all of the noise can be attributed to Hercules engine ground runs; some of it can be apportioned to other noise generating activities such as aircraft take off and landing and wider off-Station environmental noise like vehicle traffic.

**Further Noise Mitigation**

11. Perhaps the major airborne producer of aircraft noise was the VC10 and few will have failed to notice that these aircraft have now been retired from service. The Tristar is also nearing the end of its operational life and both of these aircraft are being replaced by the Airbus A330-based Voyager which have already arrived at RAF Brize Norton. Although these modern aircraft generate far less noise than those they replace, it is essential that we understand the impact of making this change. Similarly, the C130 Hercules will eventually be replaced by the A400M Atlas aircraft, although the fleets will run in parallel throughout this decade. Therefore, in addition to understanding the current noise levels, separate work is currently underway to predict the level of noise that will be generated by the Station in the future. The modelling required to do this continues and work is in train to produce an overarching environmental study that articulates RAF Brize Norton’s current environmental baseline, forecasts the expected impact of operating the next generation of aircraft and identifies in advance what noise mitigation work is possible.

**Ongoing Work**

a. The recent retirement of the VC10 and the Hercules C130K will have had a further positive effect on the noise contours around the Station. To fully understand this, an updated noise contour assessment, complying with the internationally recognised noise modelling methods is currently being completed by the RAF Centre for Aviation Medicine that will inform any future decisions on noise attenuation activities.

b. To understand the noise footprint of the A400M Atlas prior to it entering RAF service, the Station has been working closely with Airbus Military to scope the noise output of the
aircraft and the frequency of noise-generating events such as engine ground runs, and is moving closer towards being able to model this impact. Initial work suggests that engine ground runs will be far less frequent, but work to assess noise levels is on-going and whilst I am optimistic that noise levels will be similar to that of a C130 Hercules, the detailed work to prove this is not yet available.

c. The Brize Norton Environmental Working Group will monitor progress of the environmental study at Brize Norton and direct additional work as required to ensure that the aim of reducing the environmental impact of Brize Norton is achieved. This working group has a representative of the local community as a key stakeholder member, which not only enables transparency, but also ensures that you are kept updated on developments.

d. In order to monitor our continuing progress, I have asked for a regular periodic audit of noise levels similar to the one that collected the data presented in the latest technical report be commissioned.

Further Mitigations Possible Within 6 Months

a. The directionality of the noise generated by C130 Hercules can be exploited by identifying where on the airfield engine ground runs should be conducted in order to take advantage of the wind direction. Planning staffs will now use this information to match engine run locations to meteorological conditions to help further mitigate noise propagation.

Possible Longer Term Mitigation

a. Improving the reliability of aircraft is routine activity and a Hercules Reliability Improvement Programme is already underway. This programme works towards long term improvements in aircraft maintenance through activities such as reviewing maintenance schedules and introducing improved components. Any result that reduces the maintenance requirement can reduce the need for engine ground runs at source.

b. A study by the Defence Science and Technology Laboratory (DSTL) has been commissioned to look into the feasibility of building an Engine Ground Running Enclosure. This study is currently examining the benefits of building such a structure, testing the claims of potential suppliers and ensuring that we will not harm our aircraft or personnel through vibration or reflected sound energy. We are anticipating the initial output from this study at the end of December and I will keep you appraised of the emerging findings through our routine working group meetings. However, I must caution that any development of an Engine Ground Running Enclosure would require significant investment, would be subject to the normal Defence approvals process and would take an estimated two years to deliver.

c. There remain significant challenges for those few residential properties closest to our airfield boundary, where it may not be possible to attenuate the noise to acceptable levels. If it becomes apparent that this is the case, I will consider recommending a formal noise amelioration scheme offering an acoustic noise insulation package to residents' properties. Discussions with the Defence Safety and Environment Authority regarding this course of action have been taking place since last year and remain ongoing.

Summary

12. The effect of our noise mitigation measures have been examined by an external consultant and noise levels have been found to be much improved on the results published in the technical report released in October 2012. Daytime levels have been found to be well within MOD guidelines, but night time noise in certain areas does exceed the MOD’s policy by up to 2.4 dB. I am happy that the employment of mitigation measures recommended in last years technical report and other measures implemented by RAF Brize Norton has resulted in a significant reduction in the noise associated with engine ground runs, but we need to stay focussed on reducing noise where we
can. Moreover, we need to ensure that we understand and can predict our noise footprint as new aircraft enter service, and that where mitigation is possible we bring it into being as soon as practicable.

13. The Station continues to work at lowering noise levels and we continue to seek improvements to current practices. The latest report identifies locations around the Station from which to carry out engine ground running procedures exploiting meteorological conditions and aircraft orientation to further mitigate against noise levels. A separate work-strand is currently examining the likely benefit that an Engine Ground Running Enclosure may deliver in terms of lowering noise levels, and the feasibility of procuring one at Brize Norton. We will continue to develop these improvements and will keep you updated on progress through our regular engagement.

14. I am very aware how important the level of noise generated by RAF Brize Norton is to you and I welcome any feedback you may have, either through your local Parish representatives or through the normal methods of contacting the Station. I know that we have been working on this issue for some time already, but we have made significant progress and it is vital that any action we take represents best value for money for the tax-payer and that any money spent is auditable against a demonstrable improvement. Hopefully you are reassured that both I and the Station remain committed to minimising noise at Brize Norton, and that we are striving to achieve a solution that will allow us to maintain operational commitments whilst having as little impact as possible upon your quality of life.

David Lee
Air Commodore
Air Officer Air Mobility