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**TRANSCRIPT OF PROCEEDINGS
TRANSCRIPT-IN-CONFIDENCE**

**INSPECTOR-GENERAL AUSTRALIAN DEFENCE FORCE
INQUIRY INTO THE CRASH OF A MRH-90 TAIPAN
HELICOPTER IN WATERS NEAR LINDEMAN ISLAND
ON 28 JULY 2023**

PUBLIC INQUIRY

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AVM G HARLAND AM CSC DSM**

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MR G O'MAHONEY, representing Airbus Australia Pacific Limited
MS K MUSGROVE, representing the Commonwealth**

0900, FRIDAY, 22 NOVEMBER 2024

DAY 31

TRANSCRIPT VERIFICATION

I hereby certify that the following transcript was made from the sound recording of the above stated case and is true and accurate

Signed	Date	(Chair)
Signed	Date	(Recorder)
Signed	Epiq Australia Pty Ltd	Date	11/12/24	(Transcription)

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MS McMURDO: Yes, MAJ Chapman?

MAJ CHAPMAN: Just as a preliminary matter, ma'am, before I call the
next witness, who will be MAJ Peter Scullard, I just need to deal with
5 something counsel assisting, COL Streit raised I think on the first day,
which his replacing one of the exhibits. That's Exhibit 41. Exhibit 41 is
LTCOL Reinhardt's statement.

And what needs to be replaced is within it and it's – I've got a copy – and
10 the replacement is – well, arises because there was some additional
redactions for protected identities that were made. So if we could just ask
to replace Annex E of Exhibit 41. And I can hand that up.

MS McMURDO: Yes, all right, Annex E of Exhibit 41 will be replaced
15 with this. And have all the interested parties been provided copies of that?

MAJ CHAPMAN: I understand that's the case.

MS McMURDO: Thank you.
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MAJ CHAPMAN: And with that, ma'am, can I call Peter Scullard.

MS McMURDO: Yes.
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<MAJ PETER FRANCIS JOSEPH SCULLARD, Sworn

<EXAMINATION-IN-CHIEF BY MAJ CHAPMAN
30

MS McMURDO: Please let me know if at any time you would like a
break.

MAJ SCULLARD: Yes, ma'am. Thank you.
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MS McMURDO: Thank you. Yes, MAJ Chapman.

MAJ CHAPMAN: Thank you, ma'am.
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MAJ Scullard, could you please state your full name?

MAJ SCULLARD: Peter Francis Joseph Scullard.
45

- MAJ CHAPMAN: Thank you. And just there's two preliminary matters. I'll just ask you to confirm that you received each of the following documents prior to today. The first is the section 23 Notice requiring your appearance today to give evidence?
- 5 MAJ SCULLARD: Yes.
- MAJ CHAPMAN: Second is the extract of the Inquiry Directions?
- 10 MAJ SCULLARD: Yes.
- MAJ CHAPMAN: Third is a copy of my appointment as an Assistant IGADF?
- 15 MAJ SCULLARD: Yes.
- MAJ CHAPMAN: Fourth is a Frequently Asked Questions Guide for Witnesses to these Inquiries?
- 20 MAJ SCULLARD: Yes.
- MAJ CHAPMAN: And the fifth is a Privacy Notice for Witnesses Giving Evidence?
- 25 MAJ SCULLARD: Yes.
- MAJ CHAPMAN: Thank you. MAJ Scullard, could I ask you during the course of your evidence today – you'll see you have a laminated sheet there that lists some protected identities – if it becomes necessary to refer to someone, could you just quickly check that to ensure that you're not disclosing anything you shouldn't be?
- 30 MAJ SCULLARD: (No audible reply).
- 35 MAJ CHAPMAN: Have you prepared, MAJ Scullard, for the purposes of your evidence, a statement?
- MAJ SCULLARD: Yes, I have.
- 40 MAJ CHAPMAN: Could I just hand you a copy? Do you see that to be a statement of eight pages in length? Or rather - - -
- MAJ SCULLARD: Yes, eight pages.

MAJ CHAPMAN: And that's your signature appearing on page 8, is it, electronically?

MAJ SCULLARD: Correct.

5

MAJ CHAPMAN: And it's a statement which is dated 29 October 2024?

MAJ SCULLARD: Yes.

10 MAJ CHAPMAN: And do you wish to make any amendments to that statement?

MAJ SCULLARD: No, I do not.

15 MAJ CHAPMAN: Thank you. Chair, I tender the statement of MAJ Peter Francis Joseph Scullard dated 29 October '24.

MS McMURDO: Exhibit 107. Thank you.

20

#EXHIBIT 107 - STATEMENT OF MAJ SCULLARD

25 MAJ CHAPMAN: MAJ Scullard, I'd just like to begin, if I may, with some of your background and professional experience, which commences at about paragraph 4. And I'll just go through it, hopefully in summary form, and ask you to agree. You joined the RAAF in January 1996 and attended ADFA?

30

MAJ SCULLARD: Correct.

MAJ CHAPMAN: You transferred to the regular Army in 1990 and in '91 commenced training, pilot training?

35

MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: You commenced rotary wing career on Kiowa?

40 MAJ SCULLARD: Yes, that's right.

MAJ CHAPMAN: You've had extensive experience both in Australia and deployments elsewhere, including other - - -

45 MAJ SCULLARD: Yes, there has been some deployments.

MAJ CHAPMAN: And experience with other Forces?

5 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: In 1999 you attended the Empire Test Pilot School program in the United Kingdom?

10 MAJ SCULLARD: Yes.

MAJ CHAPMAN: You've had a number of postings which have included AARDU, which is Aircraft Research and Development Unit?

15 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Is that the RAAF equivalent of AATES, more or less?

MAJ SCULLARD: Yes, it is. It was where Army had its rotary wing flight test; it was within that Air Force unit until basically AATES came on board.

20 MAJ CHAPMAN: And it's a Flight Test Organisation?

MAJ SCULLARD: Correct, yes.

25 MAJ CHAPMAN: Yes, thank you. And just reading on from paragraph 6 of your statement, your first interaction with the MRH was in about 2005, when you were posted as a project test pilot for MRH in France?

30 MAJ SCULLARD: Yes, that's right.

MAJ CHAPMAN: Reading on, you return to Australia in 2008 and continued in the MRH Project Office?

35 MAJ SCULLARD: That's right.

MAJ CHAPMAN: In 2016, you became part of what was then, as you just noted, the newly formed AATES?

40 MAJ SCULLARD: Yes.

MAJ CHAPMAN: In 2021, you transitioned to SERCAT 3 Army Reserves?

45 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Over the course of your career you've amassed some 5700 flying hours, including 1700 on the MRH?

5 MAJ SCULLARD: Correct.

MAJ CHAPMAN: You hold a Bachelor of Science from the University of New South Wales?

10 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And your current role, which you describe at paragraph 12, is within AATES; is that correct?

15 MAJ SCULLARD: Yes, in my Army Reserve role.

MAJ CHAPMAN: Yes, in your Army Reserve role. And there you say you provide support to full-time AATES staff in connection with the introduction of the new iteration of the Black Hawk.

20

MAJ SCULLARD: That's correct, yes. So part-time support to the full-time staff, yes.

25 MAJ CHAPMAN: Thank you. I'd now just like to move to asking you some questions about the earlier role you had as Commonwealth Test Pilot, and you addressed this at paragraph 14 onwards. You commenced as an MRH test pilot, you said, in about June 2006, approximately.

30 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And you continued in the role as Commonwealth Test Pilot until September 2018; is that right?

35 MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: And you describe the role as Commonwealth Test Pilot as not a position, but rather an airworthiness appointment in support of an acquisition and introduction into Service; correct?

40 MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: Do we understand it to be Commonwealth Test Pilot is an appointment which you hold alongside your posted role?

45 MAJ SCULLARD: Yes, that's correct. Yes.

MAJ CHAPMAN: And you were in that role, Commonwealth Test Pilot, for about 12 years?

5 MAJ SCULLARD: Yes, that's right.

MAJ CHAPMAN: And you held that appointment while you were also at AATES between 2016 and '18?

10 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: Sir, at paragraph 14(c) you describe that your reporting lines as Commonwealth Test Pilot changed over the years.

15 MAJ SCULLARD: Mm-hm.

MAJ CHAPMAN: You say that you first reported to position Operational Airworthiness Authority Representative-Acquisition first? And then later you moved to reporting to DOPAW and through to the DGAVN; is that right?

20

MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: When did that change in the reporting occur, approximately?

25

MAJ SCULLARD: I'd have to check the change in the appointment's letter.

30 MAJ CHAPMAN: Sure.

MAJ SCULLARD: But I guess it was as the project was transitioning more from an introduction into Service acquisition and the flavour became more of the sustainment part of the process.

35

MAJ CHAPMAN: Do you have an approximate year at all?

MAJ SCULLARD: I'd guess probably around about the 2016/17 mark.

MAJ CHAPMAN: Thank you. And you've described the role as Commonwealth Test Pilot at paragraph 14(d), and I'll just summarise some of the functions, but you would conduct operational qualification and verification activities?

45 MAJ SCULLARD: Yes.

MAJ CHAPMAN: You'd be providing advice to the Chief Engineer concerning human factors, configuration, and environment?

5 MAJ SCULLARD: Yes.

MAJ CHAPMAN: You were ensuring aircrew publications documented operational limits?

10 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: Provided some advice on the acceptability of type and performance roles within the CRE, which is Configuration, Role and Environment, as you know?

15 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And you represented Defence in various flight test reviews?

20 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: And then you were the representative of the Delegate on the MRH-90 Configuration Control Board?

25 MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: Based on those descriptions, would you agree with me that you were in a fairly key role in terms of making technical assessments with respect to the acquisition of the MRH?

30 MAJ SCULLARD: Yes, as part of the overall team. And just for what it's worth, that list that is in my statement is essentially taken from my Instrument of Appointment. So that's - - -

35 MAJ CHAPMAN: Certainly. And I was just summarising that. The full list is part of the evidence that's been tendered.

40 MAJ SCULLARD: No, understood. Yes.

MAJ CHAPMAN: And your role there included testing and evaluation of modifications on the MRH?

45 MAJ SCULLARD: Yes, as part of a test team.

MAJ CHAPMAN: Yes. And that extended, as part of the test team, to testing and evaluation of HMSD software upgrade 5.1?

5 MAJ SCULLARD: Only within the limited scope for 5.1 in MRH-90 first of class flight trial. I was not involved in the AATES or subsequent trial.

MAJ CHAPMAN: So it was limited to the first of class flight trial, was it?

10 MAJ SCULLARD: Yes, in terms of my flying with HMSD 5.10, yes.

MAJ CHAPMAN: And we'll get to that, the flight trials, just in a moment. And you describe in your statement that during this time, early on, you were for a time located in France.

15 MAJ SCULLARD: Yes, I was part of the Resident Project Team in France for the project, yes.

20 MAJ CHAPMAN: Were you there at the same time as COL Lynch, or did your time cross over there? Because we understand he was over in France for a period.

25 MAJ SCULLARD: No. In fact, when I posted into France, I moved into his house, so he had left. So, no, I didn't cross over there. There were later visits when I had to regularly go back to France and Germany. One of those later visits – I think around 2013/14 – he was the team leader of the Resident Project Team. And so any of those visits, especially there, you would see the team leader. So yes.

30 MAJ CHAPMAN: Certainly. And while you were in France, being in Location, it obviously had the benefit that you were able to, as a part of the resident team, liaise more easily with the OEM with respect to the aircraft?

35 MAJ SCULLARD: Yes, I guess that's one of the main aims of the resident team, which consists of many different skillsets, discipline, logistics, engineering, contracting, et cetera. So yes.

40 MAJ CHAPMAN: If we go over the page now, in page 4 of your statement you next discuss the symbology, TopOwl symbology, evolution. Do you see that?

MAJ SCULLARD: Yes.

MAJ CHAPMAN: And the summary of that passage is your evidence, and I'd ask you to agree that in about 2007, while you were in France, you were

involved as the Commonwealth Test Pilot in Type, Acceptance, Test and Evaluation?

MAJ SCULLARD: That's correct, yes.

5

MAJ CHAPMAN: And the Type, Acceptance, Test and Evaluation was, I assume, running the testing and the evaluation with respect to the whole of the platform, the whole of the MRH platform?

10 MAJ SCULLARD: Yes, again, without – depending on how much detail you really want. In that stage in France, with the Resident Project Team there was a lot of acceptance test and evaluation being conducted. But under the project construct, that actually gets conducted by industry. We, as part of the test team – a Qualified Test Pilot, Flight Test Engineer – were
15 able to participate in some of that flight test. And there were also some, I guess, certification flight tests that was conducted also by the French Government Flight Test Organisation because, as the Military Airworthiness Authority, they had to sign off things. Because that's what Australia was relying on, that certification from the DGA, as it was then – the French
20 DGA.

And we would – myself – as I said, there was a Flight Test Engineer as well – would at times be able to participate in that flight test activity. Also we gained exposure as part of the very initial team, test pilot and some early
25 Flying Instructors received as part of the preliminary stage training – you've got to start somewhere – on MRH-90, or NH90 – not necessarily on the Australian variant, but in France.

30 So through that, we built up our exposure to the platform and then developed the Type, Acceptance, Test, Evaluation Plan to pass on what we had seen and what may need to be addressed. And also, we were building knowledge on modifications and improvements that would be coming over time as well, being the very early stages of this program, this aircraft.

35 MAJ CHAPMAN: Yes, and all these processes were being engaged in in anticipation of the MRH being introduced to Army Aviation?

MAJ SCULLARD: Yes, that's correct.

40 MAJ CHAPMAN: At this point of the narrative – and we're in about 2007 – Army was not operating the MRH in Australia yet; correct?

MAJ SCULLARD: No, that is correct. Yes, the first flight in Australia was mid-December 2007.

45

MAJ CHAPMAN: So you and your team were conducting the testing, essentially working through issues prior to introduction?

MAJ SCULLARD: That's correct.

5

MAJ CHAPMAN: You then say, while you were in France in 2007, issues were identified with aspects of version 4 of the HMSD; correct?

MAJ SCULLARD: Yes, that's right.

10

MAJ CHAPMAN: You go on to say – and I'm at paragraph 15 of your statement – that since 2007 the MRH Project Office and DG AVN engaged with DSTG to investigate modifications to improve version 4 of the TopOwl symbology set?

15

MAJ SCULLARD: Yes, that's correct. It was probably a little later than 2007 the actual engagement with DSTG arose. But, yes, out of our Type, Acceptance, Test and Evaluation Report, and then as the flying was commencing in Australia, some, I guess, desired improvements to the TopOwl symbology along with other aspects of the aircraft were identified. And, yes, then a program was developed, or task, I guess, assigned to DSTG to start looking at potential improvements.

20

MAJ CHAPMAN: And this was conducted over a number of years from around 2007, dealing with - - -

25

MAJ SCULLARD: To be honest, I'd say more like 2008 and 2009 by the time it was identified and - - -

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MAJ CHAPMAN: So DSTG were working, as you understand it, with the MRH test pilots and, you say, QFIs and line pilots to evaluate a number of modified symbology sets through workshops, and I think you say human interface trials. Is that right?

35

MAJ SCULLARD: Yes, that's correct.

MAJ CHAPMAN: You say that each iteration of the modified version 4 improved on the last.

40

MAJ SCULLARD: Yes, I guess two – as I've written here – so MOD 4 from what was developed by DSTG in association with a range of pilots was the final iteration. There were various, I guess, depending on how they really titled it over time – MOD 2, MOD 3 was just their title. That covered symbology sets, then get a group of pilots back. As I said, they had a person in the loop type simulator where you could in some dynamic – or simulated

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dynamic environment see how the symbology reacts. And eventually improve and improve until come up with what was the, I guess, the final preferred symbology set which was known as MOD 4.

5 MAJ CHAPMAN: Yes, which I'm just getting to. So that resulted in, did you say, in 2015, the symbology set referred to as MOD 4?

MAJ SCULLARD: Correct, yes.

10 MAJ CHAPMAN: And you describe MOD 4 as a final Australian design symbology set?

MAJ SCULLARD: I guess, yes, in terms of the task that had been provided to DSTG that was, if you like, the final – okay, here's the final iteration after all this work.

MAJ CHAPMAN: And is that to say that it was a symbology set that was uniquely tailored for conditions in Australia because it had had input from Australian operators?

20 MAJ SCULLARD: Yes, that would be a fair comment.

MAJ CHAPMAN: And that was in contrast – and I'm going ahead in time a bit – but that was in contrast, for instance, to the later version 5.10 which was an off-the-shelf ready solution. Is that a fair description?

MAJ SCULLARD: I guess 5.10 became a ready solution but, yes, it had been developed by Germany, you could say, in parallel in that time.

30 MAJ CHAPMAN: It was a ready, off-the-shelf – my expression – solution because it was developed by European operators and it really catered for a wider NH90 base?

MAJ SCULLARD: Yes, it was developed by Germany to meet their needs of – as I have in my statement, they were after some improved symbology for their deployments that were upcoming to Afghanistan. So they wanted some improvements.

MAJ CHAPMAN: Just to go back to MOD 4, so your evidence in your statement is that it culminated in this final form in about 2015?

MAJ SCULLARD: Mm-hm.

MAJ CHAPMAN: And just to pause there and unpack that slightly, is it your evidence that MOD 4, as at about 2015, had been finalised and was ready to be more or less installed in the HMSD?

5 MAJ SCULLARD: No. So in a document the preferred symbology set had been finalised. But then, as I also say in my statement, that next step – well, okay, how do you now turn this paperwork into something that works into the aircraft – that had not occurred at that point.

10 MAJ CHAPMAN: But it's still – this is MOD 4, could you describe it as – you refer to it as an Australian version, so it was something of a bespoke version of the symbology? When I say “we”, Australia had essentially contributed to?

15 MAJ SCULLARD: Yes, it was purely Australian. There were – a subject-matter expert from overseas as well was asked to look at it. But yes, it was a bespoke Australian set.

MAJ CHAPMAN: You next say about MOD 4 in your statement, that:

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At this point there was no clear path for incorporation of the MOD 4 symbology into the MRH-90.

Do you see that?

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MAJ SCULLARD: Yes.

MAJ CHAPMAN: Am I right in saying this, in terms of the timeline, that by 2015 the MRH had entered Service?

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MAJ SCULLARD: Yes, well and truly in Service.

MAJ CHAPMAN: Yes. And as at 2015, MRH pilots were using version 4, or possibly an earlier version of the symbology?

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MAJ SCULLARD: That's version 4 in that one, yes.

MAJ CHAPMAN: Version 4. And we have as at 2015, you're saying that there was, at least in an advanced state of development, an improved symbology set, which is MOD 4?

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MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: Though you then say:

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There was no clear path for the introduction of MOD 4.

And I'm just trying to understand what you mean when you say "there's no clear path". What was the obstacle to introducing MOD 4 to the MRH fleet?

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MAJ SCULLARD: So in terms of Defence Science Technology Group and working with the aircrew in the simulation, as come up – here is the ideal – or here is the symbology set that is, you know, generally accepted across the MRH-90 pilot community and should work in the aircraft. So like, full stop. To then get that into an aircraft, you have to work with the software engineers. Those experts were generally over in Europe, essentially in Germany.

10

In terms of whether or not that symbology set developed with DSTG would work properly in the NH90/MRH-90 was not known because that level of, I guess, software development and investigation of its impact in the NH90 had not occurred. For example, when you have different symbology line sets ideally being drawn, that requires various levels of processing power. If you have too many lines trying to be drawn in symbology, which should appear instantaneous, then, like a computer that's not running well, you could get stuttering, et cetera.

15

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So that level of, okay, "Here's an ideal dream set. Will it work in the NH90?" That was not known at that point.

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MAJ CHAPMAN: So when you said earlier that there was, I think you described in your statement as "a final symbology set", or words to that effect, it was final in one sense, but the physical testing of it hadn't been fully progressed.

30

MAJ SCULLARD: The testing of whether or not it would work in an NH90, with its design, had not – yes, had not been conducted.

MAJ CHAPMAN: You say that, at 16, over this same period other NH90 customers were considering modifications to symbology sets, including the German Forces?

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MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: When you say "over the same period", you're referring to that period where DSTG is still working on MOD 4?

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MAJ SCULLARD: Yes. So they're essentially in parallel. So from the late – after 2007-ish onwards, then, yes, countries like Germany were wanting some improvements in the symbology.

45

MAJ CHAPMAN: Sure.

MAJ SCULLARD: So they were looking at improvements.

5

MAJ CHAPMAN: So MOD 4's progressing along, if you will, at the same time as the Germans, in particular, and Europeans are working on modifications to their own symbology set. Is that generally right?

10 MAJ SCULLARD: Yes.

MAJ CHAPMAN: So I'll just move to what you've had to say about your visit to SUZ – or it's been referred to I think as SUZ. Is that correct?

15 MAJ SCULLARD: Correct, yes, SUZ.

AVM HARLAND: Just before we go into that, MAJ Chapman. Could I just get some clarity here in terms of the versions? So is it fair to say that MOD 4 was effectively a project between Army and DSTG, or DSTO as it was at the time?

20

MAJ SCULLARD: Sorry, MOD 4?

AVM HARLAND: Yes.

25

MAJ SCULLARD: Correct, yes. So it was a program that I believe the DGAVN/CASG world asked DSTG to look at.

AVM HARLAND: And is it also fair to say that it wasn't really plugged into the overall MRH-90 program in terms of an expectation being formed that this might become a modification in the future?

30

MAJ SCULLARD: Probably have to ask the Program Director, et cetera, to get a clear answer on that, sir. I guess our assumption at our sort of more working level was that the outcome of this would eventually, ideally, end up in the MRH-90.

35

AVM HARLAND: Yes. Which it clearly didn't. The other one, when you talk about version 4 – so you talked about:

40

In 2015, the MRH-90 was in Service and it was flying with TopOwl version 4.

Is that version 4 or version 4.07?

45

MAJ SCULLARD: That is version 4.00.

AVM HARLAND: Yes. So it didn't have the German modifications in it?

5 MAJ SCULLARD: No, it did not. So essentially when we first received the NH90 sort of 2007 that was version 4.0. And, as with every other NH90 operator, that was using the TopOwl, its symbology. And so that is the version we had right up until the introduction of version 5.10.

10 AVM HARLAND: So the Australian Army didn't transit through version 4 to version 4.07, to version 5.10.

MAJ SCULLARD: Correct.

15 AVM HARLAND: It went straight to - - -

MAJ SCULLARD: 4.0 to – sorry to speak over you, sir.

20 AVM HARLAND: Yes. Sorry, version 4 straight to version 5.10, I think that's what you were saying.

MAJ SCULLARD: Correct, sir, yes.

25 AVM HARLAND: Terrific. Okay, that's clear. Version 4.07, did that have the same attitude ambiguity characteristic as version 5.10?

MAJ SCULLARD: It had the same characteristic, yes, sir, as 5.10.

30 AVM HARLAND: So the difference between 4.07 and 5.10 was quite small?

MAJ SCULLARD: Yes, quite – generally small. It included 5.10 on top of the 4.07, which the Germans had but Australia never had. 5.10 introduced, as an example, the distance to run value over the waypoint marker. And also for some other European operators, it had some obstacle warning system-related information. Australia did not have the obstacle warning system, so that aspect wasn't relevant to us.

35 AVM HARLAND: But it still carried forward that attitude ambiguity that we talked about, that AATES talked about.

MAJ SCULLARD: That characteristic, yes, sir.

40 AVM HARLAND: And final question, did the Australian MOD 4 design

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have the same off-axis attitude characteristics or ambiguity characteristics as version 5.10?

5 MAJ SCULLARD: No, sir, it was a totally different attitude type of symbology. Pitch and roll attitude was the different - - -

AVM HARLAND: So the preferred Australian design didn't have that attitude ambiguity?

10 MAJ SCULLARD: It didn't have that characteristic, that's correct, sir.

AVM HARLAND: Thank you. So, MAJ Chapman.

15 MS McMURDO: So MOD 4 was much more than aspirational. It actually was fairly close to being finalised, but you hadn't got that last step of being able to transfer it into the MRH-90?

20 MAJ SCULLARD: Yes, that's correct, ma'am. I guess from a research and development aspect, working with DSTG, it was, "Here's a good symbology set we believe would be good for Australia", but that's where that part of that program had stopped – or not stopped. I don't mean necessarily gone dead, but the intent was to then roll it in. It's just that the "How does that happen?" was to come next.

25 MS McMURDO: I guess in designing that, you were considering Australian conditions and Australian needs?

MAJ SCULLARD: Yes, that's correct.

30 MS McMURDO: Yes, thank you.

MAJ CHAPMAN: At paragraph 17 you referred to a visit that you took to SUZ in 2013?

35 MAJ SCULLARD: Correct, yes.

40 MAJ CHAPMAN: This was a couple of years prior to when you said earlier in your statement there was this culminated final version of MOD 4; is that right?

MAJ SCULLARD: Yes, that's correct.

45 MAJ CHAPMAN: How did you come to visit SUZ? Was it a visit suggested to you by someone?

5 MAJ SCULLARD: Yes, it was. As I said earlier, in my Commonwealth Test Pilot role, I guess every year or two I end up having to travel back to France and Germany for various meetings. I guess, our Australian Army Aviation Capability Management and Project Office people were aware, through the ongoing contacts that go on, that Germany was developing this software, which they had on a test rig, and - - -

10 MAJ CHAPMAN: My question was simply, did someone ask you to visit there, and who was that?

MAJ SCULLARD: I don't know who actually asked me to visit there. I just know it was ideal that the Commonwealth Test Pilot, whilst in Europe, take the opportunity, I believe, with other project people, to visit that facility.

15 MAJ CHAPMAN: Do you have a recollection of COL Lynch asking you to visit SUZ?

20 MAJ SCULLARD: I don't know whether it was him that asked me, but he definitely came with me to the SUZ, yes. And as the team leader, he may well have been the one who suggested it. But I do not know if that's the case. That's a long time ago.

25 MAJ CHAPMAN: Indeed. I'm asking to recall events years ago, I appreciate that. You're aware, I gather from that answer, that COL Lynch had also visited SUZ in the past, before you?

30 MAJ SCULLARD: I did not know that, but that does not surprise me, as the team leader of the RPTF, that he would have gone there before.

MAJ CHAPMAN: So you don't, I gather from that answer, have any recollection of COL Lynch telling you that he'd been on a sim ride to test the symbology at SUZ?

35 MAJ SCULLARD: No, not that I recollect.

40 AVM HARLAND: Sorry, MAJ Chapman. I just want to clear one thing up there. Is the test rig the same as the simulator? Would that be colloquially called the same or are they different things?

45 MAJ SCULLARD: To be honest, sir, I really don't recollect. At the time I recall there was a test rig and you could get some level of simulation of the symbology, but not the equivalent of being in a full motion simulator and giving the full dynamic information. But I really apologise, sir, I don't remember.

AVM HARLAND: No, that's okay. So in that timeframe, you're talking about the April 2013, and I believe that was a similar time that COL Lynch visited?

5 MAJ SCULLARD: It was.

AVM HARLAND: Would that test rig have been what he experienced version 4.07 on?

10 MAJ SCULLARD: I would assume so. I don't know of another rig.

AVM HARLAND: MAJ Chapman, sorry.

15 MAJ CHAPMAN: So, sir, your evidence is that when you visited you viewed the symbology on the test rig, as you've just discussed with the Air Vice-Marshal?

MAJ SCULLARD: Correct.

20 MAJ CHAPMAN: And that was version, to be clear, 4.07?

MAJ SCULLARD: That's correct, yes.

