

# Helicopter Safety Research Management Committee

**Subject** Minutes of 73<sup>rd</sup> HSRMC  
**Date** Thursday 4<sup>th</sup> May 2017  
**Location** Aviation House, Gatwick  
**Organised by** Kevin Payne/David Howson, UK CAA

## List of Participants

Attendees	<p>Mr Rob Olney, UK CAA (Chairman)</p> <p>Mr David Howson, UK CAA</p> <p>Mr Kevin Payne, UK CAA (Secretary)</p> <p>Mr Rob Meyers, UK CAA</p> <p>Mr Brian Pattinson, UK CAA</p> <p>Mr Lionel Tauszig, EASA</p> <p>Mr Jim Lyons, Royal Aeronautical Society</p> <p>Captain Jon Hopkinson, CHC Helicopters</p> <p>Mr Andrew Dettl, Airbus Helicopters</p> <p>Mr Ian Scott, Shell Aircraft</p> <p>Mr Simon Brailsford, BP</p> <p>Mrs Gretchen Haskins, HeliOffshore</p> <p>Mr Alex Knight, Helideck Certification Agency</p> <p>Captain Ornulf Lien, Norwegian CAA</p> <p>Mr Alan Wilson, Leonardo Helicopters</p> <p>Mr Michael Cerneck, Sikorsky Helicopters</p> <p>Mr Joe Rears, One Atmosphere</p> <p>Mr Matt Brooks, Helios Technology</p> <p>Mr Andrew Burrage, Helios Technology</p>
Apologies	<p>Captain Rick Newson, UK CAA</p> <p>Mr Tony Eagles, UK CAA</p>

	Captain Steve O'Collard, BHA
	Mr Neil Taylor, DSTL
	Mr Dan Chicoyne, C-NLOPB
	Mr Dujon Goncalves-Collins, RenewableUK
	Captain Simon Harlow, Babcock
	Mr Gilles Bruniaux, Airbus Helicopters
	Mr Robbie Decoster, CAA Belgium

## AGENDA

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1. Introduction
2. Review of Minutes of 72nd meeting (29th September 2016)
  - 2.1 Accuracy
  - 2.2 Actions/matters arising
3. Review of Current Research Projects
  - 3.1 UK CAA managed projects
  - 3.2 EASA managed projects
  - 3.3 C-NLOPB initiatives
4. Research Programme Funding
  - 4.1 Funding status of current programme
5. Presentations
  - 5.1 Progress Update on One Atmosphere 'Pegasus' side-floating helicopter scheme
  - 5.2 GPS-Guided Offshore Approaches – Gap Analysis
6. AOB
7. Date of Next Meeting
8. Close

## Minutes of meeting

### 1. Welcome & Introduction

Mr Rob Olney, chairing the meeting on behalf of Captain Newson, welcomed all participants to the 73rd meeting of the HSRMC and, in particular, Mr Joe Rears from One Atmosphere attending to provide a further update on the progress of their Pegasus emergency floatation system, and Mr Matt Brooks and Mr Andrew Burrage representing Helios Technology who provided an update on the gap analysis for GPS guided Offshore Approaches. All participants introduced themselves for the benefit of new members.

### 2. Minutes of 29 September 2016 Meeting

#### 2.1 Accuracy:

The minutes from the 72nd meeting of 29th September 2016 were approved without any comments or corrections.

#### 2.2 Actions:

- a) **Action 345:** All members to gather and feedback data for discussion and collation at the 71st meeting for Tail Rotor Strike Warnings.

Mr Brailsford advised that BP didn't have any data. Mr Howson confirmed that CAA had repeated the analysis of MORs but had not identified any more occurrences than last time, adding that there had recently been a significant tail rotor strike event in Brazil. At this point a You Tube video of the accident was played and members provided their comment and feedback on how the event might have been avoided. However, all agreed it is not likely that a strike warning system could have prevented this particular accident; the consensus was that consideration should be given to marking the OFS. It was agreed that the action could be closed but the proposal to mark the OFS would be discussed further at the next HCA HSC. **Action CLOSED.**

- b) **Action 354:** Mr Howson to agree high level objectives with HeliOffshore, obtain a costed proposal from Helios for the desk study and proceed as appropriate.

Mr Howson advised that this action has been completed. The scope of work was agreed and the contract let to Helios Technology for Phase 1. A presentation on the Phase 1 results was given at agenda item 5. **Action CLOSED.**

- c) **Action 355:** Mr Howson, Mr Brailsford and Mr Hamremoens to produce a one-page summary of the helicopter side floating scheme.