25 MAJ CHAPMAN: You describe that one of the changes being introduced by 4.07 was the use of the pitch ladder in conjunction with the conformal horizon to represent aircraft roll attitude; correct?

MAJ SCULLARD: Correct.

30 MAJ CHAPMAN: Though you were unable to view the full functionality on the test rig, as we've just discussed?

MAJ SCULLARD: Mm-hm.

35 MAJ CHAPMAN: So I take it that you did not observe what was later described as "the ambiguous attitude issue" that was in 5.10.

MAJ SCULLARD: No, I didn't. No, so seeing it for the first time, I recall,

40 "Okay, this is a different way of doing it", but I understood what Germany was aiming to achieve by reducing the amount of, I guess, different aspects of symbology. It was, let's say, a very quick familiarisation of a modification. In terms of – it's not like we were doing a test and evaluation program and putting it through its paces and assessing a whole lot of

45 different things. So, yes, to that end and the characteristic – due to the

conformal nature of how the engineers that incorporated that that is being spoken about, no, that was not picked up, if you like, during that.

5 MAJ CHAPMAN: Though you understood that that characteristic was not present on version 4.

MAJ SCULLARD: That's correct.

10 MAJ CHAPMAN: Which was the version being operated at the time in Australia.

MAJ SCULLARD: That's correct.

15 MAJ CHAPMAN: Just back to paragraph 18 of your statement. A couple of years following your visit to SUZ, you say that:

During 2015 and '16, there was progress being made between the Commonwealth and industry developing the way ahead for incorporating the MOD 4 symbology set.

20

Do you see that?

MAJ SCULLARD: Yes, that's correct.

25 MAJ CHAPMAN: Just on that, when you say "the Commonwealth and industry", who specifically are you referring to? Is this the Army Aviation as representing the Commonwealth, or some other body?

30 MAJ SCULLARD: Again, my recollection would be, like any modification, regardless of what it is, it would have presumably been Directorate – so primarily Aviation Capability Management talking with Capability Acquisition and Sustainment Group, so MRH Project Office, and looking at, "Okay, we have this need, working with CASG of how to move ahead, then to deal with industry, et cetera, to make this happen, essentially".

35

MAJ CHAPMAN: In terms of your reference to "industry", that's the OEM. And can you just describe, if you can, the names of those entities, from what you can recall?

40

MAJ SCULLARD: I guess, (indistinct) my recollection is, the formal way of things being initiated would be through the Australian-based contractor, which went through various names, but I guess Airbus Australia Pacific in the end. Who then would have been also the conduit through to other parts

of the original equipment manufacturer involved in NH90. And, yes, so essentially just there's many different areas that get used.

5 MAJ CHAPMAN: When you referred there was progress being made, what's your understanding of what was the hold-up in the progress? Was it a technical issue, was it some sort of procurement or funding issue? Can you elaborate on what the hold-up was?

10 MAJ SCULLARD: I guess that's not my area of expertise, other than there was, you know, a formal task initiated. I'm aware that I believe a statement of work – being not my area of expertise – but a statement of work was formalised and provided to industry to get feedback on, “Okay, let's make this happen. What is it going to take to make it happen?”

15 MAJ CHAPMAN: At paragraph 19 you then say notwithstanding this progress that was being made in 2016 to advance MOD 4, in May 2017 you say that a decision was taken to pivot to the already certified version 5.10. Is that right?

20 MAJ SCULLARD: Yes, that's correct. That's what I was informed, yes.

MAJ CHAPMAN: That was because, you say:

25 *The Commonwealth had identified that the implementation of MOD 4 would present an undefined technical risk and an unacceptable cost and schedule risk.*

Do you see that?

30 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Just by this timeline, do you agree that was something of an abrupt change of position at the time?

35 MAJ SCULLARD: I don't know if “abrupt”. I think these things follow a process, and that's how it came to be.

40 MAJ CHAPMAN: Abrupt in the sense that there was progress being made on MOD 4 symbology, and then there was a change in May 2017 to say, “We're going to pick up 5.10”. Do you generally agree with that?

MAJ SCULLARD: Generally, yes. Well, I guess looking at incorporating MOD 4 into MRH-90, a decision was made at higher levels for that not to go ahead.

45

MAJ CHAPMAN: Did that decision to pivot to 5.10 at that time surprise you?

5 MAJ SCULLARD: I know it was slightly disappointing. Surprising? In the bigger world of aircraft introduction and software-heavy aircraft, nothing really surprised me in the end.

10 MS McMURDO: So at that stage had the Government – do you understand the Government had obtained costings?

MAJ SCULLARD: That's what I believe. As I said, ma'am, sorry, it was outside my area. But I believe there would have been costings and understandings then of what would be required to incorporate it all the way through to being fully in Service across the fleet.

15 MS McMURDO: Did you have any idea of what the undefined technical risk was?

20 MAJ SCULLARD: No, I don't exactly know what it was, but I can only assume it would have been things like I was mentioning before; you know, here was our, let's say, through investigation with DSTG, and then on paper, here's our ideal symbology set. It may have been that, as I was explaining before, from a software incorporation in terms of whether all this could be correctly displayed in a timely manner, without degradation – perhaps it was that. But I actually don't know exactly, ma'am.

25 MS McMURDO: I see. And version 5.1, following on from version 4.7, was largely developed by Germany with their Afghanistan service in mind; is that correct?

30 MAJ SCULLARD: That was my recollection, is that Germany in around 2012/13 were looking at deploying MRH-90 into Afghanistan in a forward medevac role, and they were pursuing some improvements over the 4.0 version of the TopOwl that everybody had, and so hence they – yes, they were developing improvements.

35 MS McMURDO: And the dust and desert conditions in Afghanistan were a factor they were concerned about. Did you understand that?

40 MAJ SCULLARD: That's what I understand, ma'am, but I - - -

MS McMURDO: And perhaps the high mountains as well?

45 MAJ SCULLARD: Perhaps, ma'am, yes.

MS McMURDO: So the conditions in Afghanistan, while Australia certainly has deserts and dust storms, it also has quite different needs with its coastline and torrential rain, et cetera.

5 MAJ SCULLARD: Yes, I guess there are differences here, but also we're expected to be able to deploy anywhere in the world, ma'am, as well.

MS McMURDO: Yes, thank you.

10 AVM HARLAND: Just a question if I may, before we move on. You talk about it was determined that the already certified version 5.10 symbology would achieve the best compromise between MOD 4 capability and cost schedule risk. Who made that determination?

15 MAJ SCULLARD: I don't know exactly who, but as with most projects, and I guess capability-related decisions, it would've been between the Aviation Branch and generally the Directorates of Aviation Capability Management would be dealing with CASG, so the MRH Project Office and above for the pros and cons, and then making a decision, sir.

20 AVM HARLAND: Would that normally incorporate a risk assessment for incorporation of a modification when you make that decision?

MAJ SCULLARD: Sorry, can you just rephrase that, sir?

25 AVM HARLAND: If you were to look at a modification, accepting a modification for an aircraft, would it be ordinary that a risk assessment would be made so you could understand the risk of incorporating that modification?

30 MAJ SCULLARD: Yes, I would say so, sir, but my belief is that Capability Management had looked through that. If I go back a step, with the version 4.07 and version 5.10 – actually, I apologise. I'll go back another step. So even in that visit in 2013, I had the opportunity to look at 35 4.07. As I said, in Australia, DSTG program was ongoing. It hadn't reached the MOD 4 status. But a part of that – there were quite a number of improvements to the symbology set that the Germans had introduced in 4.7, which were things that we were considering, and also took back to consider to use in MOD 4 in Australia.

40 I don't know how much detail you really want, but it was a lot easier to use in terms of looking at the heading scale. As I said, the waypoint markers, some aspects were more compact and easier for the pilot to scan in terms of picking up aircraft power, speeds; rate of climb and descent indications

were greatly improved. So there were – 4.07, which evolved to 5.1, had a lot of very good improvements over the extant, you know, day 1, 2007, 4.0.

AVM HARLAND: Okay. Thank you.

5

MAJ CHAPMAN: Sir, when you refer to the Commonwealth had identified the implementation – the undefined technical risk and unacceptable risk and scheduled risk, who, to your recollection, are you referring to there as having identified these risks with MOD 4? Do you have a recollection of that?

10

MAJ SCULLARD: No, other than organisationally it would have been CASG, so most likely MRH Project Office or its subsequent iterations, presumably after getting technical feedback through industry, and in consultation with Capability Management.

15

MAJ CHAPMAN: What did you understand about the reference that you made to unacceptable cost, in the context of MOD 4, which was a fair way down the track in terms of development? Had this – and I appreciate this is outside of your lane, but was this something which was discussed or that had been – has this been paid for in some way, or did you have any understanding about that?

20

MAJ SCULLARD: So MOD 4, so the DSTG MOD 4 – as I said, MOD 4 itself, I guess it ended as a – putting it overly simplistically, but as a document produced by DSTG. Then Army/CASG have gone, “Okay, how do we incorporate that? Ask for Statements of Work for incorporating MOD 4.” Obviously the assessment in the end was that, “Okay, we’re not going to go ahead with that”.

30

MAJ CHAPMAN: So the extent of your understanding basically was that you understood there was just unacceptable costs to proceeding with MOD 4, but you didn’t have any further detail about that?

35

MAJ SCULLARD: No, I don’t. No, that’s – I stay independent of costs in my - - -

MAJ CHAPMAN: Sure. And in terms of the third element, which is the risks to schedule, did you understand that to be a risk to a particular operational schedule at all, or just like the reference to the funding, it was just a general statement?

40

MAJ SCULLARD: So, firstly, the reference to funding, and we’re only talking about MOD 4, not talking - - -

45

MAJ CHAPMAN: Yes, this is - - -

5 MAJ SCULLARD: - - - about 5.10? In terms of schedule risk, I mean, there was – we were wanting to move ahead with incorporation of improved symbology to also assist with the introduction of MRH-90 into the Special Operations role.

10 MAJ CHAPMAN: Right, which is my next question. So it was linked, your reference to risk to schedule, was it, to Plan Palisade?

MAJ SCULLARD: It was not me who said that there was a risk to schedule. I can only assume that the risk to schedule was against Plan Palisade in terms of MOD 4 introduction.

15 MAJ CHAPMAN: You say at paragraph 19 that it would – as I think the Chair has taken you to – version 5.1 would represent the best compromise between capability, cost and schedule. Correct?

20 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And was MOD 4 tested by you in a sim in any way, or did you have any physical testing of MOD 4?

25 MAJ SCULLARD: So the DSTG program, which resulted in the final version called MOD 4, yes, involved a fixed space simulation at DSTG down in Melbourne, where we had a form of helmet-mounted display in sort of a fixed sphere-type simulation where they could modify the different types of symbology you could see, and do various tasks to assess whether symbology helped in different flight modes and conditions, as an example.
30 So, yes, I was involved in that with a number of other aircrew. Yes.

MAJ CHAPMAN: And knowing what you do about the off-axis symbology issue, was that encountered in MOD 4 at all, or present in
35 MOD 4?

MAJ SCULLARD: No, because MOD 4 did not have conformal attitude symbology.

40 MAJ CHAPMAN: Now, when you say at 19 that version 5.1 was determined, is this again a reference – do you understand that determined to be an issue related to the procurement of 5.10?

MAJ SCULLARD: Sorry, I don't understand your question.

5 MAJ CHAPMAN: I'll just go back to 19. When you say that in May 2017 it was determined that the already certified symbology software would achieve the best compromise, did you understand that was more related to an issue of procurement, or this was the technical risk you've discussed earlier, or a combination of those things?

10 MAJ SCULLARD: I would say it's a combination of time and cost. So the ideal – well, the MOD 4 symbology, so developed with DSTG, had been determined that it was not going to be able to be incorporated; improvements in symbology were desired. 5.10 introduced a number of improvements to the symbology. So, hence, to get improvements to symbology – and that was the only other symbology set that I'm aware of that was technically in existence at the time for MRH-90.

15 MAJ CHAPMAN: Moving on to paragraph 20, you next discuss that there was an ECP raised in respect of 5.10.

MAJ SCULLARD: Yes.

20 MAJ CHAPMAN: And ECP is a reference to an Engineering Change Proposal.

MAJ SCULLARD: Correct, yes.

25 MAJ CHAPMAN: Could you just describe generally what an ECP is, and the function of it?

30 MAJ SCULLARD: I'll try and get it correct for all my engineering colleagues. I guess it's a process that was used, at least with CASG and Capability Management, with the engineering contract, or with the Airbus, to work through all the steps required to introduce a change to the MRH-90 – and other aircraft types use the same process – but to MRH-90, and bringing together all the different things that are required, whether it's logistics, availability of spare parts, supportability, the engineering work required down the track, and any operational airworthiness capability considerations. So work through a process.

40 MAJ CHAPMAN: Was that a process which you understood to be mandated under the DASRs, or you're just not sure?

MAJ SCULLARD: I don't know whether it directly was mandated, but it was a process used to fulfil Australia's, you know, airworthiness and safety requirements.

MAJ CHAPMAN: But it was a process which was necessary for a change in configuration, role and environment for the aircraft?

5 MAJ SCULLARD: Yes, for introducing a modification – yes, an engineering change.

MAJ CHAPMAN: And this was a necessary step in version 5.10 because 5.10 itself represented a change in the CRE; is that right?

10 MAJ SCULLARD: Yes, I guess you could say a change in the configuration. It was introducing a new modification, like the no doubt hundreds of other ECPs that were raised on this aircraft.

15 MAJ CHAPMAN: And as part of this ECP engineering process, the proposed upgrade was put to an MRH Configuration Control Board; is that right?

20 MAJ SCULLARD: Yes, the Configuration Control Board considers a number of engineering changes as they go through their various milestones.

MAJ CHAPMAN: So that's a meeting, is it, just generally of key stakeholders who discuss and provide input in terms of planning for the introduction of an upgrade like this?

25 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: Is it your understanding that the CCB identified the need to conduct flight testing?

30 MAJ SCULLARD: Yes, it did.

MAJ CHAPMAN: Were you present at the CCB boards when version 5.10 was being discussed?

35 MAJ SCULLARD: I think I was away for one of the CCBs that discussed it, so therefore I sent my recommendation to the appropriate operational-related airworthiness representative at that meeting, at that CCB.

40 MAJ CHAPMAN: Do you see on paragraph 20 on page 6 that you use the composite expression there in the middle, "Flight test/OPEVAL activities"? Do you see that?

45 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Do you agree that the CCB just determined that flight tests would be conducted and not necessarily OPEVAL activities?

MAJ CHAPMAN: Is this the flight test?

5

MAJ SCULLARD: The term “OPEVAL” at that time was a common terminology that we were also using for flight test activities on MRH-90 Operational Evaluation.

10 MAJ CHAPMAN: Is it your experience that flight testing directed by, or at the recommendation of, a CCB typically goes to the Flight Test Organisation? Is that right?

MAJ SCULLARD: Yes.

15

MAJ CHAPMAN: And it did in this case. It went to AATES.

MAJ SCULLARD: Correct, yes.

20 MAJ CHAPMAN: So your evidence is that the AATES testing for 5.10 came out of the CCB process. Is that generally correct?

MAJ SCULLARD: Yes. Yes, that would be part of it.

25 MAJ CHAPMAN: I just move now to your response to a question at 21, which essentially deals with your knowledge of the ambiguous attitude issue that was identified by AATES. Do you see that?

MAJ SCULLARD: Yes.

30

MAJ CHAPMAN: So you say at 21 that you were not aware of the off-axis characteristics of the roll attitude symbology prior to incorporation of the version 5.10 software in 2019. Do you see that?

35 MAJ SCULLARD: That’s correct, yes.

MAJ CHAPMAN: Now, the Inquiry has heard some evidence that the off-axis symbology issue is a known design feature of 5.10. Is that your understanding?

40

MAJ SCULLARD: Yes, the way they have incorporated the pitch ladder – let’s just call it “the ladder” – to represent roll attitude by representing it against the conformal horizon, it means that it is a characteristic that’s part of the design.

45

MAJ CHAPMAN: And when you agree it was a design feature, was that something which you learned of back in your visit with SUZ, or you didn't because that was – you were dealing with version 4.07 at that stage?

5 MAJ SCULLARD: So 4.07 did have exactly the same roll attitudes display as version 5.10. As I said, in the very quick look in the test rig, you know, sitting in a room in the SUZ, near Munich, you just got to see for the first time, okay, that if you put in a roll, that it's the whole pitch ladder that moves, and that's how you get the representation of roll attitude.

10 But as I said, in terms of putting in different things and then specifically assessing that off-axis, that was not done, or not something that came up. And as I said, there was a lot of other improvements that were like, "Okay, this is a very good improvement to how they represent this information".

15 MAJ CHAPMAN: When you say you first became aware of the off-axis characteristics, it was when you participated in the AMAFTU first of class flight trials in April or May 2019.

20 MAJ SCULLARD: Yes, correct.

MAJ CHAPMAN: You say that the off-axis issue during those flight trials was not considered a major issue within the scope of that trial.

25 MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: Is that to say that you, and others testing, recognised the off-axis issue was not a major issue, just in the context of that particular testing? Is that fair to say?

30 MAJ SCULLARD: As we often say in flight tests, within the scope of doing ship operations, yes, it was not an issue.

35 MAJ CHAPMAN: But it's the case, isn't it, that the first of class trials were trials conducted in the maritime domain?

MAJ SCULLARD: That's correct, yes.

40 MAJ CHAPMAN: Would you agree that, generally speaking, that testing involved approaches, landing, possibly circuits on the LHDs?

MAJ SCULLARD: That's correct, yes.

45 MAJ CHAPMAN: And that type of testing did not involve any SO

approach profiles?

MAJ SCULLARD: That's correct, yes.

5 MAJ CHAPMAN: So would you agree that the conclusions arrived at from testing in the maritime domain are not necessarily reliable or applicable for the purposes of SO approach profiles?

10 MAJ SCULLARD: They're – do I agree that they're not – sorry, say it again? Are they?

15 MAJ CHAPMAN: Would you agree that the conclusions as to the symbology not being a major issue, taken from the maritime domain, are not necessarily reliable or applicable to the SO approach profile?

MAJ SCULLARD: Yes, they're not applicable to the full range of SO approach profiles.

20 MAJ CHAPMAN: Yes, so in other words, just because it was not considered a major issue in the AMAFTU trial, it may well be a significant issue in a very different context. Would you agree with that as a proposition?

25 MAJ SCULLARD: It could be a different issue once you go through the whole range of flying for a different roll.

MAJ CHAPMAN: And that different roll could be SO approach profiles. Do you agree?

30 MAJ SCULLARD: That is one of the many rolls, yes.

AVM HARLAND: Was formation included in that AMAFTU trial?

35 MAJ SCULLARD: No, sir. No, it was all-ship helicopter operating limit development.

40 AVM HARLAND: And did you have any limitations on horizon or any environmental considerations in terms of when you would knock it off for the testing?

MAJ SCULLARD: Not that I recall, sir.

45 AVM HARLAND: Did you have a mandated minimum illumination for the trial, and were you required to maintain a visual horizon during the trial through the IITs?

5 MAJ SCULLARD: Look, I just – I believe so. Look, to be honest, I'd have to go back and check for that – the test plan for that, sir. But, you know, for operations overwater, as long as you're in VMC, you know, you're not flying through cloud, et cetera – yes, look, to be honest, I cannot remember exactly. Yes.

10 AVM HARLAND: That's fine. Thank you.

MAJ CHAPMAN: Were you, MAJ Scullard, involved in Service release for 5.10? I think it's the case you were not, with the briefs, et cetera.

15 MAJ SCULLARD: No, so it was my – so through the Configuration Change Board process I was at that time the AATES platform representative for MRH-90. Earlier on, I explained how the Commonwealth's test pilot appointments under the Regulations no longer existed, but there were platform representatives. So it was my recommendation that flight test OPEVAL – like, for many other things that
20 impact the aircrew, there should be some form of, you know, flight test activity, but when it came time for the flight test activities beyond my involvement in the first of class flight trial, no, I was not involved in any of those.

25 MAJ CHAPMAN: So just to be clear, and just go back to my question, which was you were not involved in decision briefs going up to DGAVN with respect to 5.10?

30 MAJ SCULLARD: No.

MAJ CHAPMAN: And even though, noting you were not involved, just based on your experience in recommending Service release, as this was ultimately, would you expect that those different contexts in terms of maritime domain and SO approaches to be explained to the decision-maker
35 as something which would impact on risk assessment?

MAJ SCULLARD: Well, yes, Service release does need to take into account all of the roles and environments that the aircraft will be operated
40 in.

MAJ CHAPMAN: In that sense, would you expect that the limitations that were – the limited role that AMAFTU conducted the trial in the maritime domain, would you expect that to be explained in a decision brief to a decision-maker with respect to Service release?
45

MAJ SCULLARD: If it was felt that the decision-maker needed to be briefed on all the different test activities then, yes, that could be included.

5 MAJ CHAPMAN: And that's because the limited scope, I suppose, of that testing is a matter which potentially goes to the weight that the decision-maker would be giving to a particular outcome or report; is that right?

10 MAJ SCULLARD: I guess from the – I'd look at it from a different angle, is the decision-maker would want to know, okay, in the various roles and environments, did 5.10 have any impact on the conduct of ship operations? So it's just one segment of the many things that a decision-maker would look at.

15 MAJ CHAPMAN: Can I go next to the bottom of page 6, and we're still in 21 here – paragraph. You say that in early June 2019, after becoming aware of the off-axis symbology, you reached out to a testing colleague in Germany.

20 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: And pausing there, I take it that your reference to the issue having been raised – this is the AATES report, the issue raised in - - -

25 MAJ SCULLARD: Yes, correct.

MAJ CHAPMAN: I'll just show you a copy of the AATES report, if I may? Do you recognise that to be the AATES report?

30 MAJ SCULLARD: Yes, I do.

MAJ CHAPMAN: Just put that to one side for a moment. So you have sent an email to your colleague in Germany, to which he's responded on, I think it was 7 June?

35 MAJ SCULLARD: Yes, based on my statement.

40 MAJ CHAPMAN: And your email to him is not included though. What was the substance of your email to your colleague in Germany, if you could just - - -

MAJ SCULLARD: It was basically that some other flight test colleagues had found some issues which they weren't happy with, or found as a major deficiency with the roll attitude symbology, which was a surprise to hear

that. And so I thought, well, I'll ask a colleague, "Have you guys found any issues with this?"

5 MAJ CHAPMAN: And I think you just said you identified it as a major issue. Did you say to your colleague in Germany that the Flight Test Organisation had found it to be unacceptable and presenting a risk of controlled flight into terrain?

10 MAJ SCULLARD: No, I don't think I said that.

MAJ CHAPMAN: You said it was a major issue?

MAJ SCULLARD: I said, yes, they identified it as - - -

15 MAJ CHAPMAN: At any rate, your German colleague basically said in his response, which you've put in your statement, that his experience, and the experience of those working with him, was that 5.1 was highly appreciated by his pilots?

20 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: And he also said this, that:

25 *The feature you –*
and this is his words –

30 *The feature you describe was discussed and accepted in the development phase, when the decision was made to implement the pitch ladder no longer as a fixed symbol but now related to the horizon.*

Do you see that?

35 MAJ SCULLARD: Yes.

MAJ CHAPMAN: So broadly, do you understand that response to mean that, first, the German Forces were aware of this off-axis symbology issue from the development stage?

40 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Second, that even being aware of this as an issue, they appear to have accepted that limitation and put it for use in their aircraft?

45

MAJ SCULLARD: Yes, again, you keep saying “issue”. They acknowledged that characteristic and define it as a - - -

5 MAJ CHAPMAN: We’ll use your word, “the characteristic”. And they have installed it in their aircraft?

MAJ SCULLARD: Yes.

10 MAJ CHAPMAN: And that it appears that the certification by the German Forces was achieved in Germany based on an awareness and acceptance of that characteristic?

MAJ SCULLARD: Yes.

15 MAJ CHAPMAN: And was it at this time that this was the first you’d heard of the Germans being aware of the issue – of the characteristic as a design feature?

MAJ SCULLARD: Yes.

20 MAJ CHAPMAN: Had you had any discussions prior to this email with, for example, COL Lynch, where he had informed you that this was a feature of the design?

25 MAJ SCULLARD: No.

MAJ CHAPMAN: Now that this had been confirmed with your colleague in Germany, do you agree that that was information which was relevant to AATES’ determination in terms of their determination if it was a serious issue to flight safety?

30 MAJ SCULLARD: Was it relevant?

MAJ CHAPMAN: I can rephrase it if you wish.

35 MAJ SCULLARD: If you could, thanks.

MAJ CHAPMAN: When I say “relevant”, was – the information you had from your German colleague, do you agree that that was relevant information in terms of the conclusion that AATES had reached with respect to unacceptable risk to flight safety?

40 MAJ SCULLARD: Yes, it could have been helpful to them. I believe at the time I passed this information on to the other personnel.

45

MAJ CHAPMAN: Which is my next question. I was just asking you did you pass this email on, or the information in it, to AATES?

5 MAJ SCULLARD: Not directly to AATES. Originally, I was supposed to be part of the AATES testing but then, for whatever reasons, I was not involved. So I did not have any direct contact then with AATES.

10 MAJ CHAPMAN: Did you pass this email or the information in it on to anyone in Army Aviation?

MAJ SCULLARD: I believe I did, but I can't recall exactly when and who.

15 MAJ CHAPMAN: Sure. So you possibly passed it on to COL Lynch and the DG, but more likely Lynch's DOPAW?

MAJ SCULLARD: Yes, probably through other areas of Op Airworthiness.

20 MAJ CHAPMAN: Thank you.

25 AVM HARLAND: When you were discussing this issue with your German colleague and talking about the feature being accepted, did you ask if they had imposed any additional limitations, or warnings, or cautions associated with that?

30 MAJ SCULLARD: Yes, I did, actually, sir. And, yes, they – from what I recall, yes, they had not had – they did not have anything specific in their version of the Flight Manual, et cetera, to say it was a warning – you know, in terms of a warning or caution.

AVM HARLAND: And they didn't have any modified procedure, or anything like that?

35 MAJ SCULLARD: No, their whole thing is it is what it is and you don't fly looking and setting attitudes out the side, you do it out the front. And, yes, my impression from them is they did not find it an issue.

40 AVM HARLAND: Do the German Army fly in an overwater capacity or are they primarily land-based?

MAJ SCULLARD: I actually don't know, sir.

45 AVM HARLAND: Okay, thank you.

MAJ CHAPMAN: Just moving on to the AATES report which I've handed over to you. Evidence has been given at this Inquiry that the AATES report of June 2019 was, I suppose, not particularly well received within the Army Aviation Chain of Command. Was that your experience?

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MAJ SCULLARD: Look, I was transitioning, to be honest, out of – I was going on long service leave and transitioning to my Defence contractor position, so - - -

10 MAJ CHAPMAN: So that wasn't your experience, or you don't have a recollection?

MAJ SCULLARD: I think there was obviously probably some surprise that I was aware of, of AATES' findings on this.

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MAJ CHAPMAN: There was surprise on the part of others that you were made aware of, is that what you're saying?

MAJ SCULLARD: Yes.

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MAJ CHAPMAN: Were you present at any discussions between AATES and Army Aviation Chain of Command, which I include DOPAW and other positions, concerning the AATES conclusions of unacceptable risk to flight safety?

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MAJ SCULLARD: No.

30 MS McMURDO: Were you surprised at the general feeling of surprise amongst Aviation over the AATES report associated with the fact that Germany was using it and had authorised it – tested and authorised it? Was that a major factor?

35 MAJ SCULLARD: I guess it could be part of it, ma'am. I think because this symbology set had been used by another competent NH90 operator for quite a while and there'd been nothing negative that we'd heard about it – had heard of, that I think it was like this was sort of out – as we say, out of left field. "Where did this come from?"

40 MS McMURDO: Was there any other reason for the surprise, apart from what you've just told us?

MAJ SCULLARD: No, I don't - - -

45 MS McMURDO: That was really it. Yes, thank you.

MAJ CHAPMAN: So were you – I've asked you whether you were present for any discussions between AATES and Army Aviation. Were you present for any discussion, not including AATES, where the AATES finding of unacceptable risk to flight safety was discussed?

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MAJ SCULLARD: Yes, I was. In general you would just hear of – I guess, hear discussions of their findings, yes.

MAJ CHAPMAN: Did you get the impression at that time that there was some resistance to accepting what AATES had had to say in their report? Did you get that impression?

MAJ SCULLARD: I don't know what the best way to describe – I don't know if "resistance" is the word. Yes, as I said, I think just more surprise, that it sort of came out of left field.

MS McMURDO: Do you know if the Army had already committed to the version 5.10 symbology before the AATES report?

MAJ SCULLARD: I guess, ma'am, with the incorporation of many different modifications, upgrades, et cetera, the decision was made that they – modifications are to be incorporated into the aircraft, but they go through this whole process of engineering – well, there'd be a lot of research before that, but engineering change proposals, the Configuration Change Board process. A part of that – as I said, in this case, something that impacts pilots or aircrew will go through some form of evaluation activity, depending what it is; whether it's flight test, ground test. Obviously, in this particular case, flight test. There will have been a projects plan for incorporation. There will be, you know, various payment milestones, no doubt, as part of that. But again, I don't get involved in any finance side of it.

But regardless of that, from my experience over the decades, is that if something is actually found to not meet the technical and operational airworthiness requirement, or fitness for purpose, and not safe, then the decision-makers will assess those risks and make the appropriate decision, either to limit use or not incorporate.

So that was a long answer to your question, ma'am, but I guess the intent was for it to go in. But it doesn't mean, like with any modification, if it doesn't meet the needs, then it - - -

MS McMURDO: So I think you're saying there would have been a degree of commitment to the version 5.10 being implemented. You're not sure

how far along it had gone, but there was some degree of commitment before the AATES report?

MAJ SCULLARD: Yes, ma'am.

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MS McMURDO: Thank you.

AVM HARLAND: Just on the – you talked about with the ECP they'd do a bit of research to understand the nature of the change before it went in. And then when we go down to your experience on the First of Class Flight Trial with AMAFTU, you said that you were unaware of that characteristic, the attitude ambiguity characteristic. Do you think when the Configuration Control Board made its decision to advance the engineering change proposal, they were aware of that characteristic?

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MAJ SCULLARD: Probably not, but I don't know.

AVM HARLAND: Thank you.

MAJ CHAPMAN: Were you, MAJ Scullard, involved in any discussions around about June 2019 in terms of how to deal or respond to the AATES report?

MAJ SCULLARD: No.

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MAJ CHAPMAN: So I take it then you're not aware of whether any consideration was being given to returning this to AATES for further testing?

MAJ SCULLARD: No, I can't remember exactly. No.

MAJ CHAPMAN: So just moving on to the OPEVAL, so you're aware that Standards Branch conducted the OPEVAL and it produced a report in February 2020?

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MAJ SCULLARD: I'm aware of it, yes.

MAJ CHAPMAN: Can I hand you a copy of that? Were you involved in this process at all?

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MAJ SCULLARD: No.

MAJ CHAPMAN: When did you first become aware of the OPEVAL being conducted? I withdraw that. When did you first become aware of the

OPEVAL report which I've just handed to you? Was it around this time, so February 2020?

5 MAJ SCULLARD: I guess in terms of the report, yes. So at that time I was a contractor working in Holsworthy. So I knew the OPEVAL was occurring, but I was not involved. And obviously any OPEVAL, et cetera, will have a report.

10 MAJ CHAPMAN: Have you read this report before?

MAJ SCULLARD: I have skimmed it, yes.

15 MAJ CHAPMAN: In terms of some of the conclusions, do you understand that the conclusion of the report was to essentially treat the ambiguous symbology characteristic as undesirable?

MAJ SCULLARD: Yes, I saw that when I skimmed through that before.

20 MAJ CHAPMAN: Yes. And you'd agree, would you, that even though you weren't involved in this report, that an "Undesirable" assessment represented a significant reassessment in the risk compared to "Unacceptable" risk? You'd agree?

25 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And do you agree that going from "Unacceptable" to "Undesirable" was in effect a downgrade of the AATES assessment?

30 MAJ SCULLARD: That's correct, yes.

MAJ CHAPMAN: Are you aware that the AATES report recommended that further testing of 5.10 be carried out to gather further information?

35 MAJ SCULLARD: That doesn't – I don't recall that exactly, because I didn't read it in detail, but that is a common thing in flight test reports, yes.

40 MAJ CHAPMAN: Yourself having experience with AATES, where AATES is suggesting further testing and further information be obtained, would you have expected AATES to have conducted that further testing and gathering of the further information?

45 MAJ SCULLARD: Yes, they are a competent Flight Test Organisation, or appropriately qualified organisation, to do the testing, yes. That is – and AATES is one of those.

MAJ CHAPMAN: Sure. You'd expect that to be done in the first instance rather than Standards going away and looking for that further information or conducting further testing. Is that right?

5 MAJ SCULLARD: Let me think. I guess the norm would be you'd get the Flight Test Organisation, but often with other appropriately qualified and experienced pilots to look at whatever the modification or equipment is that you're testing, yes.

10 MAJ CHAPMAN: That reflects the primary role of the Flight Test Organisation, being as the acronym – or as it's described, to test. As opposed to Standards, which has another function?

15 MAJ SCULLARD: Yes, it is. But it doesn't mean that testing can only be – you know, the only appropriate scope of testing with the appropriate airworthiness oversight doesn't mean it can only be conducted by a Flight Test Organisation.

20 MAJ CHAPMAN: Are you aware as to why AATES did not conduct the further testing and Standards did?

MAJ SCULLARD: No, not fully aware.

25 MAJ CHAPMAN: So when you say "not fully aware", what's your degree of understanding about what happened there and why AATES wasn't – or why Standards was conducting the testing?

30 MAJ SCULLARD: Yes, I'm not totally sure, other than I think – I'm just trying to recollect what I heard at the time.

MAJ CHAPMAN: Sure.

35 MAJ SCULLARD: Yes, I'm just trying to think whether it was – yes, to be honest, I'm not totally sure, other than I know that they – I think, ideally, in the fullness – wanted a wide range of aircrew to be able to look at this to be able to get a wide range of opinions.

40 MAJ CHAPMAN: And in your experience, dealing in this safety space, DOPAW/AATES space, is it your experience there's usually a high level of engagement between the Flight Test Organisation and other stakeholders in terms of outcomes of test reports from the Flight Test Organisation?

45 MAJ SCULLARD: Yes. So normally after a test program a report is released. There would be consideration with the appropriate stakeholders of the recommendations and conclusions out of that report. And then to

what level they have been assessed, and therefore how to risk manage them; treat them, et cetera.

5 MAJ CHAPMAN: And you're referring to a TERC there?

MAJ SCULLARD: Yes, Test and Evaluation Report Committee. Various acronyms but basically a TERC, yes.

10 MAJ CHAPMAN: Did you know whether a TERC – and you may have been out of the picture at this point, but do you know whether a TERC was conducted in respect of 5.10?

MAJ SCULLARD: No, I don't know. I was out of the picture.

15 MAJ CHAPMAN: So the Inquiry has received some evidence to the effect that around the time of the AATES testing, that AATES was experiencing what's described as a high workload and may have had some capacity issues.

20 MAJ SCULLARD: Mm-hm.

MAJ CHAPMAN: Was that your observation?

25 MAJ SCULLARD: I don't know. I wasn't keeping a close eye on AATES at the time.

MAJ CHAPMAN: I should have expressed that as not your observation. Was that your experience? But your evidence is the same, that you were just not around at the time to - - -

30 MAJ SCULLARD: At the time they were conducting the 5.10 testing?

MAJ CHAPMAN: Well, at the time that they produced the report, specifically, so around June 2019.

35 MAJ SCULLARD: As I say, I was at that time posted not in AATES and, yes, was not closely monitoring what AATES was doing.

40 MAJ CHAPMAN: So that statement that AATES was experiencing a high workload and had capacity issues doesn't accord with your understanding at that time?

45 MS MUSGROVE: I object. That question is not factually correct, based upon the answer that this witness has given. That's just speculation and it's an unfair and inappropriate question.

MS McMURDO: Well, perhaps you just rephrase the question, please.

5 MAJ CHAPMAN: At the time, June 2019, did you understand there to be capacity issues and/or high workload being experienced at AATES at the time?

MAJ SCULLARD: No, I don't, because I was not there, I'm sorry.

10 MAJ CHAPMAN: No, that's fine. And the Inquiry has received some evidence also to the effect that OPEVAL was a route which was taken in part to alleviate some pressure on AATES. Is that something which accords with your understanding, or again, you don't have - - -

15 MAJ SCULLARD: No, I just was - - -

MAJ CHAPMAN: I just want to now turn to a final topic, if I may, which is declutter modes, which you refer to at paragraph 23. So you refer at 23 to the ability of pilots using the TopOwl HMSD to present symbology in one of three modes.

20 MAJ SCULLARD: Yes.

MAJ CHAPMAN: And that's normal, declutter 1 and declutter 2; agreed?

25 MAJ SCULLARD: Agreed, yes.

MAJ CHAPMAN: That as the name probably suggests, each mode presents different levels or amounts of symbology onto the HMSD visor.

30 MAJ SCULLARD: Correct.

MAJ CHAPMAN: Just to illustrate that, would you agree that the normal mode presents the supposed most amount of symbology?

35 MAJ SCULLARD: Correct, yes.

MAJ CHAPMAN: And then DC 1, declutter 1, less symbology than normal, though more than declutter 2?

40 MAJ SCULLARD: Yes, that's correct.

MAJ CHAPMAN: So it's the midrange option. And then DC 2 represented the least amount or minimal symbology. So you make the point that one reason for selecting DC 2 – and this is in your statement – or

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declutter mode 2 in forward flight was to reduce the symbology parameters displayed over the pilot's view of preceding aircraft.

5 MAJ SCULLARD: Yes, so normally declutter 1 – yes, that was sometimes what people did.

MAJ CHAPMAN: Were you referring there to declutter 1 or 2? I think it was declutter 2.

10 MAJ SCULLARD: A declutter mode. But primarily declutter 1.

MAJ CHAPMAN: Is it true to say that, in other words, making use of the declutter modes was an advantage to pilots because the less symbology in their line of sight enabled them to better maintain focus on a preceding ship in formation? Would you agree with that?

MAJ SCULLARD: Yes. It totally depends on the circumstances. And again, I put this information – I have no understanding of what has gone before me.

20 MAJ CHAPMAN: I understand.

MAJ SCULLARD: So a technical description of the thing.

25 MAJ CHAPMAN: These are put on the basis, drawing out your experience only – nothing fact-specific.

MAJ SCULLARD: Yes.

30 MAJ CHAPMAN: And you also make the point at 23(ii) that the pitch ladder was only displayed in normal mode and not in DCL 1 or DCL 2.

MAJ SCULLARD: In forward flight, that's correct.

35 MAJ CHAPMAN: Sorry, in forward flight; is that right?

MAJ SCULLARD: That's correct, yes.

40 MAJ CHAPMAN: And that

Some pilots preferred to activate DCL 1 or DCL 2 when flying in formation because there was less obscuring of their focus on the ships around them.

MAJ SCULLARD: Yes, on the preceding aircraft. That was the outcome of some earlier trials that we conducted and up to personal preference, yes.

5 MAJ CHAPMAN: Has it been your experience, when flying in formation, that you prefer personally to move to DCL 1 or 2?

MAJ SCULLARD: I guess it just depends on the night, the scenario, et cetera. Yes, in some situations.

10 MAJ CHAPMAN: You might move to those modes outside of normal because it enhances your situational awareness of the ships around you?

MAJ SCULLARD: Yes. For example, a preceding aircraft in formation.

15 MAJ CHAPMAN: What about in DVE conditions, hypothetically, where a horizon might not be readily seen? In that scenario, would you agree that it's less likely that you would move to these declutter modes because you wouldn't have the benefit of the pitch symbology? Would you agree with that?

20 MAJ SCULLARD: Look, it's hard to say.

MAJ CHAPMAN: Depends.

25 MAJ SCULLARD: It just depends on the situation, how comfortable the pilot feels. I mean, you still have other conformal horizon symbology available, flight vector, to give you other information there. So it's really horses for courses.

30 MAJ CHAPMAN: Sure. And it's a difficult issue, especially in formation, because there's, would you agree, a balance to be struck between having on the one hand information available to reference where you are from the symbology, against too much information that might impede your visual of other aircraft? Would you agree with that statement?

35 MAJ SCULLARD: Yes, it's a balance between many considerations, including even things like the brightness of the symbology, not just the information that's there.

40 MAJ CHAPMAN: Thank you.

MAJ SCULLARD: Which you can adjust.

MS McMURDO: So could you just clarify for me, in the declutter modes, was this the problem identified by AATES still an issue or did it become not an issue because the pitch ladder wasn't shown?

5 MAJ SCULLARD: So in forward - - -

MS McMURDO: In forward flight.

10 MAJ SCULLARD: Yes. So the pitch ladder, yes, not shown in declutter 1 in forward flight.

MS McMURDO: Yes.

15 MAJ SCULLARD: But it would come back into view as you decelerated to, for example, help with landings. So you can check your pitch attitude is not too high; you don't strike the tail, et cetera. Yes, so I guess, ma'am, correct, if the pitch ladder is not shown, then this characteristic is not there.

20 MS McMURDO: Thank you.

MAJ SCULLARD: Again, if you're looking off-axis, it's correct out the front.

25 MS McMURDO: Yes.

MAJ CHAPMAN: Could I just invite you - - -

30 AVM HARLAND: Just before we do. For an OPEVAL, would it be normal that you would make recommendations on the use of modes in particular phases of flight or particular flight types for consideration to be incorporated in either the Standards Manual or Flight Manual? Is that normally what an OPEVAL would do? So in the case of declutter mode, would it be normal that you'd say, "Hey, a good option to consider is using declutter 1 or 2 when you're in formation", for example?

35 MAJ SCULLARD: Potentially, sir, if the test crew and other crew found that. I wouldn't say that it's something you should or shouldn't comment on. But if it's something you observed and could be of assistance to those who are looking at using this equipment, it would be something you would include in your report.

40 AVM HARLAND: Okay, thank you.

45 MAJ CHAPMAN: Could I just ask you as a final matter, MAJ Scullard, to go to page 8 of the OPEVAL? Do you have that?

MAJ SCULLARD: On the OPEVAL.

MAJ CHAPMAN: And paragraph 14. It's on page 8.

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MAJ SCULLARD: Yes.

MAJ CHAPMAN: You see there, first, the symbology DCL modes?

10 MAJ SCULLARD: Yes.

MAJ CHAPMAN: I want to take you to the fourth-last line and just this comment:

15 *Trial aircrew did not make any positive commentary about the DCL 1 or DCL 2 modes, finding their use to be superfluous compared to the full symbology, particularly in degraded visual environments.*

20 MAJ SCULLARD: Yes.

MAJ CHAPMAN: Now, acknowledging that you were not involved in this, could you just assist the Inquiry, if you could, by possibly explaining why it might be that it would be considered superfluous? Noting it's not your experience, but just interpreting that based on your experience.

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MAJ SCULLARD: No. To be honest, I think this is a question you need to ask those who flew this OPEVAL.

30 MAJ CHAPMAN: Thank you, Ms McMurdo, those are my questions.

MS McMURDO: Thank you. Applications to cross-examine? Thank you. He was quicker off the mark.

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<CROSS-EXAMINATION BY LCDR TYSON

40 LCDR TYSON: MAJ Scullard, my name's LCDR Matthew Tyson. I represent the interests of CPL Alex Naggs. I just want to understand some matters of detail in your evidence, please. So just accept from me that the AATES report into the symbology upgrade was dated, I think, 14 June 2019; right?

45 MAJ SCULLARD: Okay, sure.

5 LCDR TYSON: Now, this email that you received on 7 June 2019 – so you accept, don't you, that you received that email that's at page 7 of your report, that was one week before AATES' report into the symbology upgrade was completed.

MAJ SCULLARD: Yes.

10 LCDR TYSON: And did you tell AATES that you were going to make that enquiry with the German test pilot?

MAJ SCULLARD: No, not AATES.

15 LCDR TYSON: You didn't tell AATES?

MAJ SCULLARD: I don't believe so.

20 LCDR TYSON: But you knew that the AATES report hadn't even been completed yet.

MAJ SCULLARD: Had heard that the report was out there, that they'd had these findings. So I was surprised, like others. "This is very interesting." So I made such an enquiry, yes.

25 LCDR TYSON: Now, your boss at the time you made this enquiry with the German pilot, was that COL Lynch?

MAJ SCULLARD: No.

30 LCDR TYSON: Where was he in the Chain of Command compared to you at the time?

35 MAJ SCULLARD: Sorry, it's been a long program, so I cannot recall if he was Director of Op Airworthiness. He was. Yes, so actually he would have been two up my boss, yes.

LCDR TYSON: Yes. And you had a good relationship with him at the time?

40 MAJ SCULLARD: He was a superior, yes, sir. Yes.

LCDR TYSON: Did he know that you were sending this email to the German test pilot colleague of yours?

MAJ SCULLARD: I don't know. Probably. No, I would not have told him that I was sending an email to a German – an informal email to a German colleague, no, sir.

5 LCDR TYSON: You would not have told him?

MAJ SCULLARD: No.

LCDR TYSON: So you didn't - - -

10 MAJ SCULLARD: Nor was I hiding it, if that's what you're getting at. No.

15 LCDR TYSON: I'm just trying to understand. So you took the initiative, off your own bat, even before the AATES report had been completed, to make an enquiry with a German colleague of yours?

MAJ SCULLARD: Yes.

20 LCDR TYSON: And you didn't tell AATES that you were making that enquiry?

25 MAJ SCULLARD: No. I do recall that I was – who was it – COL Barton and COL Lynch advised AATES to consult with me in terms of maybe trying to learn some other background of the history of version 5.10. But no.

LCDR TYSON: So you knew there was some understanding that there'd be consultation between you and AATES?

30 MS McMURDO: Well, I think he said there was some discussion about it.

LCDR TYSON: Yes. Thank you, ma'am.

35 And when you gave evidence about becoming aware of an AATES issue, you didn't say who it was that made you become aware of the issue. Can you tell the Inquiry who it was that told you about the issue?

40 MAJ SCULLARD: No, I can't tell you. You just hear things in general, in the crew room, so to speak – general discussion. So no, no, I don't. I can't tell you who it is.

45 LCDR TYSON: You can't say who told you about the issue that prompted you to send the email to the German colleague of yours?

MAJ SCULLARD: No, I have no recollection of exactly one person coming and saying, "Have you heard this?" No.

5 LCDR TYSON: Well, do you recall whether you got the information directly from AATES, someone within AATES?

MAJ SCULLARD: I do not recall, sorry.

10 LCDR TYSON: How well did you understand what you describe is AATES' issue with the off-axis roll symbology? What was your understanding of the issue?

MS McMURDO: Is this at the time he sent the email?

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LCDR TYSON: At the time you sent the email.

MAJ SCULLARD: I don't know. A lot of things morph into one over time, so that they – could you just rephrase that or, sorry, ask that again?

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LCDR TYSON: Well, I want to know whether you had a good understanding of the issue that AATES had picked up. So what was your understanding of AATES' issue with the off-axis roll symbology characteristic at the time you sent the email to your German colleague that resulted in you receiving back the email on 7 June 2019?

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MAJ SCULLARD: That, from what I'd heard, the AATES test crew had – yes, basically didn't like the fact that the pitch attitudes – sorry, the roll attitude was not correctly represented, or changed when you're looking off-axis. So, yes – so I'm a little confused.

30

LCDR TYSON: They "didn't like the fact", is that your understanding of their concern?

35 MAJ SCULLARD: They found it a deficiency which they obviously later assessed as unacceptable.

LCDR TYSON: Were you aware that an experienced test pilot became spatially disoriented, was so terrified that he thought he was going to die during a descent? Were you aware of that?

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MAJ SCULLARD: No.

LCDR TYSON: All right.

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MS McMURDO: Well, he's answered the question in a way that satisfies everyone.

5 MS MUSGROVE: I'd actually seek my friend to point out, with precision, the evidence that he's relying on to put that proposition because, in my submission, it's an exaggeration and is inappropriate.

10 MS McMURDO: Well, anyway, it's been answered by the witness in a way that – the witness said he wasn't aware of it, so that's the - - -

MS MUSGROVE: Well, I'd still seek the reference from my friend for future purposes.

15 LCDR TYSON: Well, ma'am, I can get the references. They were from a witness in the last. I don't have them here before me, but we all heard the evidence – it was very emotional when it was given – about the Major's experience. I think the evidence is clear. If the witness wants to come back, I can put him - - -

20 MS McMURDO: But the witness has already said he didn't know, so what would be the point of that? Let's get on with it, please.

LCDR TYSON: Well, exactly.

25 MS McMURDO: Let's get on with it. But please do remember that we are conducting this Inquiry in a trauma-informed way, so there's no need to be – when it's not necessary to be aggressive, please don't be aggressive.

30 LCDR TYSON: So just to understand your evidence, MAJ Scullard, you didn't inform AATES that you were making the enquiry that led to the email on 7 June 2019 that's in your statement?

MAJ SCULLARD: Correct, as I've said, yes.

35 LCDR TYSON: When you got the response, you don't remember telling AATES about the response?

MAJ SCULLARD: No, I do not recall telling AATES about the response.

40 LCDR TYSON: Wouldn't it have been something that would be useful for them to take into account in their considerations when completing their report?

MAJ SCULLARD: Their report was based on what they flew, conducted, saw, and their assessment. To be honest, I don't think it would have changed their opinion on anything.

5 LCDR TYSON: You didn't think it would change their opinion on anything?

MAJ SCULLARD: No.

10 LCDR TYSON: Was the reason why that you made this enquiry with the German pilot before the report had even been completed, was that DOPAW was seeking to undermine the anticipated AATES test report even before it had been completed?

15 MAJ SCULLARD: No.

LCDR TYSON: And you left your full-time military service soon after June 2019, didn't you?

20 MAJ SCULLARD: Correct.

LCDR TYSON: And is this the case, that you actually started to work for Airbus?

25 MAJ SCULLARD: That is correct.

LCDR TYSON: You worked for Airbus actually in a role related to the MRH-90?

30 MAJ SCULLARD: That is correct.

LCDR TYSON: Thank you. No further questions, ma'am.

35 MS McMURDO: Thank you, Lieutenant Commander. Yes, LCDR Gracie.

<CROSS-EXAMINATION BY LCDR GRACIE

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LCDR GRACIE: Ma'am, I won't traverse the same ground that has already been covered.

45 MAJ Scullard, my name is LCDR Malcolm Gracie. I represent the interests of CAPT Danniell Lyon. And as you know, I introduced myself to you

yesterday. Inadvertently I ran into MAJ Scullard and, as I said, I'll be very nice to you. I still will be.

5 Can I ask you to just have a look at paragraph 19 of your statement, please?
I just want to really just tease out a couple of terminology and other issues with you in this line of questioning.

10 Where you say that the 5.1 symbology had already been certified, when you say that, was that the French certification that you refer to, the DGA, or was that the German MAA? What do you mean by "certified" there?

15 MAJ SCULLARD: To be honest, I don't know exactly which part of the certification other than from an engineering – yes, look, I can't give you the exact answer. It's been a while now, but - - -

LCDR GRACIE: You're saying that more from the technical point of view of the process by which the software was going to be developed - - -

20 MAJ SCULLARD: Sorry, yes.

LCDR GRACIE: - - - or commissioned. Then it's certified. But it's still well short of being implemented into the Australian regulatory system, isn't it?

25 MAJ SCULLARD: Yes, they would have – so certified to be, I guess, technically put into the aircraft, yes.

30 Lcdr GRACIE: Because under DASR – I'll put this proposition, but tell me if it's correct or not – DASR requires various forms of testing, categorised as 1, 2, 3 and 4 to be conducted by a licensed or authorised Flight Test Organisation, doesn't it?

35 MAJ SCULLARD: Look, I haven't kept right up to date with DASR, but yes, there are various – depending on the category of flight test, what sort of organisation.

40 Lcdr GRACIE: So if you had a Category 2 test, that would ordinarily be done by one of the three Service Flight Test Organisations authorised under DASR. That would be – it's AATES in the case of Army. It's AMAFTU in the case Navy. And it's, I think, ARDU – A-R-D-U – in the case of the Royal Australian Air Force. Is that how you recall it?

MAJ SCULLARD: I guess that's generally how things would progress.

45 Lcdr GRACIE: But in terms of assessing something that is a categorised

risk by DASR, the testing and airworthiness certification, that has to be done by one of the three licensed Flight Test Organisations, doesn't it?

5 MAJ SCULLARD: Look, to be honest, I have not recently studied that part of DASR, so - - -

10 LCDR GRACIE: I'll put it differently. If you have a Category 2 DASR test, an OPEVAL doesn't meet the requirements of the testing and evaluation process under the DASR, does it?

15 MAJ SCULLARD: Look, I don't think you can say that. I think it's as long as the appropriate airworthiness instruments are in place, such as, for example, from my hazy - hazy - recollection, the Military Permit to Fly, and that the test authority is happy that the appropriately qualified personnel are conducting the test, then that testing can go ahead.

LCDR GRACIE: Provided it's got the Military authorisation, the Permit to Fly?

20 MAJ SCULLARD: Well, an MPTF depends - again, I'm not a recent expert on all this right now - but, yes, that depends on various statuses of certification and, I guess, assessment of risk.

25 LCDR GRACIE: And in what circumstances would you expect AATES not to be involved in a Category 2 test and an OPEVAL to be conducted in lieu of a Category 2 test, or have you struck it before?

30 MAJ SCULLARD: I'm just trying to think. I've been in flight tests for 20 plus years so they're - yes, I'm not sure, sorry.

35 LCDR GRACIE: Still dealing with this certification, flight testing issue, if we just have a look at the email that you received from your German colleague. Other than this email that you've received, did you see anything else in relation to any testing, certification, test profiles - - -

MAJ SCULLARD: No.

40 LCDR GRACIE: - - - from the German MAA, or anyone else in Germany?

45 MAJ SCULLARD: No, we didn't. So after the - at this stage, you've heard, I witnessed in their test rig with COL Lynch back in 2013 the symbology did not - I think at one point we did - sorry, and after 2013 I understand - again, hazy recollection; we're talking well over a decade ago - I believe the Germans were progressing to doing flight tests of that

5 symbology, probably using their testbed aircraft, before progressing it into the actual aircraft.

5 I think we did have some requests at the time – going back a while – if it’s possible to see those flight test reports. But from what I understand we did not – weren’t able to get those.

10 LCDR GRACIE: Again, just coming back to DASR and testing your recollection there, the safety Regulations do not permit a foreign test organisation to determine the airworthiness of a particular matter for release into Australian Service, does it?

MAJ SCULLARD: Not for final Service release, no.