Mr Howson confirmed that he had sent an email to all HSRMC members with information on the scheme and offering to produce a summary. No replies were received, however this was one of the six projects submitted by Mr Howson to HeliOffshore for their Strategy Plan that would form the centrepiece of their conference later in May. **Action CLOSED.**

### 3. Review of Current Research Projects

#### 3.1 UK CAA Managed Projects (Mr Howson, UK CAA)

In addition to the Research Update Briefing for 04 May 2017 circulated to members on 28th April 2017, Mr Howson delivered a PowerPoint briefing dated 02 May 2017, and circulated to members on 5 May 2017, where the following was also noted/emphasised:

1) Helicopter Ditching and Water Impact:

Side-Floating Helicopters – Mr Howson explained that the EASA Safety Committee had determined that the air pocket scheme is not sufficiently mature and has removed the scheme from the new AMC material. However, research to determine the feasibility of the air pocket scheme is to be commissioned and funded by EASA. A decision will be taken in due course on whether the associated objective rule (CS 29.801(i)) is also to be removed; this is arguably unjustified and would represent a further set-back for this significant safety improvement. As an alternative, CAA has proposed that publication of the new Certification Specification be delayed until the air pocket research has been concluded, but this has been rejected by EASA.

EBS Specification – With regard to the Emergency Breathing Systems (EBS) standard, Mr Howson confirmed that work on an EN standard is nearly complete and EASA is expected to issue an ETSO to cover prEN 4856 once it has been formally published by ASD-STAN. For UK training, HSE has now revised its exemption to allow EBS training to take place in shallow water on the basis of only the standard offshore medical and a self-questionnaire (completed on the day of training) to a maximum chest depth of 0.7m. The exemption to train in depths up to 1.5m with a standard offshore medical plus lung function test (spirometry) remains. Mr Howson completed the brief by describing changes being considered for incorporation in new Life Jacket and Immersion Suit standards, also to be issues as prENs/ENs and covered by ETSOs by EASA.

2) Operations to Moving Helidecks – Mr Howson confirmed that upgraded ‘traffic lights’ are to be delivered and installed on the Chevron ‘Captain’ and ‘Alba FSU’ during Q2 or Q3 of 2017. Meanwhile a new HMS specification has been drafted adding new functionality to the existing HCA specification. An HCA-hosted meeting with industry

was scheduled for 18<sup>th</sup> May 2017 to agree the HMS specification, the trials objectives and the plans for introduction.

- 3) Helideck Lighting – Mr Howson had previously advised that CAA International was offering a product approval service for manufacturers of the new circle and H helideck lighting and gave an update on the status of CAAi (and HCA) approvals. CAAi has approved three systems with two further systems in progress. For CAP 437 8<sup>th</sup> Edition (December 2016), tolerances on the size and location of the ‘H’ marking, and for the radius of the TDPM circle, had been added with clarifications of requirements in respect of strength of mountings and drainage. Within a week of publication of CAP 437 8<sup>th</sup> Edition, CAA issued a Safety Directive (SD 2016/005) which mandates the circle and H lighting for night operations post 31 March 2018 and gives credit for circle and H lighting from 01 January 2017 in the NUI fire-fighting scheme. Mr Howson completed this section of the brief by describing a circle and H installation onshore at St. George’s Hospital helipad in Tooting. In this environment there are the additional challenges of the routine use of skid fitted helicopters and the requirement to have patient gurney access up to the helicopter. This has required changes to be made to the onshore scheme. These will be trialled later in 2017.
- 6) Offshore Approaches - Mr Howson advised that a separate presentation would be given under agenda item 5, bullet 2.
- 12) H-TAWS Warning Envelopes– Mr Howson reported a two-stage implementation plan being driven by HeliOffshore with Phase 1 being essentially limited to HTAWS unit changes evaluated and confirmed via flight simulator trials on the Bristow EC225 simulator. A specification and research report is published in CAP 1519 and CAP 1538 respectively. The target date for completion of voluntary retrofit is end 2017/ early 2018. Phase 2 will include any modifications to warning form/format resulting from ongoing Cranfield University research and will include the modifications to HTAWS omitted from Phase 1. New ideas will be investigated in the pursuit of the development of a formal specification (EUROCAE/RTCA MOPS) with and via EASA. In response to a slide where Mr Howson highlighted the significant improvements in warning times that would have been delivered to past accidents by the new scheme, Mrs Haskins emphasised the clear value of the project in terms of cost/benefit adding that the project was receiving strong support from HeliOffshore towards the objective of full implementation.

### **3.2 EASA Managed Projects**

Mr Lionel Tauszig, presented the EASA Managed Projects – Helicopter Safety Research Management Committee, 4 May 2017. The presentation was circulated to members by email on 5 May 2017.

- Vibration Health Monitoring or Alternative Techniques for Helicopters (AAIB SR 2010-027 & 2011-041):
  - VHM - The project report on the Cranfield University work focussing on the main

rotor gearbox and epicyclic plant gear bearings was published on 4 June 2015. Defects in epicyclic planet gear bearing outer races were successfully detected using acoustic emission (AE) technology that were not detected by standard accelerometer-based HUMS.