15 LCDR GRACIE: And just so I’ve got the right – you said not prior to Service release, did you say?

20 MAJ SCULLARD: Not for Service release. They will provide recommendations, assurances in terms of certain levels of certification, of which I’m not an expert. But, yes, the final Service release that, “Yes, this is good to go in Service for the Australian Army Aviation”, at least, that’s an Australian decision.

25 LCDR GRACIE: It’s a mandatory thing that there’s an operational test and evaluation process conducted by an Australian licensed organisation, Flight Test Organisation. It can’t be bypassed by relying upon another country’s certification of airworthiness, can it?

30 MAJ SCULLARD: I think we’re getting, sort of, certification and flight test aspects mixed up.

LCDR GRACIE: Or airworthiness certification? Prior to release.

35 MAJ SCULLARD: So again, I’d say that the Australian process will make use at times of other national or Military Airworthiness Authorities to get certain levels of documentation – again, this wasn’t my area of expertise – to confirm certification and then, as it goes through a process such as the Configuration Change Board process, and then the engineering change process determinations will be made based on the evidence available about
40 whether in some circumstances a flight test is even needed, or if the information they’ve received is enough to - - -

45 LCDR GRACIE: But it still requires an Australian entity, usually a Flight Test Organisation from one of the three Services to make that assessment. It doesn’t just rubber stamp - - -

MAJ SCULLARD: Correct. No, that's why there's a process and that's why they ask for input from appropriate personnel to - - -

5 LCDR GRACIE: And just coming back to your email, I mean you wouldn't rely upon the contents of that email to in effect say, "Well, the German MAA have approved this for Service use, therefore we don't have to worry about our own testing or evaluation"?

10 MAJ SCULLARD: No, definitely not. And my informal email to a German flight test colleague was, "Some other colleagues have raised a concern. What can you tell us about this?"

15 LCDR GRACIE: And I think you said – I didn't quite hear it, but I thought you said that the German operations in Afghanistan was limited to a forward medical role. Was that - - -

20 MAJ SCULLARD: I do not know what they did in Afghanistan or Mali in the end. I just am aware that very early on they were looking at improved symbology because they were going to be deploying at least initially in a forward medevac role.

LCDR GRACIE: A forward medevac role?

25 MAJ SCULLARD: Correct, yes.

LCDR GRACIE: [REDACTED]

30 MAJ SCULLARD: [REDACTED]

MS MUSGROVE: I think my friend might be transgressing into the areas that wouldn't be appropriate for a public hearing.

35 MS McMURDO: Is there anything that you're asking to be removed?

MS MUSGROVE: Not at this point in time.

40 LCDR GRACIE: No, I won't ask anymore.

MS MUSGROVE: Just a reminder.

MS McMURDO: Thank you, Ms Musgrove.

45 LCDR GRACIE: [REDACTED]

MS MUSGROVE: If I can assist my friend.

5 LCDR GRACIE: No, that's all right.

MS MUSGROVE: The Commonwealth doesn't comment about other - - -

10 LCDR GRACIE: I don't need your - - -

MS MUSGROVE: - - - military organisations and what roles they may or may not have played in various arenas.

15 MS McMURDO: Yes, we don't want to cause any international upsets.

LCDR GRACIE: Well, it's in his evidence and his statement, so it's a bit – the horse has bolted.

20 MS McMURDO: Do you know Mali, by the way? Mali is a landlocked country; is that right?

LCDR GRACIE: Yes.

25 MAJ SCULLARD: I won't embarrass myself, ma'am.

MS McMURDO: You're not sure.

MAJ SCULLARD: I'm revealing my lack of African - - -

30 LCDR GRACIE: Only one other thing, and it's come out of your evidence, and it was a matter I was trying to get some clarification on yesterday – not through you. You described – and I'll just get it – when you were giving your evidence, you were talking about conformal attitude display.

35 MAJ SCULLARD: Yes.

LCDR GRACIE: And you were rotating your hand in a way that demonstrated. What were you trying to explain by that demonstration in relation to what a conformal display is?

40 MAJ SCULLARD: Well, moving your hands is a common pilot thing, as sir will know.

45 LCDR GRACIE: Yes, it's a roll, is it?

MAJ SCULLARD: Yes. Sorry, I shouldn't be facetious. So I guess it's just a standard – so I was, in my mind, as you tend to do, move your hand to indicate what you're describing. So, I guess, yes, so for the – I'm sorry
5 if you've already been bored with this in other evidence previously, I do not know. But the 4.07 becoming 5.10 version of the symbology, it's the way they were – a way of projecting roll attitudes display to the pilots in the symbology was by using the pitch ladder, which is now – as opposed to
10 other Primary Flight Displays – now basically linked to the body of the aircraft, if you want to put it that. So as the aircraft rolls the pitch ladder rolled with you and against the real-world horizon, so conformal with the outside world. In your symbology the conformal horizon, regardless of where you move your head, is shown against the earth's ideal horizon.

15 So that if you roll the aircraft, looking ahead, the whole pitch ladder rolls with you and therefore whatever angle the aircraft is with the horizon, when looking out ahead, will show that angle. So if you roll to 20 degrees left bank, that pitch ladder is now 20 degrees – let's call it "the ladder" – is in a 20 degrees roll. The pitch itself, degrees nose up, is always correct in the
20 symbology because it's the centre cross on the ladder. So wherever you look, the pitch is correct.

But the roll is reference to the body of the aircraft. So if you can bear with me for a moment. So if the whole aircraft is rolled like this and the table is
25 the conformal horizon, you'll see that attitude.

Because the way they incorporated it in Germany, in association with the conformal horizon, it means then as you look around, this part of the aircraft is level with the horizon, in this particular example, so therefore the pitch –
30 or the ladder is now parallel with the horizon. Conversely, if you happen to be like this, the whole body of the aircraft, when looking out the front, is level with the real-world horizon. But if you look out the side, it appears there's a roll attitude.

35 Obviously normal sense, when flying an aircraft, you set your pitch and roll attitude is referenced to the front of the aircraft and – hence, then, in my decades of flying, that's how I would set it, regardless.

LCDR GRACIE: And that's called a body-axis line?
40

MAJ SCULLARD: It's one of the various – yes, body-axis.

LCDR GRACIE: Or longitudinal?

45 MAJ SCULLARD: Yes, longitudinal axis.

5 LCDR GRACIE: In your time at AATES, were you aware of the NASA technical memorandum that looked on conformal and body-axis attitude comparisons?

MAJ SCULLARD: No, I wasn't.

10 LCDR GRACIE: Could I just put this to you, though, and tell me whether or not it might accord with your understanding. NASA undertook – this is for fighter pilots and so slightly different – but they were looking at the differences in pilot reactions to body-axis concept versus conformal display. The outcome of the report – and just for reference, ma'am, this is part of LTCOL Reinhardt's evidence. LTCOL Reinhardt attached this NASA report. It found that pilots made pitch judgement errors three times more often with the conformal display, which is in this case the 5.10, isn't it?

15 MAJ SCULLARD: 5.1 is a conformal display.

20 LCDR GRACIE: Yes. Does that surprise you, that finding that was made in relation to pilots being three times more likely to make pitch judgement errors on a conformal display?

25 MAJ SCULLARD: I don't know the basis of that. Obviously, I've not read the full report, other than it's not relevant in this case when you mention pitch attitude because pitch attitude was not conformal; it was always correctly displayed, reference the pitch ladder or pitch attitude.

30 LCDR GRACIE: Unless you looked off-axis, though?

MAJ SCULLARD: No, the pitch - - -

LCDR GRACIE: In which case - - -

35 MAJ SCULLARD: The pitch attitude was always correct.

LCDR GRACIE: Except sometimes, if you remember the AATES report, pitch was displayed as angle of bank; that the angle of bank indicator and the pitch indicator reversed. Did you know that?

40 MAJ SCULLARD: So now what I'd still say is the 5.10 pitch attitude information, whether you're 10 degrees nose up, 10 degrees nose down, the display of that information was always correct because it was the centre cross of your symbology overlaid on the ladder. So wherever you looked, that centre cross was always correctly displayed on the ladder.

45

5 The thing that – the characteristic because of the formal display was the representation of roll attitude varied depending on where you were looking. So if you looked off-axis, then the roll attitude did not represent the aircraft axis, being most pilots look out the front when they're setting attitudes.

LCDR GRACIE: It's a pitch judgement error though, and surely pitch is as much a part of an aircraft's attitude as your roll?

10 MAJ SCULLARD: Yes, I'm not sure, I think we're digging two parallel paths here. The pitch attitude display on the symbology was always correct.

LCDR GRACIE: Always?

15 MAJ SCULLARD: Yes, because it was not conformal. It was the use of the ladder reference the conformal horizon was how roll attitude was displayed.

20 LCDR GRACIE: And just to make sure that I understand the basis of your understanding there, is that understanding derived from the AATES report or the AMAFTU test that you did?

25 MAJ SCULLARD: It's based on the design. It is the design, the engineering, the specification of that version.

LCDR GRACIE: Is this based on the test rig that you did or – I mean, how do you – what I'm trying to understand is, have you utilised the 5.1 other than in that AMAFTU test of embarking off the HMAS *Adelaide*?

30 MAJ SCULLARD: Yes, I have. In my role as a contractor maintenance test pilot on MRH-90, we flew with the TopOwl and it has the symbology on it. So yes.

LCDR GRACIE: And when was that?

35

MAJ SCULLARD: Since it was incorporated into the fleet, yes.

LCDR GRACIE: Was this also in April 2020 or so?

40 MAJ SCULLARD: I cannot remember when it was rolled out into the running system per se after the flight test for Service release.

LCDR GRACIE: I'm really just asking why, given what you're saying and your experience, you wouldn't have been included in the OPEVAL?

45

MAJ SCULLARD: I was not full-time in Defence at that time, and I had a different Defence contractor role.

5 LCDR GRACIE: Airbus at that time?

MAJ SCULLARD: Correct, yes.

10 LCDR GRACIE: Did you provide anything in writing at all in terms of the experience that you had in utilising the upgraded symbology while flying the MRH-90?

MAJ SCULLARD: So just – sorry - - -

15 LCDR GRACIE: Did you make any reports to anyone about any of the issues that we've been discussing here?

20 MAJ SCULLARD: In general discussion, yes, in that in my assessment – and I was not part of the AATES testing, as we all know, or the OPEVAL – and in the scope of flying that I had done, and continued to do with 5.10, I did not find the off-axis characteristic an issue because I had never been taught to set my roll or pitch attitude looking not out the front of the aircraft.

25 LCDR GRACIE: But the only time you flew using the upgraded symbology with TopOwl was once you became an Airbus employee.

MAJ SCULLARD: No, so I flew with it as an Army full-time qualified test pilot in the AMAFTU first of class flight trials.

30 LCDR GRACIE: Yes, that one.

35 MAJ SCULLARD: In May. After that, yes, the next time I flew with it was when 5.10 would have received Service release, and the standard incorporation into the fleet. So when it was incorporated into the aircraft at the location at which I was a Defence contractor, when I was doing maintenance test flying, I would have flown with 5.10 at that time.

LCDR GRACIE: So there was only one occasion prior to your engagement with Airbus, and that was the test off HMAS *Adelaide*?

40 MAJ SCULLARD: Yes, that I was conducting testing, which was not – for full clarity, the purpose of a first of class flight trial wasn't to assess the symbology. It's to assess a number of things, but yes, the symbology was incorporated. So that trial had been completed with what was, you know, expected to come into Service later.

45

LCDR GRACIE: Was any of that at night?

MAJ SCULLARD: Yes, a lot. A lot is done at night.

5 LCDR GRACIE: On the HMAS *Adelaide* one?

MAJ SCULLARD: Correct, yes. Yes, we developed – AMAFTU develops shoals for day and night.

10 LCDR GRACIE: Thank you, ma'am, sir.

MS McMURDO: Thank you. Any other applications to cross-examine?
COL Gabbedy.

15

<CROSS-EXAMINATION BY COL GABBEDY

20 COL GABBEDY: Good morning, MAJ Scullard. I'm COL Nigel Gabbedy. I appear for GEN Jobson. I just want to follow on from some of the questions that LCDR Gracie was asking you. I want to look first at paragraph 21 of your statement, and your evidence about the pitch attitude symbology. You say that's always displayed correctly.

25 MAJ SCULLARD: Yes, I firmly believe so.

COL GABBEDY: And I don't think there's any doubt about that evidence. And you base that assessment on testing you had done prior to release into Service.

30

MAJ SCULLARD: I base that evidence on the system specification of the design, and what I have seen when I've flown with that symbology, yes.

35 COL GABBEDY: And on testing you've done in your capacity as a contracted test pilot with Airbus post-release into Service?

MAJ SCULLARD: Yes, that flying, the symbology was there. I was not assessing the symbology, but the symbology was there. And yes, it – yes.

40 COL GABBEDY: In paragraph 8 of your statement I believe you give the dates when you were in that role with Airbus, and they span from July 2019 to July 2021; is that right?

MAJ SCULLARD: No, I started with Airbus in July 2019. My

employment with Airbus concluded at the end of last year, along with the removal of MRH-90.

5 COL GABBEDY: So you continued right up until July of last year?

MAJ SCULLARD: Well, December last year. But, yes, I was flying MRH up until July last year.

10 COL GABBEDY: In all of the flying that you did over years with Airbus, you observed no issues with the pitch attitude symbology.

MAJ SCULLARD: No.

15 COL GABBEDY: I'm not sure whether I'm delving into semantics here, so please tell me if I am. But in answer to the Air Marshal's questions, you referred to "an attitude characteristic". He put it to you as "an attitude ambiguity". You refer to it in paragraph 21 of your statement, where you say you "became aware of an off-axis roll attitude characteristic". What do you mean in describing that thing as a characteristic?

20 MAJ SCULLARD: I guess that is the design, if not – it's a characteristic of the design. That's how that symbology has been incorporated. I mean, it perhaps is semantics. I just – dare I say, in flight test you're just trying to be a little bit more specific without – yes, it is a characteristic of a design. Some may interpret it as an ambiguity, but yes, it's a characteristic.

25 COL GABBEDY: Is it your understanding – and tell me if you don't know – that this was a deliberate design characteristic when the Germans were designing this modification upgrade?

30 MAJ SCULLARD: So my take on it – it could be speculation – is that they accepted the off-axis characteristic because they were happy with using the ladder in association with the conformal horizon, when looking out the front of the aircraft, as being acceptable. The difference in display of roll attitudes compared to the horizon when looking off-axis, I am assuming – assuming is obviously a dangerous thing – was something that they accepted because they didn't find it a major issue.

35 COL GABBEDY: You've been asked a number of questions by Ms McMurdo in relation to areas in which the Germans might have been using this symbology in this aircraft, and those areas may well have been areas that weren't overwater. Is it your understanding that they were using the symbology, the TopOwl symbology, in aircraft in low visibility environments?

45

MAJ SCULLARD: No, I don't have an understanding of what they did; it would be an assumption.

5 COL GABBEDY: If you go to paragraph 21(b) of your statement, and the email you got from your German colleague, he refers to operating in a brownout environment. Does that terminology have any particular meaning for you?

10 MAJ SCULLARD: Yes. Restricted visibility operations, which I guess also is termed as "degraded visible environment" – sorry, visual environment – "degraded visual environment".

COL GABBEDY: Thank you. They're my questions.

15 MS McMURDO: Any other applications to cross-examine? Any re-examination? No.

Thank you very much, Mr Scullard. You are free to go.

20 MAJ SCULLARD: Thank you.

MS McMURDO: Some people do find it traumatic giving evidence before hearings like this, so I'm sure you're aware of the support services that are available. So if you need them, don't hesitate to use them.

25 MAJ SCULLARD: Thank you, ma'am.

30 <WITNESS WITHDREW

MS McMURDO: Thank you. Should we have a break?

35 COL STREIT: I was going to ask for a short comfort break.

MS McMURDO: Yes. And our next witness is?

COL STREIT: That's a matter I might determine over the break.

40 MS McMURDO: Okay. All right then. Will 10 minutes be long enough?

COL STREIT: Sorry?

45 MS McMURDO: Will 10 minutes be long enough?

COL STREIT: Yes, thank you.

MS McMURDO: We will have a 10-minute break. Thank you.

5

HEARING ADJOURNED

HEARING RESUMED

10

LCDR GRACIE: It's not just my estimate of 10 minutes that's out, I'll have you observe, ma'am, it's all Counsel representing.

15 MS McMURDO: I don't know that that would necessarily be accepted. Yes.

20 COL STREIT: Thank you, Ms McMurdo. I have considered whether we might be able to deal with some evidence in another way during the brief break. I understand there are no objections to this course from Counsel representing, but of course they will be asked by you to indicate if there are. I propose to do the following, and that is to tender the statement and three annexures of CAPT Sam Dale CSM of the Royal Australian Navy. He is presently the Deputy Fleet Commander for Navy. He has prepared a
25 statement which is 17 pages long, digitally signed on 4 November 2024, comprising three annexures, and I tender his statement.

MS McMURDO: The statement and three annexures tendered by consent, Exhibit 108.

30

#EXHIBIT 108 - STATEMENT OF CAPT DALE CSM RAN AND ANNEXURES

35

MAJ CHAPMAN: Thank you, Ms McMurdo. I call LTCOL Andrew John Langley.

40

<LTCOL ANDREW JOHN LANGLEY, Sworn

<EXAMINATION-IN-CHIEF BY MAJ CHAPMAN

45

MS McMURDO: Lieutenant Colonel, let me know if you need a break at any time. Thank you.

LTCOL LANGLEY: Thanks, ma'am.

5

MAJ CHAPMAN: COL Langley, can you please state your full name?

LTCOL LANGLEY: Andrew John Langley.

10 MAJ CHAPMAN: Thank you. And can you just confirm, as a preliminary matter, that you've received each of these documents which I'm going to list. A section 23 Notice requiring your appearance today to give evidence?

15 LTCOL LANGLEY: I did.

MAJ CHAPMAN: An extract of the Inquiry Directions?

LTCOL LANGLEY: I did.

20

MAJ CHAPMAN: A copy of my appointment as an Assistant IGADF?

LTCOL LANGLEY: I did.

25 MAJ CHAPMAN: A Frequently Asked Guide for Witnesses in IGADF Inquiries?

LTCOL LANGLEY: I did.

30 MAJ CHAPMAN: And a Privacy Notice for Witnesses Giving Evidence?

LTCOL LANGLEY: I did, and that was signed and sent back.

35 MAJ CHAPMAN: Thank you, and have you, COL Langley, prepared a statement for the purposes of the Inquiry?

LTCOL LANGLEY: I have.

40 MAJ CHAPMAN: Can I just hand you a copy of that statement? And just while it's there, do you recognise that to be your statement dated 29 October 2014?

LTCOL LANGLEY: Yes.

45 MAJ CHAPMAN: Thank you, and it's 22 pages in length.

LTCOL LANGLEY: That's correct.

5 MAJ CHAPMAN: And it's your signature on the last page?

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: Does it have three Annexures: A, B, C?

10 LTCOL LANGLEY: It does.

MAJ CHAPMAN: Do you wish to make any amendments to the document?

15 LTCOL LANGLEY: No.

MAJ CHAPMAN: Chair, I tender the statement of LTCOL Andrew John Langley dated 29 October 2014.

20 MS McMURDO: Exhibit 109.

#EXHIBIT 109 - STATEMENT OF LTCOL LANGLEY

25 MAJ CHAPMAN: COL Langley, just before we commence, you'll see there, there's a laminated list. It's probably not going to be necessary, but that's a list of pseudonyms, and if you're proposing to mention a name, you might just check that first so we're not going into territory we can avoid.

30 LTCOL LANGLEY: Certainly.

35 MAJ CHAPMAN: Sir, if I may, I'd just like to begin with some of what you've had to say about your background, and I'll try and abridge this, given your statement has been tendered, and that commences at paragraph 9 of your statement, which you are free to open. So you commenced your Army career and your flying career in 1990.

40 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: You began flying Kiowas, and progressed to Iroquois, and later Black Hawks; is that right?

45 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: You attended Test Pilot School in 1995, and there you were awarded prizes for high achievement.

LTCOL LANGLEY: Yes.

5

MAJ CHAPMAN: Between '96 and 2001 you were a test pilot and Flight Commander at ARDU.

LTCOL LANGLEY: Correct.

10

MAJ CHAPMAN: And ARDU is the Test Flight Organisation for RAAF.

LTCOL LANGLEY: At the time, for Air Force and Army.

15

MAJ CHAPMAN: And Army. Yes, thank you. While there, you gained experience dealing with night-vision systems and Head-Up Displays on Black Hawk, and training personnel for Special Operations.

LTCOL LANGLEY: Correct.

20

MAJ CHAPMAN: You say, at 12, that you've conducted extensive testing on TopOwl HMSD; is that right?

LTCOL LANGLEY: That's correct. In its prototype state at the time.

25

MAJ CHAPMAN: Was that testing on TopOwl while you were at ARDU during the period 1996 and 2001, or was it later?

LTCOL LANGLEY: It was during that period from 1996 to 2001.

30

MAJ CHAPMAN: At 13, you refer to being in the ARH Project Office between 2002 to 2005, working as a Commonwealth test pilot.

LTCOL LANGLEY: Correct.

35

MAJ CHAPMAN: And that was in connection with the introduction into Service in Australia of the ARH; is that right?

LTCOL LANGLEY: No, that was prototyping of the ARH at the factory in Marignane, with the manufacturer, Eurocopter at the time; now Airbus Helicopters.

40

MAJ CHAPMAN: At 17, you say you transferred to Reserve service in March '19.

45

LTCOL LANGLEY: Correct.

5 MAJ CHAPMAN: Since your transfer to the Reserve, you've worked a number of positions in Aviation Branch, Operational Airworthiness, from July 2019 to June 2020.

LTCOL LANGLEY: Yes.

10 MAJ CHAPMAN: Since August 2022 as Staff Officer Grade 1 Flight Test at the Army Aviation Training Centre.

LTCOL LANGLEY: Yes.

15 MAJ CHAPMAN: Sir, at 20, you provide some detail of your considerable flying experience there, amounting to 5465 Military flying hours on 45 types, both rotary and fixed-wing.

LTCOL LANGLEY: Yes.

20 MAJ CHAPMAN: And this includes Category C, MRH pilot, and you crewed 216.4 hours.

LTCOL LANGLEY: Yes.

25 MAJ CHAPMAN: At 25, you list your tertiary qualifications, including a Master of Project Management, Master of Business, and a Bachelor of Science, all from UNSW. Is that right?

LTCOL LANGLEY: Correct.

30 MAJ CHAPMAN: You next describe, at paragraph 26, that as at the date of the accident, 28 July 2023, you had two roles. Your first was in your current post as a Reservist, as SO1 Flight Test at the Training Centre.

35 LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And you had a second role as OC. Is that Officer Commanding?

40 LTCOL LANGLEY: That's correct, Officer Commanding.

MAJ CHAPMAN: Of General Support Aviation Squadron in support of RFSG in Northern Australia; correct?

45 LTCOL LANGLEY: That's correct.

5 MAJ CHAPMAN: Sir, at 29 to 34, you describe your responsibilities, your current roles, including that you report to Commandant of the Training Centre.

LTCOL LANGLEY: Yes.

10 MAJ CHAPMAN: From August 2024 you are no longer the Officer Commanding of the General Support Aviation Squadron.

LTCOL LANGLEY: That's correct.

15 MAJ CHAPMAN: And that you provide specialist advice on flight test tasking, governance, as well as being Test and Evaluation Principal for Army in relation to AATES; is that right?

LTCOL LANGLEY: That's right.

20 MAJ CHAPMAN: At paragraph 34, sir, you also say that your current role includes the provision of a review of spatial disorientation training, and implementation of the maintenance of spatial orientation, or continuous and active avoidance of spatial disorientation for Army Aviation crew. Do you see that?

25 LTCOL LANGLEY: Yes.

30 MAJ CHAPMAN: Noting, as I do, that the Inquiry has received some evidence on the subject of spatial disorientation as recently as this hearing block, and in August, when approximately were you asked to conduct a review concerning spatial disorientation?

LTCOL LANGLEY: It was roughly coincident with standing down as the Officer Commanding of the GSAS.

35 MAJ CHAPMAN: Just going back, was that August this year?

LTCOL LANGLEY: That's correct.

40 MAJ CHAPMAN: Who asked you to conduct the review of spatial disorientation? You can identify the person by name, or the position is sufficient.

LTCOL LANGLEY: So that was the Commandant of the Training Centre, who I worked for.

45

MAJ CHAPMAN: The current Commandant?

LTCOL LANGLEY: Correct.

5 MAJ CHAPMAN: Can you give a sense, if you know, what the genesis for this tasking was?

10 LTCOL LANGLEY: It's part of the wider safety campaign for the Aviation Command, and the review and improvement of spatial disorientation training in the form of the maintenance of spatial orientation is a response to part of that.

15 MAJ CHAPMAN: Are you aware of whether it was connected in any way or a response to evidence in this Inquiry?

LTCOL LANGLEY: Not in detail. I imagine so, but I don't have the genesis of that in particular.

20 MAJ CHAPMAN: And is it your understanding that – and you can agree or disagree – that this is the first body of work in terms of a review concerning spatial disorientation, particularly in Army Aviation?

25 LTCOL LANGLEY: I couldn't say for sure. But it is certainly a comprehensive review to look at improving those parts of the training, and that it will look to push back into the ab initio and then through training of aircrew, both in terms of additional currency criteria and ongoing improvement.

30 MAJ CHAPMAN: I suppose I am asking that having been working on this since August, so a little bit of time. Have you encountered, in your research to date, any body of work in Army dealing with spatial disorientation?

35 LTCOL LANGLEY: It's already in the training curriculum. And, in fact, through Aviation Medicine training and through general flight training, those areas are covered. And so this is more by way of an improvement of the current training curricula and reviewing what our allies and close military partners are doing.

40 MAJ CHAPMAN: Do you have a deadline for when that review is to be completed – an expectation?

45 LTCOL LANGLEY: We're looking to try and get a Special Flying Instruction released next month. And that will kick-off the initial part of the training but an ongoing review and then, of course, there'll be feedback to improve and adjust what is rolled out.

MAJ CHAPMAN: So you anticipate that part of this review and the work you're undertaking is going to form part of an SFI, a forthcoming SFI?

5 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: And that's due to be released, I think you said, next month?

10 LTCOL LANGLEY: Next month.

MAJ CHAPMAN: And that is an SFI dealing particularly with spatial disorientation?

15 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: Can I move then to your work within the Directorate of Operational Airworthiness? So between July 2019 and June 2022 – I think that's the range. First, you refer at paragraph 35 – that is, that's the date range – and you use the abbreviation "AVN BR OPOWL", and I was just wondering if you could just expand on that more fully, please.

LTCOL LANGLEY: So the Aviation Branch at the time was part of Headquarters Forces Command given that the Forces Commander was the Military Air Operator, effectively. That branch, whilst it was headquartered in Sydney, had various parts of it. One of which was at Enoggera, and that was, if you like, the posted location for that Reserve service. But, effectively, I rendered service wherever it was required, in whichever location.

30 MAJ CHAPMAN: And you say at paragraph 37 that it was a position where you reported to DOPAW; correct?

LTCOL LANGLEY: That's correct.

35 MAJ CHAPMAN: And am I right in saying that COL Lynch was the DOPAW during that period?

LTCOL LANGLEY: Yes, he was.

40 MAJ CHAPMAN: So the full period; that is, July '19 to June 2022?

LTCOL LANGLEY: That's correct.

- 5 MAJ CHAPMAN: And that in terms of the Chain of Command structure, is it your understanding that at that time – and you’ve just given some evidence of this – that COL Lynch reported to DG Army Avn, and that was BRIG Fenwick? Is that right?
- LTCOL LANGLEY: That’s correct.
- 10 MAJ CHAPMAN: And in your role reporting to COL Lynch as DOPAW, you – and I summarise these duties – attended to staff duties and flying support through Standards Branch.
- LTCOL LANGLEY: That’s correct.
- 15 MAJ CHAPMAN: You conducted Operational Evaluation and reporting on various Army aircraft types.
- LTCOL LANGLEY: That’s correct.
- 20 MAJ CHAPMAN: You had responsibility for drafting reports, instruments, Flight Manuals and Standardisation Manual contents per the DASRs.
- LTCOL LANGLEY: That’s correct.
- 25 MAJ CHAPMAN: You reported to, or responded to, Aviation safety concerns that were tasked to you by the DOPAW.
- LTCOL LANGLEY: That’s right.
- 30 MAJ CHAPMAN: And this is just in summary form, you were also conducting flying to DASR compliant instruments; correct?
- LTCOL LANGLEY: That’s correct.
- 35 MAJ CHAPMAN: You say at paragraph 43 that you did not personally know or fly with any member of the crew of Bushman 83; is that correct?
- LTCOL LANGLEY: That’s correct.
- 40 MAJ CHAPMAN: I’m now just going to ask you some questions, sir, specifically about 5.10 symbology upgrade. So just to begin with, you’re aware when I refer to 5.10 upgrade that it’s a reference to the symbology upgrade on the HMSD TopOwl?
- 45 LTCOL LANGLEY: Yes. For the Taipan MRH-90, yes.

MAJ CHAPMAN: Yes, indeed. Indeed, for the Taipan as distinct from symbology upgrades to the ARH.

5 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: And that was a software upgrade that was the subject of at least two reports. And I take it you're familiar with those two? The first is the AATES report from June 2019.

10 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And that's Annex C to your statement.

15 LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And, of course, there's the OPEVAL minute which you signed on 29 February 2020, which is Annex A to your statement.

20 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And I'll take you to those reports in due course, sir. But just as a preliminary matter, where you have referred in a number of places in your statement to the AATES report not having unsatisfactory conclusions. And I might just take you to 45 of your statement as an example where you say:

The AATES report on HMSD 5.10 update did not have any unsatisfactory conclusions.

30 Do you see that?

LTCOL LANGLEY: I do.

35 MAJ CHAPMAN: So just to clear that up now, is it your point that the AATES report did not use the term "unsatisfactory"; correct?

LTCOL LANGLEY: That's correct.

40 MAJ CHAPMAN: Though you accept that it used the term "Unacceptable"; is that right?

LTCOL LANGLEY: Absolutely.

MAJ CHAPMAN: And you're aware that "Unacceptable" as a term had a particular meaning within the context of AATES' reporting?

5 LTCOL LANGLEY: That's correct. It's actually defined in a table in the report, specifically.

MAJ CHAPMAN: Thank you, sir. And I'll just ask you just so we can make that clear, go to Annex C of your report and to (iii). And just let me know when you've turned that up.

10 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: So do you see there towards the bottom, "Terms used in conclusions and recommendations"?

15 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And do you see there that the term "Unacceptable" as used in the AATES report, you agree, represented the most adverse recommendation in the hierarchy of those recommendations?

LTCOL LANGLEY: I do.

MAJ CHAPMAN: And it was a recommendation that required, as it says, "something must be done"?

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And it was a recommendation level which was described as "essential"?

LTCOL LANGLEY: Correct.

MAJ CHAPMAN: And that "Unsatisfactory" was actually listed in the tier below "Unacceptable"?

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Perhaps we can move away from that for a moment. The question at 9(a) – and I'm back to your statement, sir – I'll just turn that up. You were asked basically to set out your understanding as to how the Operational Evaluation came about; is that correct?

LTCOL LANGLEY: That's right.

45

MAJ CHAPMAN: And you provide at paragraph 46 – or you explain that at paragraph 46, that:

AATES proposed that further testing was required.

5

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Could I just ask you to go to the AATES report, which is again Annex C, and to page 10 of that report? And specifically go to paragraph 26 under the heading, "Conclusions and Recommendations". Do you see that?

10

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And do you see there in bold the statement by – and this is by – well, a statement noting the classification of this document that AATES were requesting, essentially, further information?

15

LTCOL LANGLEY: That's right.

20

MAJ CHAPMAN: And that's what you're referring to in paragraph 46 of your statement?

LTCOL LANGLEY: Correct.

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MAJ CHAPMAN: And you say that testing formed a part of obtaining the further information?

LTCOL LANGLEY: That's right.

30

MAJ CHAPMAN: And was it on that basis that DOPAW, then COL Lynch, as far as you understand it to be the case, approved the OPEVAL as an appropriate course of action?

LTCOL LANGLEY: That was certainly part of it. I'm sure there were other things.

35

MAJ CHAPMAN: Sure.

LTCOL LANGLEY: But definitely the response to the report was instrumental in continuing or initiating a flight test activity to determine that extra information.

40

MAJ CHAPMAN: And when COL Lynch has approved, as you say, as part of other considerations, but approved the OPEVAL as a course of

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action, sir, did you propose the OPEVAL process to COL Lynch, or did COL Lynch propose it, or did someone else? Do you have an understanding of that?

5 LTCOL LANGLEY: No. I couldn't give you an answer on that. I was involved in the OPEVAL from the point where it had already been determined and decided. I was doing a lot of other work for COL Lynch simultaneously. So it wasn't in my remit until, effectively, the decision had already been made.

10 MAJ CHAPMAN: And I think you give some evidence later about not being involved in the planning, which we'll come to. And at paragraph 48 of your statement – if I could just ask you to go back to that, if you don't mind – you reproduce some parts of the OPEVAL report. Do you see that?

15 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And you have underlined part of that, which includes the reference to:

20 *The report recommended further testing and the provision of more information.*

Do you see that?

25 LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And there it's the case that you're referring, are you, to the AATES report recommending further information was required?

30 LTCOL LANGLEY: The underlined statements are actually from the OPEVAL report which was written in response to the conduct of the Operational Evaluation. So it's a paraphrase of what was requested in Annex C.

35 MAJ CHAPMAN: Yes, but it says here in the underline that:

40 *The report –*
that is, the AATES report –
recommended further testing and the provision of more information.

45 LTCOL LANGLEY: That's right.

5 MAJ CHAPMAN: And my question, just reading those passages, do you agree that you have interpreted what was in the AATES report as a request being made for further testing in an OPEVAL?

LTCOL LANGLEY: Yes, I've interpreted that as being part of that request for further information.

10 MAJ CHAPMAN: And the terms of the AATES recommendation actually simply say "further information is required". Do you agree with that?

LTCOL LANGLEY: That's correct.

15 MAJ CHAPMAN: And do you agree that AATES did not actually say, for example, that they required any assistance collating that further information. Do you agree?

LTCOL LANGLEY: Sure. Certainly.

20 MAJ CHAPMAN: And nor did they say that they, AATES, were not themselves open to conducting this further testing. Would you agree with that?

25 LTCOL LANGLEY: Absolutely.

MAJ CHAPMAN: Now, as a former SO1 of AATES, you'd be aware that in principle, at least, AATES could have themselves conducted the further testing; is that right?

30 LTCOL LANGLEY: Definitely.

35 MAJ CHAPMAN: Yes. And are you aware, sir, that AATES had to stop their testing when they discovered the off-axis characteristic? Is that your understanding?

40 LTCOL LANGLEY: I understand that that was part of the reason why they ceased their testing. They couldn't understand, or they didn't understand at the time, given the information they had, what they were faced with. And it speaks about it in the report.

MAJ CHAPMAN: Certainly.

LTCOL LANGLEY: A deficiency in the implementation of the

symbolology as it was put into our aircraft, compared to where it had come from, but – or that they simply didn't have a holistic description of what the symbolology was doing.

5 MAJ CHAPMAN: And did you understand – and perhaps another reason was that they had to stop because to continue to fly, having discovered this characteristic, was, in their assessment, potentially to breach their Military Permit to Fly?

10 LTCOL LANGLEY: That, I couldn't say.

MAJ CHAPMAN: Though you'd agree, based on your understanding of the AATES report, as I say, that they didn't express any unwillingness to carry out the further testing themselves.

15 LTCOL LANGLEY: No, there doesn't appear to be any of that at all.

MAJ CHAPMAN: Can I just ask you, sir, whether, as far as you can recall – going back many years now – was there any engagement by you with
20 AATES in terms of whether they had a desire to conduct this further testing?

LTCOL LANGLEY: No, there wasn't.

MAJ CHAPMAN: Are you aware of whether there was any engagement
25 between DOPAW and SO1 AATES, COL Reinhardt, specifically, as to whether AATES would or would not conduct the testing?

LTCOL LANGLEY: I think you could reasonably assume that that did occur given that AATES were instrumental in providing instruments to
30 conduct the Operational Evaluation and they'd reviewed the test plan. And the Conducting Officer, as far as I was aware, had been intimately speaking and meeting with them to facilitate those instruments. So I imagine they would thus have had to have great knowledge about exactly what was going on, given they were generating instruments through a Military Permit to Fly
35 for the activity to occur.

MAJ CHAPMAN: I'm more asking about your own recollection as to whether you're aware there was any engagement between DOPAW and
40 AATES and COL Reinhardt as to whether AATES would or would not conduct the testing. Your statement - - -

LTCOL LANGLEY: That's the question. I refer to my statement, and I was not involved in the planning so I couldn't say one way or another.

MAJ CHAPMAN: But you're not aware, as a fact, as to whether there was that engagement?

LTCOL LANGLEY: Correct, I'm not aware.

5

MAJ CHAPMAN: What about any engagement between you and DOPAW, COL Lynch, with respect to whether AATES should or should not conduct the further testing, do you have any recollection about that?

10 LTCOL LANGLEY: I don't recall whether that was in any meetings or even in emails, no.

MAJ CHAPMAN: So just to be clear, there was no discussion you can recall between you and COL Lynch concerning whether this matter should be the subject of further testing by either AATES or by way of the OPEVAL?

15

LTCOL LANGLEY: No, not as I recall three, four years ago – whenever it was. No.

20

MAJ CHAPMAN: Sir, can I take you to paragraph 53 of your statement. And you next say that – if you've got it there, I'll wait for you.

LTCOL LANGLEY: Fifty-three.

25

MAJ CHAPMAN: That:

The conduct of further testing is both normal and appropriate where an FTO is recommended to be conducted.

30

LTCOL LANGLEY: Correct.

MAJ CHAPMAN: Do you see that?

35 LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And here you are talking about, are you not, testing by way of the OPEVAL process?

40 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And is the sum of all this to say that a decision appears to have been taken by DOPAW that the OPEVAL should proceed as an alternative to AATES testing?

45

5 LTCOL LANGLEY: I don't have any information on whether it was DOPAW that made that decision or whether that occurred or not. What I can say is that the report did say, as in the AATES report did say, further information was required. And OPEVAL was a very appropriate way to get further information.

10 MAJ CHAPMAN: So just back to your reference in paragraph 53 to testing being normal. Was it your experience when you were at AATES that additional testing arising from an AATES report would be conducted outside of the organisation?

LTCOL LANGLEY: Yes.

15 MAJ CHAPMAN: Though, do you agree that the primary function of the AATES as a Flight Test Organisation was themselves to be conducting the flight testing?

LTCOL LANGLEY: Yes.

20 MAJ CHAPMAN: And that the primary function of Standards Branch, under the auspices of which the OPEVAL was conducted, is not to conduct OT&E testing in the same way.

25 LTCOL LANGLEY: That would be normally the case. And, depending on the workload of relevant agencies, that can be spread across. But if the inference is that Standards were doing this by themselves, that's not the case. They were using a Military Permit to Fly issued through AATES from AMAFTU.

30 MAJ CHAPMAN: And you have been Staff Officer Grade 1 of AATES in your career?

LTCOL LANGLEY: That's right.

35 MAJ CHAPMAN: And in your career as Staff Officer Grade 1 AATES, do you recall arriving at any "Unacceptable" findings in your reports while you were in charge?

40 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And can I just ask how many of those "Unacceptable" findings that you arrived at became the subject of an OPEVAL by Standards?

45 LTCOL LANGLEY: None, that I can recall.

5 MAJ CHAPMAN: And in your time with now Standards, reflecting back, apart from this OPEVAL, can you give us a sense of – or can you recall how many OPEVALs were conducted which reviewed an AATES report?

LTCOL LANGLEY: No idea. I have no visibility over what AATES does, so I couldn't tell you.

10 MAJ CHAPMAN: No, my question was a different one, and I'll try and rearticulate it.

LTCOL LANGLEY: Sure.

15 MAJ CHAPMAN: In your time in Standards, apart from this OPEVAL, can you recall how many OPEVALs were conducted which reviewed AATES reports, if any?

20 LTCOL LANGLEY: Well again, I refer back to my answer and if it's an AATES report, then it would be something that AATES has conducted, which I have no visibility over. So I can say that I don't have any recollection of any Standards activities being conducted in that sense. But I also don't know of any of the AATES activities because I wasn't part of that organisation for the last four years, or five years. So I would have to know what AATES were doing in order to understand whether an OPEVAL has been conducted as a response to something that has come out of an AATES report.

30 MAJ CHAPMAN: But an OPEVAL – I'm talking about Standards conducting an OPEVAL. And I'm talking about Standards conducting an OPEVAL of an AATES report, such as they did with 5.10. My question is, how many other – apart from this 5.10 OPEVAL, how many other OPEVALs, in your experience in Standards, have been conducted in respect of AATES reports?

35 MS MUSGROVE: I object to the question.

MAJ CHAPMAN: It's in his experience.

40 MS MUSGROVE: I object to the question. The questions that this witness has addressed in his statement have come from Counsel Assisting or their office. If my friend would be assisted, and the Inquiry would be assisted, with precise answers that can address these issues, then that would have been appropriate to put in the questions that were asked of this witness rather than conducting a memory test some years subsequent to when he

was in the role. The questioning is not fair and it's not appropriate, in my submission.

5 MS McMURDO: Counsel Assisting is entitled to ask questions beyond the formal questions put in the statement. Those matters are matters that go to weight. Thank you. Yes, MAJ Chapman.

MAJ CHAPMAN: Do you have an answer to that?

10 LTCOL LANGLEY: And I'd just reiterate that I don't have any knowledge of any OPEVALs being conducted either in Standards or as a result of an AATES report.

15 MAJ CHAPMAN: Thank you. So just to round that issue off, would you agree with the characterisation that conducting an OPEVAL in this instance was rare?

LTCOL LANGLEY: Yes, I guess it's rare. That's reasonable.

20 MAJ CHAPMAN: I want to now turn to discuss the release of the AATES report in June 2019, sir. And this is, I take it, not long after you had yourself left AATES, is that correct, in June 2019?

25 LTCOL LANGLEY: It'd be within a year, yes – or perhaps 15 months or so.

MAJ CHAPMAN: And do you recall receiving a copy of the AATES report?

30 LTCOL LANGLEY: I think I received it at the time that I was asked to help with the OPEVAL. So that was coincident shortly before the OPEVAL was conducted.

35 MAJ CHAPMAN: So possibly some months after June 2019, but the date is not particularly - - -

LTCOL LANGLEY: Yes, more like November or - - -

40 MAJ CHAPMAN: And can you just describe to us what your reaction was to the findings that were made by AATES with respect to the symbology presenting a risk, particularly, of CFIT?

45 LTCOL LANGLEY: Yes, they'd made some conclusions about that and it was reported.

MAJ CHAPMAN: What was your reaction to it, your own reaction to that?

5 LTCOL LANGLEY: I didn't really have a reaction. It was just part of the report that had been submitted by them. So it was just an element of the report.

MAJ CHAPMAN: Did you take a view at all about whether or not AATES had gone too far in making an "Unacceptable" recommendation?

10 LTCOL LANGLEY: No, I think it was reasonable given what they were doing. They had looked at the symbology, had not been able to, it appears, line that up with what was described, and had made conclusions based on that, almost as though they couldn't really determine whether it was doing
15 what it was supposed to. So they wanted to make sure, with further information, that it was functioning correctly.

MAJ CHAPMAN: And the Inquiry has received some evidence that AATES' "Unacceptable" conclusion generated what I'll describe as some
20 debate and was perhaps not well received. Could you just give us a sense, if you can, of whether that was your experience dealing within Standards at that time?

LTCOL LANGLEY: No, I think the report was taken at face value and it
25 was discussed seriously; noting that there was a gap in knowledge. So I think that was part of the genesis for the OPEVAL, was to close that gap in knowledge.

MAJ CHAPMAN: So you wouldn't characterise that it would mean any
30 frustration or anything of that kind within DOPAW or Standards at that time, once the report had been received?

LTCOL LANGLEY: Not that I observed. But there may well have been; I don't know.

35 MAJ CHAPMAN: Were you aware of any discussion within Standards at that time to the effect that this report might delay the introduction of certain capabilities that 5.10 was going to provide?

40 LTCOL LANGLEY: No.

MAJ CHAPMAN: Was it discussed at the time – this is around the time
45 you received the AATES report – with COL Lynch that the OPEVAL represented a means of progressing without delay?

5 LTCOL LANGLEY: No, the OPEVAL was arranged to determine the extra information that we then had, given we'd, I think, received a format specification. We'd had a look at some compliance documents that had been received from Airbus and this was a sensible extension of that, given that new information. And then the OPEVAL would provide additional information to determine what should then occur.

10 MAJ CHAPMAN: So you didn't get any sense at this time, in your discussion within Standards, that effectively DOPAW wanted to take carriage of the further testing and the process?

LTCOL LANGLEY: Well, no, I don't have any - - -

15 MAJ CHAPMAN: Can I just move to deal with the planning phase of the OPEVAL, which you address at paragraph 56? So you were asked at (d) to identify the principal staff in the planning for the OPEVAL. Do you see that?

20 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And you say that you were not, as we've established, directly involved in the planning for it?

25 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: So if not you, who was the principal or the lead in the planning activities; was it SO1 Standards, or others?

30 LTCOL LANGLEY: SO1 Standards, from my recollection.

MAJ CHAPMAN: Is that COL Norton?

LTCOL LANGLEY: That's right, yes.

35 MAJ CHAPMAN: While you were not involved in the planning phase, your evidence is you assisted with the conduct of the activity.

LTCOL LANGLEY: That's right.

40 MAJ CHAPMAN: Can you just explain, how did you assist in that way?

45 LTCOL LANGLEY: I provided some supervising. I provided assessments of the symbology. I flew with 6 Regiment crews, and I also flew with other Standards Officers.

MAJ CHAPMAN: I might just ask you to go – do you have the OPEVAL just there with you? You may not have a copy of it.

LTCOL LANGLEY: Yes, I've got Annex A here.

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MAJ CHAPMAN: It's an annexure. It's in Annex - - -

MS McMURDO: A, he said.

10 MAJ CHAPMAN: A, thank you.

Can I just ask you to go over very briefly to Annex B and, yes, you're listed there in the numerical rating tasks, in the middle there. So that was you flying, and these are your assessments.

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LTCOL LANGLEY: That's right.

MAJ CHAPMAN: You say that you reviewed the test plan; is that right?

20 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: That's the OPEVAL Test Plan?

LTCOL LANGLEY: Correct.

25

MAJ CHAPMAN: You also say at 60 of your statement that you believe COL Reinhardt and MAJ Lamb were involved in the planning.

LTCOL LANGLEY: Yes, insofar as a Military Permit to Fly was generated with associated flight conditions, and that was staffed through AATES and received from AMAFTU.

30

MAJ CHAPMAN: And you go on to say as much at 63, where you say:

35 *AATES were involved to ensure testing was conducted safely, and that the test serials were appropriate to assess the symbology.*

Is that right?

40 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Just pausing there, are you yourself aware – noting that you were not involved in the planning – about how AATES came to be involved in contributing to the OPEVAL test planning? Were they asked, or do you have any awareness about that?

45

LTCOL LANGLEY: No awareness.

5 MAJ CHAPMAN: Would it be usual, in your experience, or typical, for representatives of AATES to be involved in an OPEVAL conducted by Standards?

LTCOL LANGLEY: Yes.

10 MAJ CHAPMAN: And that would be for the purposes, as you've described, the Military Permit to Fly and the Form 18, et cetera?

LTCOL LANGLEY: Yes, if those were required. Most OPEVALs won't require a Military Permit to Fly, or flight conditions.

15 MAJ CHAPMAN: And that might also be to set the conditions – or correction, not the conditions – the limitations or things of that nature on the testing activity for safety.

20 LTCOL LANGLEY: That's right.

AVM HARLAND: Just a question. Why did this one need a Military Permit to Fly, and it wouldn't ordinarily be usual for an OPEVAL?

25 LTCOL LANGLEY: And I suspect that was because they were looking – when I say “they”, either DOPAW or COL Norton were looking to make sure that they had additional safety oversight, given the “Unacceptable” conclusion that had been made in the previous reporting.

30 AVM HARLAND: Okay. Thanks.

MAJ CHAPMAN: You've agreed with this: so AATES, MAJ Lamb and COL Reinhardt were involved in setting some controls and the parameters for the safe conduct of the activity.

35 LTCOL LANGLEY: That's the nature of the flight conditions, yes.

MAJ CHAPMAN: As a couple of examples – and I think there were many – but do you recall parameters being set to only conduct the activity, for example, in conditions no lower than two millilux?

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And another one was only with a visible horizon.

45

LTCOL LANGLEY: That would seem reasonable. It could well have occurred.

5 MAJ CHAPMAN: Do you recall that AATES imposed something like over 20 limitations on this particular activity?

LTCOL LANGLEY: Not especially, but that wouldn't be out of the ordinary.

10 MAJ CHAPMAN: So if you just accept from me that there were over 20 – there may even be 24, I think is the evidence – in your experience, would that be regarded as an unusually high number of limitations on an activity such as this?

15 LTCOL LANGLEY: Not necessarily, but I think it was instrumental, given – or instrumental to the conduct of that activity, given that “Unacceptable” conclusion, to make sure that whatever was done, was done safely.

20 MAJ CHAPMAN: So you would agree, would you, that that likely reflected AATES' view that the symbology operating in certain conditions was potentially unsafe?

25 LTCOL LANGLEY: I don't think they used the term – they used the term “a threat to flight safety”.

MAJ CHAPMAN: Yes.

30 LTCOL LANGLEY: So if it's characterised in the same way, yes.

MAJ CHAPMAN: And that was particularly the case in DVE conditions, to your recollection of the report?

35 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: You say at paragraph 65 that it's your understanding that the test parameters were strictly observed in the testing sorties.

40 LTCOL LANGLEY: That's right. Certainly for the ones that I was involved in, and I understand for the other ones as well, given the reporting.

MAJ CHAPMAN: Yes. Would you agree with this proposition, sir: that the parameters that were imposed on this testing by AATES – I withdraw that. Do you agree that with the parameters that were imposed by AATES;

that the testing in the OPEVAL only went so far as the parameters of that testing?

5 LTCOL LANGLEY: Yes, they were bounded by them, that's correct.

MAJ CHAPMAN: And another way of saying that the testing did not go beyond the controls or the limitations, such as below two millilux or below – without a discernible horizon, as far as you're aware.

10 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Is it your understanding that prior to the approval being given for Service release of this upgrade in about March 2020, that there was no further testing of this upgrade beyond the OPEVAL parameters?
15

LTCOL LANGLEY: That, I couldn't tell you. I wasn't involved in any further consideration or testing thereafter.

20 MAJ CHAPMAN: Just based on your knowledge of the matter, is it your evidence that you're not aware of whether there was any further testing conducted beyond the parameters set in the OPEVAL?

LTCOL LANGLEY: Look, not that I'm aware of, with the qualification that other testing was going on in AATES for other things. But again, I was not involved in that. There were, you know, IIT upgrades and other things going on.
25

MAJ CHAPMAN: What about testing by Standards? Was it your understanding that, following the OPEVAL testing, there was no further Standards testing with respect to version 5.10?
30

LTCOL LANGLEY: Yes, with respect to the symbology. That's correct, as far as I'm aware.
35

MAJ CHAPMAN: Yes, as far as you're aware. Is it also your understanding, sir, that prior to Service release, that the DASR requires testing to be completed on systems and platforms to ensure they're airworthy, as a general proposition?
40

LTCOL LANGLEY: Yes, if it's a new system, whereas the HMSD 5.1 was not new, and had been Service released already by an equivalent Military Safety Authority.

MAJ CHAPMAN: So is it your evidence that because it had been Service released by – and we’ll just drill down on this a little – is this your reference to the German Forces?

5 LTCOL LANGLEY: That’s right.

MAJ CHAPMAN: And it is the MAA?

10 LTCOL LANGLEY: That’s right.

MAJ CHAPMAN: So is it your evidence that by reason of it having been released into Service by the Germans, that it was not required to be tested to the satisfaction of DASA for purposes of airworthiness?

15 LTCOL LANGLEY: Well, it’s a DASA decision, but they could well have sought equivalency, and it may not have required that. As it turns out, we have what we have, but that would be one thing, given that the German version was exactly the same as ours.

20 MAJ CHAPMAN: Just so I understand this evidence, DASA could have, when this matter came to them, essentially put a stop on this process and said, “We require you now to go and do OTT testing, or more full testing”?

25 LTCOL LANGLEY: Yes. Look, there’s always that option, but from a strict engineering point of view, in terms of the release to Service, they would have been able to, at face value, take what the Germans and the Europeans had done. As it turns out, there was additional testing done, regardless.

30 MAJ CHAPMAN: Just jumping forward a little bit in the narrative, you are aware, aren’t you, sir, that ultimately 5.10 was released to Service in what I’ll describe as an unrestricted way? Do you agree with that?

LTCOL LANGLEY: I’m not sure what “unrestricted” means, but - - -

35 MAJ CHAPMAN: Sure. In other words, it was introduced into Service. Well, the first proposition, you understand it was introduced into Service - - -

40 LTCOL LANGLEY: That’s right.

45 MAJ CHAPMAN: - - - in about March 2020? And by that, I mean it was introduced into Service for use on the MRH without any limitations being put on the conditions in which it could be used and relied on. Do you agree with that?

5 LTCOL LANGLEY: Not necessarily, given there were already limitations for the MRH in terms of its operation in very dark conditions, so below two millilux. There were already limitations in SI (AVN) OPS for various conduct of flight under degraded visual environments. So there were already limitations. So I don't think it's – I don't think "unrestricted" is a good term.

10 I would say that it was released within the parameters of the flight envelope of the aircraft as it was – well, as it was defined at the time.

MAJ CHAPMAN: I'll put it another way, and I'm asking you to assume there were 24 flight conditions that were imposed on the OPEVAL activity.

15 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: When it was introduced into Service, or Service release of version 5.10, so far as you're aware, were all 24 of those limitations – was the use of the version 5.10 made subject to the 24 limitations?

LTCOL LANGLEY: I couldn't tell you. I couldn't tell you whether half, all, or none were imposed. I don't really have visibility on that.

25 MAJ CHAPMAN: I'm asking you to assume a position. If the limitations were not imposed on Service release – I withdraw that. At the point of Service release, you understand that limitations can be imposed by the approving authority on the use of a particular upgrade, for example.

30 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Assuming that the limitations from the OPEVAL were not made subject to any limited release – if I can put it like that – do you agree that there was a gap between what was tested and all manner of conditions?

LTCOL LANGLEY: Not necessarily. They may well have been coincident.

40 AVM HARLAND: If I could just ask a question, like a specific question? So did you conduct formation operations during the OPEVAL?