[https://www.easa.europa.eu/system/files/dfu/EASA\\_REP\\_RESEA\\_2012\\_6.pdf](https://www.easa.europa.eu/system/files/dfu/EASA_REP_RESEA_2012_6.pdf)

- HELMGOP II - The work on the use of thioether mist for emergency lubrication has demonstrated its effectiveness, stabilising the temperature of all components except for input shaft bearings (due to component speed).
  - MGH – The work at South Bank University on bearing defect detection using wireless AE had not included any full-scale testing due to the test gearbox being damaged during earlier work.
- Crew immersion suit conspicuity (AAIB SR 2008-036) – investigating the use of IR reflective GLINT tape as it does not reflect visible light and so is well adapted to the cockpit environment. Trials are planned and this initiative will be presented to ASD-STAN D1 WG9 (the industry group creating a new immersion suit standard).
  - Survivability:
    - Enhanced emergency floatation systems (AAIB SR 2016-019) – research aimed at demonstrating the feasibility of the side-floating helicopter scheme is being scoped.
    - Evacuation & survivability (AAIB SR 2016-016) – generation of data on underwater escape in realistic conditions to support regulations.
  - Future topics - include work on improvements in main rotor gearbox design to reduce critical parts and maintain an autorotation capability in case of component failure. EASA intends to set up a group to manage the project. Mrs Haskins stated this remains HeliOffshores number one safety priority and suggested an innovation fund set up to look at the challenges of improving main gearbox design. Mrs Haskins suggested that I-OGP could be approached to generate funding and create resourcing to investigate solutions that will enhance reliability.

### **3.3 C-NLOPB initiatives**

Mr Chicoyne had been unable to attend but had provided the following note:

Despite the price of a barrel of oil, we are experiencing some significant growth in NL. The Hebron GBS will be towed to field in the next few weeks and we have a new MODU coming from Norway...all of which translates to increased flying activity.

We continue to be interested in side-flotation as well as the other Safety initiatives that we discuss at the EASA meetings. A new area of interest for us is a suit that will accommodate an injured passenger who cannot Don a normal suit.

#### **4. Research Programme Funding**

Mr Howson provided a brief update on the funding status of the current CAA research programme. With the exception of the red item, Tail Rotor Strike Warning project, all other projects continue to have sufficient funding.

#### **5. Presentations**

##### **5.1 Pegasus Update on One Atmosphere ‘Pegasus’ side-floating helicopter scheme [Joe Rears, One Atmosphere]**

Mr Rears delivered a presentation which was too large to subsequently circulate to members. Mr Olney sought clarification whether implementation was only for new aircraft types or intended also as a retrofit. The answer is both - EASA’s current focus in RMT.0120 is on new helicopter types. To drive forward the retrofit case Mrs Haskins requested that Joe Rears provide input to Steve Hawkes at HeliOffshore, adding that HeliOffshore could assist Mr Rears to draw up a cost-benefit case that would be provided to IOGP for funding consideration.

##### **5.2 GPS Guided Offshore Approaches – Gap Analysis [Matt Brooks and Andrew Burrage, Helios Technology]**

Matt Brooks and Andrew Burrage delivered a presentation on the offshore approach gap analysis. The presentation reported on progress with the work commissioned following agreement at the 72<sup>nd</sup> meeting in September 2016. The work is aimed at paving the way to in-service trials of GPS-guided approaches to support the validation of new AMC/GM for the air operating rules (SPA.HOFO). The presentation was circulated to members in an email dated 5 May 2017.

#### **6. AOB**

- Mr Lyons circulated the Conference Programme for the forthcoming RAeS Rotorcraft Conference on 5/6 July 2017 – Technology Friend or Foe.
- Mr Howson, on behalf of Mr Goncalves-Collins, introduced the NITROS initiative, which is explained in more detail at <https://www.nitros-ejd.org/about/> . Mr Goncalves-Collins had advised as follows (paraphrased by Mr Howson):

Both CAA and RenewableUK submitted supporting letters for NITROS during the bidding phase for funds. Stephen Wheeler was the CAA lead at the time and both the CAA and RenewableUK logos are on the homepage as industrial partners. Other HSRMC member companies are also partners (Bristow and Leonardo). Mr Goncalves-Collins had suggested that they link up with HeliOffshore when he attended the Project Kick Off meeting, and also suggested that they identify a new contact at CAA as Stephen Wheeler is no longer with CAA. The project is hopeful that CAA will be able to support some ESRs through placements etc. (Sqn Ldr) Ade Stead (as the lead POC at CAA on Windfarms) is up to date on this. The joint RenewableUK and CAA focus to date has been on the turbulence/wake ESRs (ref. Stephen Wheeler's presentation at the 70<sup>th</sup> HSRMC meeting on 13 July 2015).

#### **7. Date of Next meeting**

Mr Payne confirmed the 74th meeting of the HSRMC will take place on Wednesday 1st November 2017 at CAA, Aviation House, Gatwick between 1230 and 1700 hrs.

#### **8. Attachments circulated with an email dated 5<sup>th</sup> May 2017**

1. UK CAA Managed Projects (Research Update – Dave Howson).
2. EASA Managed Projects (Lionel Tauszig)
3. GPS Offshore Guided Approaches – Gap Analysis (Helios Technology)

**Table 1: List of actions: No outstanding action items**