LTCOL LANGLEY: Yes.

45 AVM HARLAND: In degraded visual environment?

LTCOL LANGLEY: Yes.

AVM HARLAND: And that was found to be satisfactory?

5

LTCOL LANGLEY: That's right.

AVM HARLAND: So in that sense, you wouldn't consider putting a
formation limitation recommendation as part of your report?

10

LTCOL LANGLEY: That's right.

AVM HARLAND: Okay. Thanks.

15

MAJ CHAPMAN: As far as you can recall, sir, do you recall any
discussion about this time of imposing possible limitations on Service
release of this upgrade?

20

LTCOL LANGLEY: Not subsequent to writing the report, but let's say
that the consideration of the report in terms of the symbology was to
determine the utility of it, and whether it worked correctly, and we found
that it did, and that it was an improvement generally. So where there were
requirements to be observed in using the symbology, those were
incorporated into conclusions in the report, and recommendations for
modification to things like Standards Manuals.

25

Those conclusions and recommendations, in a sense, provide boundaries on
how the symbology should have been used, and they are tendered in the
report.

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MAJ CHAPMAN: But you're not aware yourself whether those
limitations or controls, as I'll refer to them, made their way to controls on
Service release?

35

LTCOL LANGLEY: No, I can't say. My involvement with this project,
if you like, concluded once I'd finished releasing the report. I had
simultaneous tasks that were on my plate, so to speak, and so I went back
to finishing those.

40

MAJ CHAPMAN: Can I just now take you to - - -

AVM HARLAND: Just before we finish that, I just wanted to sort of get
some clarity on that. So the limitations that were expressed in the Flight
Test Plan, so that effectively limited the operation of the OPEVAL. So for
each of those limitations, that really means it's constraining what you're

45

doing with the aircraft. So you're not able to operate more widely in what we could, I guess, simply call the overall Special Operations environment, or envelope of the aircraft.

5 LTCOL LANGLEY: Sure.

AVM HARLAND: So with each of those limitations that was put forward in the Flight Test Plan, which you said that the OPEVAL abided by, did you go through and disposition each of those against limitations that were
10 in SIs or in the Standards Manual to ensure that they were all covered, and whether there should be a consideration for a limitation to be imposed on the operation of version 5.1 TopOwl in the Special Operations flying role?

LTCOL LANGLEY: Some of them were self-erasing, in the sense that we were looking at whether there was – you know, the symbology was working correctly, and so part of the considerations for that was to have one person using the symbology, and then the other person not, so they wouldn't be compelled somewhere. And from memory, that may well have been one of the limitations.
15

20 At the end of the OPEVAL, given we'd determined that the symbology was correctly functioning as per the documents we'd received from Airbus, then we could set that aside as a part of the reason why one person could use it and the other person could use it simultaneously.

25 Another might have been the two millilux. From memory, at the time the entire fleet was – certainly for Special Operations approaches – not to operate below two millilux. And that had been a result of a trial which I had supervised at AATES some years earlier, and so that was still extant.
30 The AATES – sorry, the flight conditions that were applied effectively mimicked that. So in a sense, whether they were in the flight conditions or not, I think they'd just been reiterated in that sense.

AVM HARLAND: In that case, would you ordinarily say the Service release would still be for flight in illumination conditions greater than or equal to two millilux, so that version 5.10 is the actual driver for that? Because I can see a case where the SI in the future may be – they might go, “We're going to go down to 1.5 millilux”, and without a specific recommendation out of the flight test that says “go to two millilux”, that
40 could actually be lost in consideration.

LTCOL LANGLEY: Yes, but then the context would change as well because they had IIT upgrades which improved the visual capability of the image intensifiers in low light, which in turn means that the HMSD symbology need not be relied upon quite so much. So it's a bit of a whole
45

of system thing. Once you change one thing, you end up changing others as well.

5 AVM HARLAND: But we heard that the OPEVAL report was really about – it was reporting on the old IIT, not the improved one.

LTCOL LANGLEY: That's correct.

10 AVM HARLAND: And that the Service release was in relation to the older system.

LTCOL LANGLEY: That's correct, yes.

15 AVM HARLAND: Thank you.

LTCOL LANGLEY: And it would ordinarily form part of the process, to look at what limitations had been observed, and whether that should be incorporated. As I said, I wasn't involved in that process, but I'm, you know, quite sure that would have happened.

20 AVM HARLAND: Okay. Thanks.

25 MAJ CHAPMAN: Can I just take you, sir, to the OPEVAL report? You should have the Annex A. I just take you to a few parts. So paragraph 1 refers to AATES' conclusion there was an unacceptable ambiguity in attitude presentation during off-axis lateral viewing which could lead to CFIT. Do you see that?

30 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Paragraph 3 notes:

35 *Standards Section was tasked to gather the more comprehensive information requirements requested as a recommendation in the AATES report.*

Do you see that?

40 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Paragraphs 7 and 8, there's a detailed explanation. This is on page 4 – sorry, bottom of 3 and going into 4. There was a detailed explanation of the attitude ambiguity by reference to pitch and roll.

45 LTCOL LANGLEY: That's right.

5 MAJ CHAPMAN: Is it the case that basically this report appears to accept a proposition in the AATES report that when looking ahead, pitch and roll were presented accurately?

LTCOL LANGLEY: That's right.

10 MAJ CHAPMAN: And that, though, when looking off-axis that the HMSD presented a different picture of the actual aircraft condition.

LTCOL LANGLEY: It represents a correct view of the horizon, but that what's known as the pitch ladder ends up actually mimicking the X-Y-axis of the aircraft as it is presented to the horizon.

15 MAJ CHAPMAN: At 12 of the OPEVAL findings with respect to – you deal with attitude presentation, and do you see it refers to:

20 *Aircraft had to look forward aligned with the aircraft longitudinal axis or X-axis when using HMSD as a reference for actual aircraft setting.*

LTCOL LANGLEY: Yes, that's right.

25 MAJ CHAPMAN: And it continues over the page on page 7 that:

The trial aircrew did not report the lateral line of sight presentation as confusing when it was in view.

30 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: So that ultimately the OPEVAL concluded towards the bottom of page 7 that:

35 *The line of sight conformal HMSD attitude presentation of the pitch scale was undesirable, but compliant with the specification requirements in the format specification.*

LTCOL LANGLEY: That's right.

40 MAJ CHAPMAN: And you next say in the report that:

The attitude presentation could be enhanced by making the pitch scale conformal to the aircraft longitudinal axis.

45 Do you see that?

LTCOL LANGLEY: Yes.

5 MAJ CHAPMAN: Do you agree that that process would require a change to the software?

LTCOL LANGLEY: Yes.

10 MAJ CHAPMAN: My question is, sir, are you aware of whether there were any steps that were taken to liaise with the OEM to address that suggestion?

LTCOL LANGLEY: I have no visibility of that.

15 MAJ CHAPMAN: Next you say that:

As an interim measure to address the undesirable feature, aircrew training should be directed to these three matters.

20 So the first was an emphasis on pitch scale animation with respect to line of sight of the HMSD; correct?

LTCOL LANGLEY: That's right.

25 MAJ CHAPMAN: Second, there be a requirement to align line of sight when making attitude changes using HMSD; correct?

LTCOL LANGLEY: Yes.

30 MAJ CHAPMAN: And, thirdly, the incorporation of line of sight alignment forward in usual attitude recovery; correct?

LTCOL LANGLEY: That's right.

35 MAJ CHAPMAN: Do you see, sir, that over the page there's a form of the proposed warning you included up the top?

LTCOL LANGLEY: Yes.

40 MAJ CHAPMAN: That was to be included in the Standardisation Manual, essentially, as one of the controls; is that right?

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Are you aware of whether it was carried through into the Standardisation Manual?

5 LTCOL LANGLEY: I believe it was, along with the other elements.

MAJ CHAPMAN: Are you aware that the version that was included in the Standardisation Manual went further than just UA, and applied generally to changes in attitude settings?

10 LTCOL LANGLEY: Could you repeat the question?

MAJ CHAPMAN: So we have this form of warning in the OPEVAL.

15 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: Are you aware of whether the one that actually made its way into the Standardisation Manual went further and dealt with changes in attitude settings, generally, to require looking straight ahead?

20 LTCOL LANGLEY: I don't recall whether it was different. From memory, it wasn't. I thought it was the same, but it may well not have been.

25 MAJ CHAPMAN: The idea being proposed by this warning – or the warning that's contained within this is to warn pilots that changes in attitude should only be made when looking to the front, directly to the front. Do you agree with that?

30 LTCOL LANGLEY: No, only if they're using the HMSD. So if you want to use the HMSD to set an attitude, you must look aligned with the X-axis. That's what this warning says. But it's also what was in the Airbus documentation, and that had failed to make its way into the Flight Manual. So it was put into the Standardisation Manual initially, and then the Flight Manuals followed up shortly thereafter.

35 MAJ CHAPMAN: Yes, I should have been clearer about that; I apologise. It's when using the HMSD, the warning is that pilots need to look forward when making attitude changes.

40 LTCOL LANGLEY: That's right, if they're using the symbology to do that. Obviously they can use the image in the TopOwl as well, or they can use the displays that are installed in the aircraft by glancing at them. So it's not the only way to do it, but if they're going to use this, that's how they should do it.

MAJ CHAPMAN: And again, using the HMSD and the symbology, would you agree that in normal operating procedures that is probably fine, though it might become problematic when in formation and in DVE conditions?

5

LTCOL LANGLEY: Not necessarily. Because if they're in formation, they're using the aircraft that they are following as effectively their attitude reference. And if they're in DVE conditions, they will still have a horizon and something to look at because they've got the image intensification image, to use for that purpose.

10

The whole thing about the HMSD is that it adds some capacity for them to use it as an orientation cue, and that the integration of all of the things that the pilot can see has to be scanned and workload split to make sure that they're using the best information for the task at hand.

15

AVM HARLAND: There's one of the scenarios we've been discussing, and so it's a night low-level, overwater, in formation, with a horizon which may or may not be discernible at the time. We've discussed it in terms of a challenge for a pilot who is trying to maintain visual on the aircraft in front, and so in the, you know, 2 avoids 1, 3 avoids 2 sort of scenario. So they have the primary collision avoidance responsibility.

20

They're looking across at that aircraft. The discernible horizon is difficult – or it's difficult to get a discernible horizon, and they want to maintain the formation. So they're in this situation where they're looking off-axis to the other aircraft that they're avoiding. They're close formation, so they don't have really a lot of space to be able to look away, but they're unsure of their position in space, so potentially approaching spatial disorientation.

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In that scenario, can you describe how they would work through that dilemma of trying to maintain formation, trying to maintain visibility on the aircraft they're avoiding, and maintaining an understanding of their position in space?

35

LTCOL LANGLEY: The symbology – well, certainly the image in the image intensifier will provide a great deal of that. Where there's no horizon, it makes it more difficult of course. The MRH is – or at least was benefitted from having lights on the rotors so that you could see what the rotor plane was doing, particularly through IITs. So there's that advantage.

40

But in terms of the HMSD, the symbology wasn't useless. If you looked off-axis, you still had the horizon line which was true to the horizon, so you could tell by virtue of the aircraft structure that you could see, and the

horizon line – you know, just as you do with visual flight, you can make good estimations on what the attitude is in that reference plane.

5 The pitch ladder – which is erroneously termed a pitch ladder – unless you're looking directly ahead, still provided that information, given that it was X-Y plane of the aircraft coincident. So if you did look out to the side, a pitch attitude would be represented as a roll information at that point because the pitch would be 10 degrees out the front, and you'd have a roll indication if you're looking out to the side, and then halfway between it will
10 be 45 degrees, and whatever down.

AVM HARLAND: Would the pitch information remain correct when you're looking - - -

15 LTCOL LANGLEY: Yes, so it's correct in terms of the aircraft reference plane. So that's what it provides. If you think of the rotor disc being stuck to the aircraft reference plane, it would be like the rotor disc slicing the horizon. So if you looked out the front it would appear as a pitch attitude if you had 10 degrees nose up, and then as you looked to the side, at
20 45 degrees, it will be 5 degrees pitch attitude and 5 degrees roll. And then looking out at 90 degrees, you'll have a 10 degrees roll attitude indicated, which would be correct in terms of the reference plane of the aircraft intersecting the horizon line. So it still provided, in effect, useful information.

25 Other HMSDs, the Tiger, for example, the pitch information basically remained aligned with the X-axis. So as you looked off-axis you no longer had the pitch ladder. And for things like the NVG Head-Up Display, the HUD, you had the pitch and roll information coincident with the
30 night-vision goggles.

So whichever direction you looked at, it was as if you had the pitch and roll information as though looking out the front. So in some cases that took some getting used to because if you looked out to the side, you could still
35 have the pitch and roll information as though looking out to the front. It wouldn't disappear. Just a matter of getting used to it and understanding what the symbology was doing, so that pilots could be trained effectively to utilise the information that it was providing.

40 I might also say that for formation flying, there was the option to use declutter modes. So you could declutter the pitch ladder, the pitch bar, sorry, out of the display into clutter modes 1 and 2. So most of the other information was still there, but you could get rid of that.

5 But then in declutter mode 2 you would lose the horizon line. It came down to a smaller, less compelling animation. So there were different modes that could be used as well, but typically, in formation, that horizon line is very useful. And for the testing that we did, the animation of the pitch scale was as per the format specification. And when that was explained to the Regiment pilots during the trial, they could see how that animation would manifest during the flying activity and none of them were confused.

10 And that's evidenced by – we, word for word, put the detail into the OPEVAL report and, you know, none of the – there was some, you know, adverse commentary, hence the “Undesirable” conclusion, but typically they found the whole package as being an improvement and, you know, a defence to spatial disorientation.

15 AVM HARLAND: So if I've got this right, when AATES went through their testing, they were unaware of that particular feature being called an ambiguity in terms of pitch and roll when you're looking off-axis.

20 LTCOL LANGLEY: Correct. And they went into that in some detail in the report. And they only flew it during the day and they were unable to, effectively, understand what it was providing them. And so when we had that extra information, we were able to confirm the correct animation of the symbology.

25 AVM HARLAND: So you'd briefed the test crews on what to expect by virtue of the specification before they did the testing?

30 LTCOL LANGLEY: Yes. And myself and SO1 Standards did the first couple of flights to confirm everything and to make sure that the symbology was working as advertised.

AVM HARLAND: Okay, thank you.

35 MAJ CHAPMAN: I'm just going to move on to declutter mode. But since you've referred to – I think your answer to the Air Vice-Marshal was none of them – this is the people in the test activity – had an issue with the attitude change symbology. Could I just ask you to go to Annex B of the OPEVAL? And that's the numerical rating table, the questionnaire.

40 LTCOL LANGLEY: Yes.

45 MAJ CHAPMAN: Do you agree that what you've been discussing in terms of the behaviour of the attitude symbology is principally serial 2 in respect of how do you rate the assessing attitude changes in roll?

LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And as distinct from attitude changes in pitch?

5 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And do you see there that – well, taking you, for example, you've rated it yourself as 3 out of 10 in terms of difficulty. So you considered it be relatively straightforward and not a problem.

10 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: Though it wasn't a 1 for you. But do you see there that at least two of the pilots – D138 and, third column along, pilot Mann – referenced it as a 5 and a 6, respectively.

15 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: So didn't that suggest that it's not the case that none of them had difficulty with this; that at least a couple of them in your test crew considered it to be moderately difficult to interpret?

20 LTCOL LANGLEY: I think their commentary supported that they would have preferred it to be presented differently and that was reflected in the conclusion for the symbology, that it was "Undesirable" and it should have been improved to eliminate that off-axis issues by aligning the pitch ladder with the X-axis, which is what we concluded.

25 LTCOL LANGLEY: I think their commentary supported that they would have preferred it to be presented differently and that was reflected in the conclusion for the symbology, that it was "Undesirable" and it should have been improved to eliminate that off-axis issues by aligning the pitch ladder with the X-axis, which is what we concluded.

30 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: So, sir, can I just take you to page 14 of the OPEVAL, if you've still got that there? Now, we were just on this page, but a bit lower on. So you see a discussion about symbology – sorry, not page 14 – correction – paragraph 14 on page 8. I apologise. Do you see there it says, "Symbology DCL modes"?

40 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: So this is just fleshing out some of your exchange with the Air Vice-Marshal, but the DCL modes refer to the declutter modes?

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LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And on the MRH there were three. There was normal, DCL 1 and DCL 2?

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LTCOL LANGLEY: That's right. And of those, there were two modes, effectively, so you ended up with six, because there was a low speed and a forward flight.

10 MAJ CHAPMAN: A forward flight.

LTCOL LANGLEY: Which was an automatic changeover based on aircraft state.

15 MAJ CHAPMAN: So my questions will just relate to the forward flight mode. And how they worked was – and I would ask you if you would agree – well, each mode presents to the pilot a different level or amount of symbology on their visor?

20 LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And just to paint a picture of that, would you agree that the normal mode presented the maximum amount of symbology?

25 LTCOL LANGLEY: Correct.

MAJ CHAPMAN: And this in forward flight. DC 1, less symbology than maximum, though more than DC 2?

30 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: Mid-range.

LTCOL LANGLEY: Yes.

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MAJ CHAPMAN: And then through to DC 2, which presented the least symbology.

LTCOL LANGLEY: That's right.

40

MAJ CHAPMAN: And you've said there – and most of the way down the report, rather, says there that:

45 *Trial aircrews did not make any positive commentary about the DCL 1 or DCL 2 modes, finding their use to be superfluous*

compared to the full symbology, particularly in degraded visual environments.

Do you see that?

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LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And did this suggest to you, sir, that it was the experience of those who tested that there would be a preference for the use of full symbology in DVE conditions?

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LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And do you agree that the preference expressed was – I withdraw that. Do you agree that this pointed to the importance of symbology, and the symbology set being as unambiguous as possible? Do you agree with that statement?

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LTCOL LANGLEY: No. I think it was a matter of having the information there that they could selectively scan it. So I'm not sure that it had anything to do with your assertion there. It's more a case of they were able to scan the symbology. If it wasn't present, they couldn't scan it.

20

MAJ CHAPMAN: They say that they had – and you accepted this – a preference for the use of full symbology in DVE conditions.

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LTCOL LANGLEY: That's right.

MAJ CHAPMAN: And in those DVE conditions, it's the case, isn't it, that that's important or makes it important particularly in DVE conditions, that the symbology is as unambiguous as possible? Do you agree?

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LTCOL LANGLEY: I agree that the symbology should be unambiguous, but I'm not sure that that paragraph speaks to that.

35

MAJ CHAPMAN: No, I wasn't suggesting that that - - -

LTCOL LANGLEY: Paragraph 14 doesn't conclude that at all. It talks about the symbology associated with declutter modes being modifiable, which is the case for other aircraft.

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MAJ CHAPMAN: I think you've answered – yes, you've answered that section. I can move on.

45

LTCOL LANGLEY: Okay.

5 MAJ CHAPMAN: Are you aware of whether the issue of the declutter modes was considered in either the OPEVAL's assessment of – well, first of all, was the issue of declutter modes here, to your knowledge, considered in the OPEVAL's assessment of the symbology being undesirable as part of the assessment?

10 LTCOL LANGLEY: It would contribute to it as part of an overall reporting function. But it was interesting that all the aircrew preferred to have the attitude symbology even if the attitude symbology was, let's say, undesirable or could have been improved. Having something was better than nothing, effectively.

15 MAJ CHAPMAN: Turning to page 10 of the OPEVAL, and paragraph 16, this is in the "Conclusion" section. It says that deficiencies relating to – and I'm paraphrasing – the attitude presentation were identified in the HMI of the new symbology version and it was noted to be generally enhanced when compared with version 4.0. And notwithstanding these deficiencies, there was a "Satisfactory" conclusion. Do you agree with that?

20 LTCOL LANGLEY: Yes.

25 MAJ CHAPMAN: So based on that statement, do you agree that while the OPEVAL disagreed with AATES' assessment as to risk, in substance the OPEVAL accepted that there was this issue of the presentation of the symbology as identified by AATES?

30 LTCOL LANGLEY: I think the two reports are entirely consistent, given that AATES had made an assessment without the benefit of understanding the animation of the symbology, which would be instrumental to contextualising its use during flight. Given that the OPEVAL had the benefit of that extra information about how the symbology worked, and that the aircrew could understand exactly what they were looking at, they didn't find the same confusion that perhaps the flight test personnel from AATES had encountered during their assessment.

40 MAJ CHAPMAN: And based on that further information, including the survey of the pilots, that's the basis on which the OPEVAL made its "Undesirable" and "Low" assessment?

LTCOL LANGLEY: Correct.

45 MAJ CHAPMAN: Just to return to what you say at, I think it's paragraph 68 of your statement. I'll just turn that over or – to go to paragraph 68 of the statement. Do you see there that you say:

The OPEVAL did not propose to downgrade any conclusions in any report.

5 Do you see that?

LTCOL LANGLEY: That's right.

10 MAJ CHAPMAN: Can I just take you, sir, to a document you don't have with you, but I can hand up. It's a decision brief to the Director-General Army Aviation. It's dated around April 2020, and it's signed by the DOPAW in April 2020. Do you see that at the top?

15 LTCOL LANGLEY: Yes.

MAJ CHAPMAN: Were you involved in the drafting of this document at all? I do note at paragraph 3 your name is not listed. I've just asked the question.

20 LTCOL LANGLEY: I don't recall specifically. I don't think so. I did provide some additional – I think it was a PowerPoint brief of the animation of the symbology because, from memory, at the time they were keen to explore that in some detail. But I don't think I've seen this brief before. And, no, I don't think I was consulted during it being drafted.

25 Obviously, LTCOL Norton was the Trial Director and I think I'd written the report because he was pretty maxed out.

30 MAJ CHAPMAN: Sure. And so I take it from that, you were not involved in discussions about recommendations being made in this document?

35 LTCOL LANGLEY: I'm not sure directly with this document. I definitely had conversations with DOPAW about the report that I wrote and, as I said, provided him an additional PowerPoint presentation on the animation. I may have even briefed, from memory, BRIG Fenwick, on it. That was on my report, not this brief.

40 MAJ CHAPMAN: Sure. And when you've expressed the view in your statement that the OPEVAL didn't reassess anything, could you go to paragraph 3(a) of the "Recommendations" here? And it just says, as one of three recommendations:

45 *Note, that the "Unacceptable" risk to flight safety determined in the initial AATES flight assessment was reassessed as "Undesirable" through the OPEVAL process.*

Do you see that?

LTCOL LANGLEY: Yes.

5

MAJ CHAPMAN: So do you accept, sir – and I understand that you didn't have this document – that at least from the point of view of SO1 Standards and the DOPAW, that it was intended to reassess the "Unacceptable" risk to "Undesirable"?

10

LTCOL LANGLEY: In a sense, that if you take the two reports together, and one follows the other, and it didn't find the same "Unacceptable" result because it had further information, you could characterise that as a reassessment. But that wasn't the point of our activity for the OPEVAL. I think it's a natural conclusion out of putting the two reports together, as a Staff Officer but it's certainly not the point of doing the OPEVAL.

15

MAJ CHAPMAN: Though you accept at paragraph 3 the words that it says there that it does reassess as "Undesirable", the "Unacceptable" conclusion reached by AATES.

20

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: I just want to ask you some questions now concerning discussions both - - -

25

MS McMURDO: What do you want to do with that document? Are you wanting it back, or you're going to tender it, or - - -

30

MAJ CHAPMAN: That document is already in evidence.

MS McMURDO: Could you tell us what exhibit it is?

AVM HARLAND: I had it was tab 1 of COL Lynch's statement.

35

MAJ CHAPMAN: Sir, I think sir's right about that. I can confirm that I have tab 1 on this document.

MS McMURDO: Tab 1. Tab 1 to COL Lynch's statement. Thank you.

40

MAJ CHAPMAN: So, sir, just to go to paragraph 73 of – back to 73 of your statement, please?

LTCOL LANGLEY: Yes.

45

MAJ CHAPMAN: You say that you did not engage with AATES following the release of the OPEVAL report. Do you see that?

LTCOL LANGLEY: Yes.

5

MAJ CHAPMAN: And you say then at paragraph 77 further, that:

SO1 AATES, COL Reinhardt, had the option of contacting me or SO1 Standards to discuss the report, though he did not.

10

Do you see that, paragraph 77?

LTCOL LANGLEY: No, I didn't say that he did not contact. I said that he didn't have any actions to perform as part of the report. So he had the capacity to speak with me or with SO1 Standards. And I understand that SO1 Standards had been dealing with him but, you know, that wasn't part of what I was doing post the report of the OPEVAL as I had other tasks to attend to.

15

MAJ CHAPMAN: My question was slightly different. And I'll put it again.

20

LTCOL LANGLEY: Okay.

MAJ CHAPMAN: But at 77, I'm just asking you to agree that you've said that:

25

SO1 Standards, following the OPEVAL report, had the option of contacting me or SO1 Standards to discuss the report, the OPEVAL report.

30

That's what you said in our statement?

LTCOL LANGLEY: If I just read back to you because you've said - - -

35

MAJ CHAPMAN: Did I say "Standards"?

LTCOL LANGLEY: You said "SO1 Standards" to start with, but I understand that you mean that the SO1 T&E at AATES had the capacity to either speak with me or the SO1 Standards if the need arose to discuss the report.

40

MAJ CHAPMAN: Yes.

LTCOL LANGLEY: Yes. And I hadn't been formally tasked to go and brief AATES, but they had been given an information copy of the report.

5 MAJ CHAPMAN: Understood. And you say further that, in effect, you were not surprised by this, given that AATES did not have any actions to perform as part of the OPEVAL report.

LTCOL LANGLEY: That's right.

10 MAJ CHAPMAN: So just to take that part step-by-step. You have a situation where AATES has conducted the testing. They'd arrived at this most adverse possible assessment of "Unacceptable". Correct?

LTCOL LANGLEY: Correct.

15 MAJ CHAPMAN: You've received the report and do not appear to have engaged with AATES as to the conclusions; is that right?

LTCOL LANGLEY: That's right, yes.

20 MAJ CHAPMAN: And the OPEVAL is then conducted and it – I know not your words – but reassesses the risk as "Undesirable" and "Low"?

LTCOL LANGLEY: Yes.

25 MAJ CHAPMAN: And you issue that report. And it's your evidence that you did not engage with AATES about those outcomes. Is that right?

LTCOL LANGLEY: That's correct. Certainly not formally.

30 MAJ CHAPMAN: Sure.

LTCOL LANGLEY: Maybe I ran into LTCOL Reinhardt at a coffee shop or something, or in the course of walking around Oakey at some point, and said "Hello", and whatever. But not formally.

35 MAJ CHAPMAN: So not formally. Do I take it from what you've just said – I ask you whether you had a collaborative working relationship with COL Reinhardt at the time?

40 LTCOL LANGLEY: Yes.

45 MAJ CHAPMAN: And your recollection is that you may have discussed these with him. Is that your recollection?

LTCOL LANGLEY: I couldn't say whether I discussed it with him in detail. Probably Dave Lamb, I discussed it with. But, look, it was definitely not formal, given that both organisations were providing advice to the Commanders.

5

AVM HARLAND: Could I just clarify one thing? You said before that LTCOL Norton was the Test Director.

LTCOL LANGLEY: That's right.

10

AVM HARLAND: And would the Test Director ordinarily author the report?

LTCOL LANGLEY: Ordinarily. I think he had planned to, but he ended up quite busy and so they asked me whether I would be able to fit that in, which I said, "Yes".

15

AVM HARLAND: If that's the case, and the principal is really busy, they would still normally sign the report rather than have the drafter sign it. Is that - - -

20

LTCOL LANGLEY: Yes, potentially. And perhaps that was just because I was in the loop. I think there wasn't a preference for a particular signature on the bottom. It was the content that they were interested in.

25

AVM HARLAND: Yes. Okay, thanks.

MAJ CHAPMAN: Now, you're aware, are you, sir, that subsequent to the OPEVAL report in about March 2020, COL Reinhardt issued a response to the OPEVAL. You're aware of that?

30

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: Can I just hand you a document, noting the security classification. And - - -

35

MS McMURDO: So is this document already in evidence?

MAJ CHAPMAN: It is. It's Annex 4 to COL Lynch's statement.

40

MS McMURDO: Thank you.

MAJ CHAPMAN: And you say at paragraph 96 that you –

45 *did not receive or review the response from AATES, nor was I*

directed to do so.

LTCOL LANGLEY: That's correct.

5 MAJ CHAPMAN: When did you first see a copy of this? Was it back at the time or more recently, can you say?

LTCOL LANGLEY: No, more recently, I think. I don't really recall, but more recently.

10 MAJ CHAPMAN: And do you see that, among others, that DOPAW is listed on the distribution?

LTCOL LANGLEY: That's right.

15 MAJ CHAPMAN: And there's also a reference there, "SO1 OPAW-B AVNBR". Is that different to your position at the time?

20 LTCOL LANGLEY: That's correct. It's a different position, yes. That's a person who effectively was looking after MRH and drafting the instruments and releasing them for MRH-90. It's a true staff position as opposed to the quasi-staff position that I was in that involved flying as well. It's a full-time position, by the way.

25 MAJ CHAPMAN: Sure. And speaking generally, it's the case, isn't it, on reading that, that AATES had not changed their assessment as to the risk presented in the symbology set?

LTCOL LANGLEY: Yes, they've restated that there.

30 MAJ CHAPMAN: Yes. And particularly in situations of DVE conditions?

35 LTCOL LANGLEY: I'm not sure that they mentioned DVE, but it would be reasonable given that would be a reasonable conclusion given that that was the original context.

40 MAJ CHAPMAN: And do you agree with the characterisation that this response essentially takes issue with the OPEVAL conclusions with respect to the assessment of risk?

LTCOL LANGLEY: I'd have to read it in detail to provide an answer. I could, perhaps, do that and come back, or something, or if you wanted to allow me the time to do so.

45

MS McMURDO: Well, it is lunchtime, if you want a break at this point.

MAJ CHAPMAN: Yes, certainly. If that course is convenient, that would be fine.

5

LTCOL LANGLEY: Sure, happy to do that.

MS McMURDO: So the witness is going to have this document over lunch.

10

MAJ CHAPMAN: Thank you.

MS McMURDO: And so just be careful that it's not shown to anybody who doesn't have the appropriate classification, please, Lieutenant Colonel.

15

LTCOL LANGLEY: Of course.

MS McMURDO: All right then, we'll adjourn until 1345.

20

<WITNESS WITHDREW

HEARING ADJOURNED

25

HEARING RESUMED

5 MS McMURDO: Yes, COL Streit.

COL STREIT: Thank you, Ms McMurdo. I seek to tender two statements of witnesses intended to be called, but I understand there is no request from Counsel representing to ask them questions. And, therefore, in those
10 circumstances, I tender the statement of AIRCDRE David Strong of 8 November 2024, comprising 13 pages.

MS McMURDO: That will be Exhibit 110, tendered by consent.

15 **#EXHIBIT 110 - STATEMENT OF AIRCDRE STRONG**

COL STREIT: Thank you. The next statement is the statement of
20 AIRCDRE Stefano Pesce AM. A statement signed by the member on 8 November 2024, including one annexure setting out his position as the Deputy Air Commander Australia.

MS McMURDO: The statement and annexure will be tendered by consent
25 as Exhibit 111.

#EXHIBIT 111 - STATEMENT OF AIRCDRE PESCE AND ANNEXURE

30 COL STREIT: Thank you.

MS McMURDO: Yes, MAJ Chapman.

35 MAJ CHAPMAN: Thank you, Ms McMurdo. I call the witness back, please?

40 <LTCOL ANDREW JOHN LANGLEY, on former oath

<EXAMINATION-IN-CHIEF BY MAJ CHAPMAN, continuing

45 MS McMURDO: Good afternoon, LTCOL Langley.

MAJ CHAPMAN: So, COL Langley, prior to the luncheon adjournment, do you recall I had taken you to the AATES response to the OPEVAL minute?

5

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And did you have an opportunity, over the luncheon adjournment, to consider that document?

10

LTCOL LANGLEY: I did.

MAJ CHAPMAN: Thank you. And perhaps before I get there, and at risk of forgetting one question going back to the OPEVAL, can I just ask this question. Were, to your recollection, all of the aircraft that were testing 5.10, all the platforms on the OPEVAL, were they all Army Aviation aircraft, from what you can recall, or were there a mixture of Army and Navy?

15

LTCOL LANGLEY: It's a good point. I don't know that there were any specific differences between the two. Some had "Navy" written on them; some have "Army" and the fleet of course. As to whether they were specific – if they had that written on them, they were all allocated to 6 Aviation Regiment. So, in effect, they were Army aircraft even though they may have had "Navy" written on their tail, for example.

20

25

MAJ CHAPMAN: But your evidence is there was no functional distinction between them being an Army aircraft or a Navy one for the purposes of the testing?

30

LTCOL LANGLEY: Correct.

MAJ CHAPMAN: Now, just noting again the security classification of this document, this response. Did you recall that, now having read it, essentially AATES had expressed the view they hadn't changed their assessment as to the risk presented by the symbology? Is that right?

35

LTCOL LANGLEY: That's correct.

MAJ CHAPMAN: And I think the final question before the luncheon adjournment that I asked you was, did you agree with the proposition that essentially in this response AATES was taking issue with the OPEVAL conclusions concerning risk?

40

5 LTCOL LANGLEY: That's not specifically stated but they do restate that they still felt that the – what they say is that they had not changed their assessment. And, of course, that can be interpreted as to whether the assessment as it was done or an assessment in the light of new reports and other things, given that the Navy had also done an assessment and not found the same things that AATES had found.

10 MAJ CHAPMAN: Looking at that document now, do you accept that the assessment that it makes – that is, maintaining the original assessment – was also it was maintained on the basis that it included consideration of the OPEVAL report which is a reference in this document?

LTCOL LANGLEY: Yes, it does include that consideration.

15 MAJ CHAPMAN: So we can take it that COL Reinhardt, in preparing this document, had considered, it's fair to say, the OPEVAL report and, nevertheless, maintained the position that he did in this minute?

20 LTCOL LANGLEY: That's correct. But also, that in addition to it, he has looked at, and considered, the Royal Australian Navy report in the same sense.

25 MAJ CHAPMAN: Yes. And when you received this document, do you recall yourself reaching out to COL Reinhardt to discuss this response that he made?

30 LTCOL LANGLEY: So I don't recall receiving this document other than today. I may have had a conversation about it, but at the time – or in and around that time I don't think that I had actually read it, you know, close to when it was released, which was March 20, so not long after I'd released my report. But as I said, I'd moved on to other things, given that as a Reservist I was given discrete tasks to do. And once they were completed, I had another discrete task. So I wasn't full-time – I wasn't in the loop the whole time.

35 MAJ CHAPMAN: Sure.

40 LTCOL LANGLEY: Yes, it was just to say that that wasn't unusual for me to have done something and then moved on to something else, and somebody else was dealing, obviously, with this.

MAJ CHAPMAN: So, at most, you may have had a conversation but you're not sure about that.

LTCOL LANGLEY: Yes, nothing formal. Certainly, no meeting or – I do remember briefing BRIG Fenwick about it, just to give him some background on how the symbology worked, but that was pretty much it.

5 MAJ CHAPMAN: So did you just say you briefed the Brigadier about this response?

LTCOL LANGLEY: No, not this response. About how the symbology worked at the time. And that's the only other thing subsequent to – that I recall subsequent to writing the OPEVAL report that I was involved in.

MAJ CHAPMAN: I understand.

LTCOL LANGLEY: So that was with COL Lynch.

MAJ CHAPMAN: And are you aware of anyone at Standards Branch, including DOPAW, reaching out to AATES to discuss this response at all?

LTCOL LANGLEY: I am sure they would have, but I don't know about that. You know, I don't have any – I wasn't directly involved, and I didn't – yes, I wouldn't be sure about whether they did or didn't do that.

MAJ CHAPMAN: And is it your evidence that that would not be unusual that there would not be a response from – that this response from AATES would not be discussed?

LTCOL LANGLEY: I think that it would be definitely discussed. I just wasn't part of it, or privy to it, because I'd moved on to doing other things. So I am sure if there was a meeting – and there more than likely would have been – that COL Norton and COL Lynch would have discussed it with them in detail.

MAJ CHAPMAN: Just moving on to questions of Service release. Were you aware that, ultimately, the OPEVAL formed part of the basis for the later brief to the DG recommending Service release in April 2020?

LTCOL LANGLEY: Yes, I was aware that that occurred.

MAJ CHAPMAN: And were you involved in that April brief being prepared at all?

LTCOL LANGLEY: I think insofar as I provided the PowerPoint presentation and briefed on the contents of the OPEVAL report. But that decision brief was something separate, and I think I was doing something else at that point.

MAJ CHAPMAN: And do you have a recollection of whether you discussed with DOPAW or COL Norton the recommendation being made in the decision brief in support of Service release? Do you have a
5 recollection of any discussion about that?

LTCOL LANGLEY: Not directly. But, look, I'm sure if they had questions of fact about the report, they would have come to me and asked. But I don't remember reviewing any decision brief in that regard, nor
10 having any formal meetings about it or being tasked to do anything about it.

MAJ CHAPMAN: And did you, having received this response from COL Reinhardt, at the time support Service release of 5.10, from your point
15 of view?

LTCOL LANGLEY: Well, I didn't receive this at the time, if you're referring to this response from AATES.

MAJ CHAPMAN: Well, when you did receive this response from COL Reinhardt maintaining the "Unacceptable" assessment, my question is, did you – having received that, was it your view that Service release
20 should be supported?

LTCOL LANGLEY: I just go back to say I don't recall receiving this at the time. I don't think I was involved. I may well have; I don't think so, though. I don't recall seeing this previous to even today. I may have discussed it in the context of discussions with other operational airworthiness staff but – and had I received it, you know, having looked at
25 it today, AATES made their own conclusions.
30

But it's curious because, given the OPEVAL and the Navy report, looking at that in detail, coming to their conclusions that without, let's say, considering the new evidence that appears in this documentation, had set
35 that aside. And that's their prerogative. But I just thought they could've flown with it, given that might've helped them make a more informed decision, potentially.

MAJ CHAPMAN: And really, a final matter, do you consider that it would've been – a reasonable response could've been instead of Service release – to defer Service release pending AATES and Standards conducting further testing of this issue, having regard to this response from
40 COL Reinhardt?

5 LTCOL LANGLEY: I'm sure this was considered in detail and, in my
view, what would've been appropriate would be to have AATES at the table
to understand why they had gone back to say that, despite the new
information and the flight testing conducting, they still held the same
view. Even though gaps in understanding the symbology, having the
context of that understanding in flight, flying the symbology in degraded
visual environments, the Navy having done it in significantly reduced visual
conditions would provide plenty of evidence that perhaps that was not the
case.

10 I do also remember at the time, because I'd been involved in an accident
investigation with the German authorities, that I'd reached out to their
equivalent of the DFSB and asked them whether they'd had any experience
with the HMSD symbology. Because they were deployed in places like
15 Mali and Afghanistan. And I got a formal response back from them to say
that their experience in their very large fleet in operationally representative
conditions was wholly supportive of the new symbology.

20 MAJ CHAPMAN: And casting your mind back just onto that point, do
you have a recollection of whether that was pre or post the OPEVAL report
being signed?

LTCOL LANGLEY: No, not off the top of my head. It was in and around
that time.

25 MAJ CHAPMAN: So you're not sure whether your engagement with
your German colleague informed any conclusion that you reached in the
OPEVAL report?

30 LTCOL LANGLEY: I definitely asked them the question during the
period, but I think they came back to me after the report had been finished.
But it was in and around that time, but it wasn't – their conclusions or their
opinions, if you like, were not mentioned, nor were they considered as part
of this OPEVAL report.

35 MAJ CHAPMAN: As part of the OPEVAL report. Did you bring to
anyone's attention within Standards the fact that you had reached out to
your German colleague, and you said you – I think you - -

40 LTCOL LANGLEY: Look, I would definitely have sent that through to
COL Lynch.

MAJ CHAPMAN: I think you said – your evidence was there was a
formal response from your German colleague.

45

LTCOL LANGLEY: Yes, they sent me an email to say that they hadn't had any incidents or accidents; and a PowerPoint, I recall, on explanation of some of the symbology, which accorded with what Airbus had provided to us.

5

MAJ CHAPMAN: And your expectation is that's a document which is available - - -

LTCOL LANGLEY: Yes, it's probably – yes, it will be somewhere in Objective, definitely.

MAJ CHAPMAN: Just another point you mentioned a minute or so ago. I think you used the term, "It would've been good to have AATES at the table". Was that in the context of your reaction to the AATES response, to say that it would have been optimal to have AATES engaged in the process, having regard to what they've said in the response?

LTCOL LANGLEY: And they may well have been. You know, it's a bit of a guess on my part, that - - -

20

MAJ CHAPMAN: Well, first of all, are you agreeing with that?

LTCOL LANGLEY: I'm agreeing that they should have been consulted as to why they would continue to have an opinion like this after we, and the Navy, had looked at the extra information, had test flown it in the conditions that were taken to be exceptional, that were, you know, sought to be the issue that – and hadn't had any indications of the same severity that they had contended. So just interesting to understand why, and perhaps that happened. I don't know.

30

MAJ CHAPMAN: You don't have a recollection or any knowledge as to whether or not that happened, in fact?

LTCOL LANGLEY: No. But, you know, look, perhaps COL Norton or COL Lynch did that. And, you know, potentially they did.

35

MAJ CHAPMAN: Turning back to your statement, you address at paragraph 97 and – sorry, 98, and following, a number of responses to the evidence of MAJ Wilson. Do you see that?

40

LTCOL LANGLEY: Yes.

MAJ CHAPMAN: And if it's necessary to go through those in any detail, you've set out there your position and that's been tendered onto the

record. I'll just check my notes. Just one moment. Those are my questions, Ms McMurdo.

5 MS McMURDO: Thank you. Applications to cross-examine?

LCDR GRACIE: Thank you, ma'am.

MS McMURDO: Yes, LCDR Gracie.

10

<CROSS-EXAMINATION BY LCDR GRACIE

15 LCDR GRACIE: Sir, my name is LCDR Malcolm Gracie. I represent the interests of CAPT Danniell Lyon from Bushman 83. Can I just start with something that arose out of a question from AVM Harland, where sir asked you if you could recall why a Military Permit to Fly was required. And I think the effect of your answer was that it was required for this OPEVAL because of the "Unacceptable" assessment that had been made by AATES, and there were those conditions, those 24 or so conditions, imposed on the flight test regime. And there was some sort of cover in relation to the risk, which made such a permit prudent. Something like that?

25 LTCOL LANGLEY: Yes, "prudent" is a really good word. It wasn't required to the letter of the Regulation, if you like, but it was prudent to do that given that there was a potential, as AATES had put it, flight safety risk which should be managed appropriately. And so to ensure that that was managed in the most appropriate way, AATES were involved in detail in authorising the activity via a Military Permit to Fly, and flight conditions.

30

LCDR GRACIE: Because if those 24 conditions were extant – which I think you've suggested they may have been – you wouldn't need a Military Permit to Fly, would you?

35 LTCOL LANGLEY: Not necessarily. Even if the conditions were extant, the point was, as I understand it, to have AATES in the loop officially and formally so that, you know, any responses and any discussions were collaboratively agreed upon, and that there was no miscommunication.

40 LCDR GRACIE: Slightly different point though. The proposition I was putting was that if those conditions were extant, as you suggested, at the time of the OPEVAL, then you wouldn't need the Military Permit to Fly.

45 LTCOL LANGLEY: We didn't need the Military Permit to Fly, as it was. So those conditions could have been imposed in a different way, and not

5 via a Military Permit to Fly. The point is that AATES were involved because they had come to the conclusion about the flight safety issue, and to have them involved, as I understand it – and it's not so much going out on a limb, but this was part of the discussions in the lead-up to the first flights that we did; it was to make sure that we all understood exactly what the risk was.

10 And even if there had been no Military Permit to Fly, I think, similar things would have been in place, at least initially, to make sure that we were doing it safely and sensibly so that we could evaluate sensibly what was potentially a flight safety risk, but with the knowledge now that we understood how the symbology worked, and what we were likely to be able to see and understand in the context of the animation of the symbology.

15 LCDR GRACIE: So when you say you didn't need a Military Permit to Fly, is that because it was an OPEVAL?

LTCOL LANGLEY: Correct. An Operation Evaluation does not require a Military Permit to Fly.

20 LCDR GRACIE: Whereas if it was conducted as an OT&E, Operational Test and Evaluation, in any of the DASR Categories 1 to 4, you would need that Military Permit, would you?

25 LTCOL LANGLEY: No. So the DASR Categories 1 to 4 sit within the Regulations as specified activities. So a Category 1 or 2 would have been required for a Military Permit to Fly in support of, let's call it, prototyping outside the envelope for Category 1, or looking at something approximating limitations in Category 2, and there are specified things.

30 An Operational Test and Evaluation, or an OPEVAL, sits outside any of those categories. Category 3 is for post-assembly of things. And CAT 4 is like an OT&E, but it involves an additional bit of equipment that doesn't fit into Category 1 or 2. So it's a simplified thing, and there are effectively no pre-requisite qualifications other than experience on the aircraft type to be done.

35 So those requirements for those specified documents don't apply to an OPEVAL, but they were utilised to make sure that there was effective communication and safety controls.

40 LCDR GRACIE: In relation to those DASR categories, can I suggest that this came into a Category 2 classification because it was a design change in relation to the aircraft?

45

LTCOL LANGLEY: That would be the case if we were the first people to do it, but we were not, given that the German Air Force had already done that and they'd given it Service release on the same aircraft type.

5 LCDR GRACIE: But you didn't rely upon that as a means of bypassing the testing by AATES, did you?

LTCOL LANGLEY: No. Well, look, there was no – let's not call it bypassing, but as I understand it – and again, I wasn't involved in detailed
10 planning – a Military Type Certificate Holder could have taken at face value what was conducted in Europe and released it to Service on that basis, but for whatever reason, they decided to do a check of the symbology, and that ended up in AATES' lap, initially, and then as an OPEVAL, subsequently.

15 LCDR GRACIE: But that wouldn't be your decision to make, would it?

LTCOL LANGLEY: No.

LCDR GRACIE: That's DG AVN, or someone who would have to be
20 satisfied - - -

LTCOL LANGLEY: Well, typically it would be the Military Type Certificate Holder, so the engineer that is effectively the Airworthiness Authority – sorry, the – I'll think of the right term shortly – the responsible
25 engineer within the Systems Program Office to sign off any major changes to type design. Noting that this one had already been accepted by the Europeans, and they could have used that evidence to satisfy themselves that actually that would be good to roll out just as it is.

30 AVM HARLAND: Sorry, LCDR Gracie.

What category was the initial AATES evaluation done under, are you aware?

35 LTCOL LANGLEY: I don't know off the top of my head. I assume it would have been Category 2, is what they would've called it as. But again, depending on what information they had, whether that was appropriate or not, given that it had already happened in Europe.

40 AVM HARLAND: Yes, so it was Category 2. I guess what was the rationale for conducting the AATES evaluation of the Category 2, and then the OPEVAL under Category 4, and who authorised it to be a Category 4 test for the OPEVAL?

LTCOL LANGLEY: That's an excellent question. I wouldn't know off the top of my head. Typically - - -

5 AVM HARLAND: Would that be articulated in the Flight Test Plan?

LTCOL LANGLEY: Yes, normally, and it would also be a decision jointly between the Military Type Certificate Holder and probably DOPAW's advice to the Commander.

10 AVM HARLAND: Okay. Thanks.

LCDR GRACIE: In terms of the OPEVAL, can I just ask you to have a look at it, and in particular I want – so it's Annex A, I think, to your evidence, and I want to take you, if I can, to the Schedule at Annex B. It's
15 got the numerical rating of tasks in terms of ease, difficulty, and so forth. When you came to prepare this report in lieu of COL Norton doing it as the Test Director, did you effectively weight any of these responses in terms of the level of experience of the pilot relative to others, or how did you weight the results of this?

20 LTCOL LANGLEY: They were each taken as valid and equivalently-weighted results.

LCDR GRACIE: So COL Norton, probably the most experienced of the
25 test team, and yourself – I think you're the only two who have test pilot qualifications.

LTCOL LANGLEY: That's right.

30 LCDR GRACIE: Your test pilot qualifications are not on the MRH-90 though, is it?

LTCOL LANGLEY: It's ambivalent to type. Clearly, if you're going to
35 experiment on something, in some cases it's even advantageous to not be perhaps aligned with it. But, in this case, I was both qualified on MRH and I had a valid test pilot category.

LCDR GRACIE: You were a CAT C MRH pilot?

40 LTCOL LANGLEY: CAT C MRH pilot, but I was a Category A test pilot.

LCDR GRACIE: But your hours of flying, the 216 hours – I'm sorry, the
45 other day I gave you 223 hours, but it's 216, I see. Those 216 hours could represent one year's flying, could it? Is that what you might do in a year?

LTCOL LANGLEY: Something like that. Yes.

LCDR GRACIE: Something like that. How much of that 216 was simulator-based?

5

LTCOL LANGLEY: I couldn't tell you off the top of my head. A portion of it. Perhaps 30, 40 hours.

LCDR GRACIE: Because the particular serial I want you to look at for me, please, is 8 in Annexure B, and I want to see how you assessed these various responses to the question of, "What do you think are the good and bad features of the new 5.1 symbology?" And I'm just going to point out the bad. I'm not saying that there weren't good features, but I just want to focus on the bad for the moment. You'll see that CAPT Balaam there said:

15

The bad features are the angle of bank, roll-off beyond the aircraft centreline in a turn.

LTCOL LANGLEY: Yes.

20

LCDR GRACIE: So that's bad. You will see that D14 said:

Bad, loss of roll scale in norm.

25 That's normal mode.

LTCOL LANGLEY: That's right.

LCDR GRACIE: Don't worry about that. Yourself, your own assessment was that:

30

Non-aircraft conformal attitude information not aligned with longitudinal axis.

35 LTCOL LANGLEY: That's right.

LCDR GRACIE: So you regarded that as a bad feature?

LTCOL LANGLEY: Correct.

40

LCDR GRACIE: Then we've got – I apologise, I don't know his rank – but McCall, is it? I'm sorry, my eyes are - - -

LTCOL LANGLEY: McCall, yes.

45

LCDR GRACIE: McCall. Thank you.

*Bad loss of roll scale, non-aircraft conformal attitude
information, attitude not aligned with longitudinal axis.*

5

That's bad.

LTCOL LANGLEY: Yes, I think you've just re-read mine there.

10 LCDR GRACIE: I did. I read yours, sorry. I've scribbled over it, that's
why I can't find it. "Symbology", says McCall:

*Symbology set needs to be reviewed over an extended period before
Australia makes reasoned SPCR for changes.*

15

LTCOL LANGLEY: That's right.

LCDR GRACIE: So there's a position there about the need for review.
Can I ask what "SPCR" stands for?

20

LTCOL LANGLEY: A System Problem and Change Request. So it's
effectively a way that you could provide information to the engineering
authority to have a change implemented. Unfortunately, we were at the –
let's say at the bottom end of the scale, and I'm – bottom end of the scale
25 to be able to make changes because we weren't part of NAHEMA, which
is the NH90 community.

25

We were a guest, if you like, so we didn't have a seat at that table,
formally. But we were able to provide some advice and
30 requests. Typically that had been done to date at that time through
MAJ Scullard.

30

LCDR GRACIE: You will see D23 and D19. Have a look at the list, if
you want. I'm only dealing with them together because it's the same
35 comment. But if you want to have a look at the pseudonym list to identify
those two pilots, but you'll see that they say:

35

*Bad features: pitch ladder not slaved to the aircraft's heading, and
therefore can't be used as a –*

40

is it "rate of climb"?

LTCOL LANGLEY: Correct, "rate of climb, rate of descent indicator".

LCDR GRACIE:

Rate of descent indicator. Doesn't value add. Pitch ladder, angle of bank, roll out past 90 degrees.

5

I've done it again; I've read Mann, sorry.

LTCOL LANGLEY: Yes, but I agree there are adverse commentary and those were coalesced into the paragraph on the attitude reference. And it was, on balance of those and the scores, noted as "Undesirable, and should be improved".

10

LCDR GRACIE: And I apologise there. It's late in the week. D23 and D19 say the same.

15

LTCOL LANGLEY: Yes.

LCDR GRACIE: And they say it's an overall marginal improvement to before.

20

LTCOL LANGLEY: Yes.

LCDR GRACIE: Irrespective of the distance to go improvement, they both regarded that as marginal improvement.

25

LTCOL LANGLEY: Yes.

LCDR GRACIE: Then if we run across to COL Norton, he says at the bottom of that serial 8 – he says:

30

Non-conformal nature of the pitch ladder, ARH –

meaning the Tiger?

35

LTCOL LANGLEY: Correct.

LCDR GRACIE: Yes. And:

HUD 4 –

40

being version 4.

LTCOL LANGLEY: That's right.

LCDR GRACIE:

– was in place at this time. Is better for helo ops –

5 helicopter operations.

LTCOL LANGLEY: Correct.

LCDR GRACIE: So you've got the most qualified test pilot, who is also
10 the Test Director, saying that the ARH and version 4 were better than the
upgraded 5.1 - - -

LTCOL LANGLEY: That's right.

15 LCDR GRACIE: - - - for helicopter operations.

LTCOL LANGLEY: Correct.

LCDR GRACIE: And that's what we're dealing with, helicopter
20 operations.

LTCOL LANGLEY: We absolutely are.

LCDR GRACIE: Why is it that the ARH – sorry, I withdraw that. Does
25 the ARH utilise version 4?

LTCOL LANGLEY: Yes, it's got an improved – or a different version
now, but at the time it had an attitude reference in the symbology which
was superior to the way the animation had been implemented in the MRH,
30 based on this report.

LCDR GRACIE: It was superior, was it, the - - -

LTCOL LANGLEY: Well, if you base this report on the commentary
35 made within here, that effectively what many of the people were saying is
that that idea of having the pitch ladder slaved to the longitudinal axis of
the aircraft and it disappearing as you looked off-axis – because it stayed
with the longitudinal axis, so that as you looked away from it, it would move
to the side of your display and eventually disappear – was really, really
40 good, and that was the gold standard, if you like, and that's what they were
recommending we implement.

LCDR GRACIE: Can I just ask why was that not a recommendation in the
OPEVAL?
45

LTCOL LANGLEY: It is a recommendation in the OPEVAL, where it says that:

The attitude information was undesirable and should be improved.

5

And it's with respect to – if you like, that would be one way to improve it, is to make it a little bit more like the ARH.

LCDR GRACIE: But it doesn't expressly recommend that, does it?

10

LTCOL LANGLEY: I think it says that it should be improved, right.

LCDR GRACIE: Well, improved.

15

LTCOL LANGLEY: "Undesirable and should be improved."

LCDR GRACIE: Well, it doesn't need to be improved; it's already in version 4.

20

LTCOL LANGLEY: The MRH or the ARH, are you talking about?

LCDR GRACIE: No, the MRH. The MRH utilising version 4 had the same characteristics as the ARH, didn't it?

25

LTCOL LANGLEY: No.

LCDR GRACIE: It didn't?

LTCOL LANGLEY: No.

30

LCDR GRACIE: So the ARH did not suffer from this ambiguous attitude display?

LTCOL LANGLEY: No. The symbology sets were never aligned, if you like, between ARH and MRH. They're not the same – let's call it "basis", or "organisation", or any of those things. The ARH community was Spain, France, Germany and Australia. And the NAHEMA community is a conglomeration of world-wide countries that are primarily in Europe, and are a different organisation, given it was a couple of different manufacturers as well.

40

LCDR GRACIE: So the ARH symbology is the gold standard?

LTCOL LANGLEY: Certainly for ARH ops, but in respect – and it's got completely different symbols because you need to utilise those to utilise all

45

the systems that the ARH has, along with weapons and whatnot, but the MRH, for what it did, could have benefitted, as it's put into the report, from an improved symbology set that mimicked the way that the attitude information was presented in the ARH.

5

LCDR GRACIE: So there's the ARH, but COL Norton is there saying, "And version 4". So he's saying either the ARH gold standard, or stick with V4.

10 LTCOL LANGLEY: I need to just re-read what he's written, if that's okay?

AVM HARLAND: Just a question regarding COL Norton and what he's written there, did you discuss the drafting of the report with COL Norton, given he was the Director?

15

LTCOL LANGLEY: Most definitely.

AVM HARLAND: And did he agree with the report and its outcomes?

20

LTCOL LANGLEY: Yes. Yes, he was a reviewer of the draft, if you like. He just didn't have time to write it.

AVM HARLAND: Okay. Thanks.

25

LCDR GRACIE: It's just at the bottom of that paragraph. The last three lines.

LTCOL LANGLEY: Yes, so what he's said there is ARH and HUD 4 is better for helo operates. And what he might have been referring to there is the ARH symbology generally. And HUD 4 perhaps, either in relation to Chinook or Black Hawk, that had a Head-Up Display for the night-vision goggles and that may have been at version 4. So I suspect that's what he's getting at, as opposed to version 4 of the ARH symbology. I think ARH symbology generally, and HUD 4, HUD version 4, associated with Black Hawk and Chinook.

30

35

LCDR GRACIE: It's a bit of a stretch though, isn't it, to suggest that, since we're dealing with the MRH-90 upgrade from V4 to 5.1?

40

LTCOL LANGLEY: No, I think he's just using that as the comparison. So I think he didn't – he's definitely said that there's a deficiency, and that it would be preferable to have either ARH or the HUD 4 as better, or improvements on which to base changes to the MRH symbology to improve it.

45

5 LCDR GRACIE: If we run down to serial 9, and just stick with COL Norton's assessments there in relation to, "What change in the symbology set for specific role and environment would you recommend?", he says:

10 *I think we may need to create a bespoke HUD symbology configuration, not the symbology set for Special Ops use, and possibly green role/maritime ops.*

And then he deals again with the reduction of pitch ladder information. And then he says again:

15 *Make the pitch ladder conformal as per ARH and current 4.0.*

Can I ask why that recommendation did not feature squarely in the recommendations listed in the report?

20 LTCOL LANGLEY: Well, I believe it did because the "Undesirable" recommendation about the attitude presentation encapsulates that. But, more importantly, what he's talking about there in terms of the bespoke symbology configuration is associated with the other deficiency that was identified; that the declutter modes were not tailorable, whereas they are tailorable for NVG HUD in Black Hawk or Chinook.

25 So having the capacity to turn on or off various symbols, and have that saved as a set to facilitate a specific mode. And you might preferentially have certain things on for the final leg of approach, or for conducting a ship approach, or for conducting formation flying, for example. And all these things could have separate and different configurations of symbology selected appropriate to that mode of flight.

30 That's not a feature of the MRH symbology. What you have is three sets that change for low speed and forward flight, and they are preset. There's no tailoring or capacity to change them. So that's what that's about.

35 LCDR GRACIE: Can I suggest to you, if I look at Table 5 of your report, in particular page 11, it's a fairly watered-down recommendation which says:

40 *The attitude presentation in V5.1 could be enhanced by making the pitch scale conformal to the aircraft longitudinal axis.*

45 And in the interim those three steps about line of sight, forward when making attitude changes, and so forth. It's a pretty – and I don't mean this

in any pejorative sense – but it’s a pretty weak recommendation, isn’t it, “could be enhanced”?

5 LTCOL LANGLEY: Yes, it’s at the lowest level, as per the Table of Recommendations and Conclusions.

10 LCDR GRACIE: But when you look at the comments made, and in particular the one by COL Norton, it’s described as “bad”, and a preference to do something quite different, i.e. “HUD 4 or the ARH version”. That’s not encapsulated here, is it?

15 LTCOL LANGLEY: Well, both of those things have been addressed in there, and on the balance of the assessments that are made by – or that were made by all of the participants, “Undesirable” was where it landed for the attitude symbology, and then there was also a - and I just need to go back. There was also an “Undesirable” for the declutter modes, being able to tailor those.

20 LCDR GRACIE: But can I respectfully suggest, that was your characterisation of those comments and feedback from the test pilots – well, I’ll call them test pilots in the generic sense.

LTCOL LANGLEY: Yes.

25 LCDR GRACIE: You’ve characterised it as “Undesirable”.

30 LTCOL LANGLEY: Correct. Well, I have characterised their statements and their debrief, and it’s been recorded here, and if you like, that gives you a feel for what kind of information would land at an “Undesirable”. I’m sorry, we don’t have an “Unsatisfactory”, nor do we have an “Unacceptable”. But you would find that the language in those would be far stronger.

35 The responses that you get in terms of numerical would be much more weighted toward the “Difficult” end of the spectrum, as in closer to 10 – certainly for “Unsatisfactory”. And for “Unacceptable” you’d almost have 10s all round, and perhaps worse, because you’d be looking at very, you know, deficient systems that would be accordingly written up.

40 LCDR GRACIE: But the interim recommendations that you make are all effectively pilot training, aren’t they?

45 LTCOL LANGLEY: Yes, because I have no control over improving the symbology in the short term – or none of the operators did, anyway.

LCDR GRACIE: No. But can you have a look for me, please, to the advice to readers that forms part of the OPEVAL?

LTCOL LANGLEY: Yes.

5

LCDR GRACIE: I think it's at the back, is it?

LTCOL LANGLEY: Yes, it's on page A1.

10 LCDR GRACIE: Thank you. Have you got it there?

LTCOL LANGLEY: I certainly do.

15 LCDR GRACIE: I just want to ask you to have a look at the definition of "Undesirable" there. It says:

Description of deficiency or characteristic: could be improved to make a safer or more capable aircraft.

20 LTCOL LANGLEY: That's right.

LCDR GRACIE: We're not talking about pilots here. We're talking about the aircraft design, the system, aren't we?

25 LTCOL LANGLEY: That's right.

LCDR GRACIE: So what you're saying there is it's "Undesirable". The interim measure is not about making an improvement to the aircraft. That's more a longer-term thing.

30

LTCOL LANGLEY: In respect of which recommendation?

LCDR GRACIE: Well, your recommendation in relation to this symbology, dealing with the attitude display, was characterised as "Undesirable".

35

LTCOL LANGLEY: That's right.

LCDR GRACIE: The recommendations you gave for interim measures were all pilot training-related, weren't they?

40

LTCOL LANGLEY: Because they're in the interim, yes, until the pitch scale can be improved so that it provides better information more easily interpreted by the aircrew, as per the recommendation.

45

LCDR GRACIE: But the characterisation of “Undesirable” in the OT&E advice for readers, which this is taken from, relates to making a safer or more capable aircraft.

5 LTCOL LANGLEY: That’s right.

LCDR GRACIE: Not by pilot training or anything. It’s making the system safer or more reliable.

10 LTCOL LANGLEY: Yes, and it makes that recommendation that it should be improved.

LCDR GRACIE: My concern though, sir, is that the interim measure doesn’t deal with improving the aircraft.

15 LTCOL LANGLEY: Yes, because it’s interim. The actual recommendation is that the aircraft symbology should be improved, and until that can occur, then some additional training should be in place to make sure that we can account for that deficiency.

20 LCDR GRACIE: I understand. When did that occur, the improvement?

LTCOL LANGLEY: I think that was rolled out into the Standardisation Manual within, you know, a few weeks. Certainly before the symbology was released.

25 LCDR GRACIE: I’m talking about the improvement to the symbology to the aircraft, when did that happen?

30 LTCOL LANGLEY: I don’t know.

LCDR GRACIE: We’re still in the interim phase, are we?

LTCOL LANGLEY: It may well be. I can’t tell you whether it was improved. I don’t think it was, as far as I know. I mean, the aircraft is obviously out of Service now, but yes.

LCDR GRACIE: Yes. That’s not your role anyway, is it?

40 LTCOL LANGLEY: No, not necessarily. Yes.

LCDR GRACIE: Can I just now go to the response provided by AATES that Counsel Assisting took you to? It was described by – and I’ll just use the term, if you don’t mind – it was described by LTCOL Reinhardt as a repechage. That’s how he described that document.

LTCOL LANGLEY: Okay. Yes, sure.

LCDR GRACIE: So if you don't mind, I'll just utilise that term.

5

LTCOL LANGLEY: And that's this Response to Aviation Branch HMSD 5.1 OPEVAL.

LCDR GRACIE: Yes, it is. It appears – although it's not referenced – that AATES, in response to the OPEVAL, have become aware of that specification, the manufacturer's specification, that I think you've called the Format Specification at Annex E to the OPEVAL.

10

LTCOL LANGLEY: Yes, there were a number of documents that were delivered from Airbus, I assume in the interim, and that AATES didn't have access to them before they did the testing.

15

LCDR GRACIE: You didn't have anything from the German MAA though, did you, at this time?

20

LTCOL LANGLEY: No. Well, and again, I wasn't involved in that process specifically. I was kind of landed on it at the point where the test plan was ready to go and it was a week before the trial was about to start.

LCDR GRACIE: Did you have any discussions with MAJ Scullard about his interactions with the German test pilots or - - -

25

LTCOL LANGLEY: I don't recall, but I suspect that COL Norton may have. And, again, you know, that's probably well-informed speculation, but I'm pretty sure that COL Norton spoke with MAJ Scullard.

30

LCDR GRACIE: It's just I recalled that you had made a specific reference to the Germans operating in Afghanistan and Mali.

LTCOL LANGLEY: Correct.

35

LCDR GRACIE: And what was the source of your understanding about that?

LTCOL LANGLEY: So I had, as stated, been involved in an aircraft accident investigation with the German authorities, so I had close links into their Flight Safety Bureau – their Defence Flight Safety Bureau. And in the course of conversation with two of their staff, I'd asked them about it and they had provided a very positive response. And one of them had undertaken to send me a confirmation of their position, plus a PowerPoint

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45

presentation on how the symbology worked. I can't recall whether that turned up prior to, or after, the report was completed, but it was in and around that time, and I forwarded that to COL Lynch.

5 And I've subsequently contacted them three months ago. Unfortunately, both the close officer – you know, the close friends that I had there, both officers have retired, as happens, but they had reached out to their Director – previous Director – who was an NH90 guy, and he confirmed the same thing.

10 But again, I don't have formal evidence of that, if you like. But certainly the one from LTCOL Bayer at the DFSB there, there's a PowerPoint presentation, it will be on Objective. That, I can find.

15 LCDR GRACIE: Thank you. I'm sure that will be helpful. Just in terms of this repechage, as I said, it appears that AATES have now had the benefit of at least seeing the format specification to which you refer in the OPEVAL, and as a result of that they identified three things in this repechage document. Integration issues with the Australian version of the aircraft is not the case.

LTCOL LANGLEY: They've put anecdotally, but yes.

25 LCDR GRACIE: Yes. Thank you for the – it is an important – but I wasn't going to take - - -

30 LTCOL LANGLEY: Yes, because it's sitting on the fence a little bit. But, yes, they've said that's the case, but they haven't – I presume that they've put it that way because they haven't independently verified it; they've taken it at face value.

LCDR GRACIE: Because, as I think you said earlier in your evidence, one of the things in the AATES report was that they didn't know whether or not this was an integration issue, or something else.

35 LTCOL LANGLEY: Correct.

LCDR GRACIE: So that's been resolved.

40 LTCOL LANGLEY: Yes.

LCDR GRACIE: The second one is whether there is a purposeful characteristic, i.e. let's call it a design intent, as people have said.

45 MS MUSGROVE: I'm sorry, I've just been asked to raise the

classification of the document for my friend in the manner in which he's actually asking questions.

5 LCDR GRACIE: Sorry.

MS McMURDO: Yes.

10 LCDR GRACIE: It's jumping between the OPEVAL, which isn't classified, and - - -

MS McMURDO: Yes, I know, it is tricky.

15 LCDR GRACIE: - - - the things it's dealing with. So, yes, late in the week, and I apologise for that. Could you have a look at para 1(b)?

LTCOL LANGLEY: Yes.

20 LCDR GRACIE: In relation to what's referred to there as the "purposeful characteristic"?

LTCOL LANGLEY: Yes, and I agree again that they've agreed that it's not the case.

25 LCDR GRACIE: Because one of the things – and again, if I've mischaracterised your evidence, please correct it – but the evidence that you gave was to the effect that by having that format specification, you could be satisfied that there was a manufacturer's intent behind what AATES had expressed its concerns about.

30 LTCOL LANGLEY: That's certainly part of it. But, more importantly, that the animation of what was termed the "pitch scale", was a pitch scale only if you were looking directly aligned with the X-axis of the aircraft, and that as you moved your head away from the X-axis it became a representation of the X-Y plane and its relationship to the horizon of the aircraft.

35 LCDR GRACIE: Can I ask if COL Langley could have access to Exhibit 104, which is the one I mentioned, and I think it will be Annex A.

40 MS McMURDO: It's COL Lynch's statement and annexures.

LCDR GRACIE: Yes. Do you want me to find it? Maybe it's part of BRIG Fenwick, is it?

45 AVM HARLAND: Are you looking for the Format Specification?

LCDR GRACIE: Yes, sir.

AVM HARLAND: It's tab 10 on COL Lynch's.

5

LCDR GRACIE: It is, is it? Thank you, sir. Okay. Thank you. I'm being helped at all sides, ma'am.

MS McMURDO: Very good.

10

LCDR GRACIE: Could I ask you, please, to go to page – it's probably best to start at page 35 of 69? And appreciating the sensitive nature of this document, I will just take you to parts of it and ask you to read it quietly to yourself.

15

LTCOL LANGLEY: Yes, I've - - -

LCDR GRACIE: Have you got that there?

20

LTCOL LANGLEY: I have.

LCDR GRACIE: Thank you. And do you see that there are descriptions there – which I won't go into detail about – the pitch and roll indicator?

25

LTCOL LANGLEY: Yes.

LCDR GRACIE: If you go across, there's some helpful figures, which I don't pretend to understand much about, but I'm sure at least two people in this room will have some familiarity with those displays. They get a bit more interesting as we get further in, but for now I just want you to have a look at – see where it says, under 7.5.1.2, the reference "Req", meaning required or request? What does that refer to in those subheadings?

30

LTCOL LANGLEY: It's a requirement.

35

LCDR GRACIE: A requirement, is it?

LTCOL LANGLEY: Yes, and in effect these kinds of documents are those that they can offset the initial engineering testing against, and then it's further refined on an integration rig, and then in an aircraft. But it provides the basic requirement to be satisfied, to get the tick. That we asked for X, you gave us X. That's the requirement.

40

LCDR GRACIE: Then if you go over the page for me, having read that, the next one is “End Requirement”, and just under that there’s a statement about symbols.

5 LTCOL LANGLEY: Yes. Is that at Figure 21?

LCDR GRACIE: Sorry, no, a bit further up, just in the narrative itself.

10 LTCOL LANGLEY: And this is on page 35?

LCDR GRACIE: 37, sorry.

LTCOL LANGLEY: 37. Okay.

15 LCDR GRACIE: Do you see the fourth line down – and I’m sure it won’t matter if you want to undo that bulldog clip and we can re-assemble it. It’s looking pretty - - -

20 LTCOL LANGLEY: The pages are not in order in this document.

LCDR GRACIE: That’s the Defence - - -

LTCOL LANGLEY: Let me just find 37.

25 MS McMURDO: Oh, dear.

LTCOL LANGLEY: Okay, I’ve got 37 now. Yes.

30 LCDR GRACIE: Sure. Do you want to make it a bit easier for yourself?

LTCOL LANGLEY: I’m sure they can put it together again. Yes, I’ve got 37 now.

35 LCDR GRACIE: Thank you. Just if you look at the fourth line down, it talks about symbols varying. Have you got that there?

LTCOL LANGLEY: Yes.

40 LCDR GRACIE: Under the subheading, “End Requirement”, “End Req”.

LTCOL LANGLEY: Yes.

45 LCDR GRACIE: Then if we continue through this you’ll see that there’s 7.5.2 on page 41. You can read that for yourself. And then at 42, under the heading “Pitch Scale Representation” – it’s the third heading down.

LTCOL LANGLEY: Yes.

5 LCDR GRACIE: Sorry, I'm not allowed to say it's the third heading down. You can find it though, can you, where it says, "Pitch Scale Representation"?

LTCOL LANGLEY: Yes.

10 LCDR GRACIE: You can read that?

LTCOL LANGLEY: I can see what you're referring to, yes.

15 LCDR GRACIE: Do you see that there?

LTCOL LANGLEY: Yes.

20 LCDR GRACIE: Then, more importantly, I want to take you to the note that's further down.

LTCOL LANGLEY: Yes.

25 LCDR GRACIE: So that's probably all I need to ask you about there. But the point of those questions – the point of that information, is this: what you were able to do with the OPEVAL was satisfy yourself that the manufacturer had a particular intention in relation to what AATES had raised its concerns about – a design intent, if you like.

30 LTCOL LANGLEY: Yes, they had - - -

LCDR GRACIE: A purposeful characteristic, I think was the - - -

LTCOL LANGLEY: Correct, that's what they'd used.

35 LCDR GRACIE: You relied upon that in terms of briefing the test crew, in terms of what to expect?

LTCOL LANGLEY: Exactly.

40 LCDR GRACIE: And can you then just go back to the repechage document, please? You can probably put that specification aside for now, the Format Specification.

45 LTCOL LANGLEY: Yes, I've got that here.

LCDR GRACIE: We'll fix it up later. That's all right.

LTCOL LANGLEY: Yes.

5 LCDR GRACIE: Can you go to para 1(c) there? Just read that to yourself. Right?

LTCOL LANGLEY: Yes.

10 LCDR GRACIE: You will see that last sentence, in particular.

LTCOL LANGLEY: Yes.

15 LCDR GRACIE: What I want to suggest to you is two parts. The first is, having looked at the Format Specification, it's a descriptor of sorts, isn't it?

LTCOL LANGLEY: Correct.

20 LCDR GRACIE: It's not dealing with mitigation measures or training measures, or anything to do with this design intent.

LTCOL LANGLEY: No.

25 LCDR GRACIE: And that is really, can I suggest, what the repechage is dealing with? It might be a manufacturer design intent, but it hasn't been assessed against any DASR Airworthiness Code, has it?

30 LTCOL LANGLEY: No, it was an EASR Airworthiness Code – sorry, EMAR. So the European Military Regulations on which the DASRs are based, is what it was.

LCDR GRACIE: Yes, but AATES have the obligation – they were entrusted with the testing for airworthiness certification under DASR.

35 LTCOL LANGLEY: Yes, and for us, we would accept what the Regulations, or at least the Specifications, are for this aircraft, given that it has a Military Type Certificate. So many of the aircraft that we operate may have a civil cert basis, in which case that civil certification basis is the basis on which you make assessments. Or it might have a Military Specification,
40 or it might be an EMAR, or it might be a DASR, although DASR basically point at other specs. But the point being that whatever the aircraft is certified to is the thing against which it's assessed.

45 And in this case, the Format Specification says how the symbology should be presented. It provides, if you like, a truth set. Either it works like that,

5 or it doesn't. "If it doesn't work as it's specified in here, then it's not compliant, and you need to do something about that." That doesn't set aside that if it's not fit for purpose that it still might be spec compliant, but it might not be fit for purpose on top of that. So if it's not fit for purpose, then you should improve it, or you must improve it, for example.

10 LCDR GRACIE: But the information you had from that Format Specification which informed the OPEVAL did not deal with the main issue that AATES raised in its initial report to the effect that if it was a design intent, or known by the manufacturer – which we know is the case – what was it doing, or what had it done, to assess the risk and mitigate?

15 LTCOL LANGLEY: Yes, unfortunately, you can't split the two in this case because many of – or much of the conclusion, it appears – and I'm sure AATES will forgive me for putting words in their mouth – but because they neither understood what it was doing or why it was doing it, they were in a very difficult position in their initial evaluation.

20 We had the benefit during the OPEVAL of understanding what the animation was supposed to be. And as a consequence, in the context of doing the flying, particularly in the degraded visual environment, we were able to make sense of what it was, and utilise it for the information that it could provide. It was still not optimal.

25 Optimal would have been an NVG HUD presentation where the pitch and roll information was central to the display, but correct, or that it, like the ARH symbology, was linked to the longitudinal axis so that when you looked off-axis, the pitch ladder disappeared, remaining with the longitudinal axis of the aircraft. So if you looked off-axis, you would just
30 see the horizon line, for example.

LCDR GRACIE: At the time of doing the OPEVAL, did you have any information that the manufacturer had assessed and put in place mitigations or guidance to deal with that symbology anomaly?

35 LTCOL LANGLEY: It's not mentioned – it might actually be mentioned in another part in this report, but there are also engineering documents from Airbus, and they explain about the symbology, that the attitude must only be effectively assessed if you're looking straight out the front of the aircraft.

40 And, curiously, you might find that the language in the OPEVAL report in those three recommendations is very similar to what Airbus had written. Unfortunately, it hadn't made its way into the Flight Manual at the time, but it – as of the last version I checked in the MRH, it's now in there.

45

But those three recommendations about look out the front if you want to maintain – in fact, just let me get to it for you.

5 LCDR GRACIE: Line of sight.

LTCOL LANGLEY: Line of sight when making attitude changes, and obviously recovering, and there was – they didn't have the warning in there, but effectively they'd made words to the effect that the symbology would provide a aircraft planer reference, and they used – let's call it other
10 descriptors for that – whereas we'd used a different way to describe it, which made sense to the OPEVAL aircrew who conducted the testing.

LCDR GRACIE: Can I respectfully say, don't forget that line of sight
15 recommendation was, in the OPEVAL, only an interim measure.

LTCOL LANGLEY: Yes, until the symbology could be improved.

LCDR GRACIE: So if there was such a recommendation from Airbus, or
20 whoever, as far as you were concerned, that's only an interim measure.

LTCOL LANGLEY: Yes.

LCDR GRACIE: So was there anything over and above fixing line of
25 sight on a longitudinal axis that was recommended to mitigate the problem that AATES identified?

LTCOL LANGLEY: The problem that AATES had identified was not,
30 let's say, made with the understanding of how the symbology was animated, and so not only did they not understand what it was providing them, but that added to the confusion. If you could understand what you were looking at, then it didn't become confusing. It just wasn't useful.

LCDR GRACIE: So why did you want it upgraded?

35 LTCOL LANGLEY: Because it would've been advantageous to have improvements to it, to get rid of this planer reference, as opposed to an attitude reference that was only aligned with the X-axis.

LCDR GRACIE: Can I suggest that the answer is actually in the definition
40 of "Undesirable"? It is to improve aircraft safety.

LTCOL LANGLEY: Yes, we did find that it was deficient, so we asked
for it to be improved.

45 LCDR GRACIE: So it did need upgrading in terms of improving safety?

LTCOL LANGLEY: Yes.

5 LCDR GRACIE: Can I suggest that your characterisation of what AATES said might be correct in terms of its first report, but now that you've had the benefit of the repechage, can you just look at paragraph 4, please?

LTCOL LANGLEY: Yes.

10 LCDR GRACIE: You'll see that not only have they not changed their assessment, but they then make a comment in relation to "with the benefit of the further information", they reiterate the assessment, and go even further and emphasise the risk for an extended aircraft service life.

15 LTCOL LANGLEY: Yes, they do say that.

LCDR GRACIE: I just want to suggest that that assessment has been made with the benefit of the Format Specification, which they didn't have in the first report.

20 LTCOL LANGLEY: That's true.

LCDR GRACIE: Thank you, ma'am, sir, and sir.

25 MS McMURDO: Thank you. Any other applications to cross-examine?

COL GABBEDY: I expect I'll be brief, ma'am.

30 MS McMURDO: Yes, COL Gabbedy.

<CROSS-EXAMINATION BY COL GABBEDY

35 COL GABBEDY: Thank you. LTCOL Langley, I'm COL Nigel Gabbedy. I appear for MAJGEN Jobson. LCDR Gracie took you to Annex B to your Op Evaluation, and he spent quite a bit of time on serials 8 and 9. He didn't look at serial 7. Could you have a look at serial 7 for me, please?

40 LTCOL LANGLEY: Certainly.

COL GABBEDY: That serial, the question is:

45

Was the 5.10 symbology beneficial to SO Ops compared to version 4?

5 Was that one of the purposes of doing trials in relation to this upgrade?

LTCOL LANGLEY: Yes.

10 COL GABBEDY: To abridge time, it's the case, is it not, that 11 out of the 12 pilots answered "Yes" to that question?

LTCOL LANGLEY: They did.

15 COL GABBEDY: Just quickly running through a few matters in your statement, at paragraph 10 you say that you were the winner of the Navy – and I'll get this wrong – Patuxent River Trophy. What was that for?

LTCOL LANGLEY: That was for the most outstanding preview report at the conclusion of Test Pilot School.

20 COL GABBEDY: And that was Test Pilot School in the US?

25 LTCOL LANGLEY: That was Test Pilot School in the UK, at the Empire Test Pilot School. But Patuxent River is the US Navy Test Pilot School, and there are exchange awards, if you like. The winner of the DT2 at Patuxent River, which is the equivalent of the preview, gets the ETPS award, if you get my drift?

30 COL GABBEDY: And, again, I mean, you won the Victor Walton Trophy both in 1998 and 2005.

LTCOL LANGLEY: That's correct.

COL GABBEDY: What was that for?

35 LTCOL LANGLEY: So the initial Vic Walton Trophy was for performance, and hydraulics off assessments, and autorotation assessments of upgraded rotor blades on our training helicopter, the Squirrel, at the time. And the subsequent one was for Hellfire weapon integration into the ARH, which was – I think that was in 2006, from memory.

40 COL GABBEDY: I think it says "2005" in paragraph 10 of your statement.

45 LTCOL LANGLEY: 2005, somewhere around there, yes.

COL GABBEDY: Again, while you were at ARDU, you won the Derek Knight Award for Flight Test Excellence in 2001.

LTCOL LANGLEY: That's right.

5

COL GABBEDY: Is that effectively what it says?

LTCOL LANGLEY: Yes, and that was for NVG HUD integration into the Black Hawk helicopter, along with night-vision goggle integration into the F-18 Hornet, and first of class flight trials that we'd done.

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COL GABBEDY: I think at paragraph 15 of your statement it says that you are an Associate Fellow of the Society of Experimental Test Pilots.

LTCOL LANGLEY: That's correct.

15

COL GABBEDY: In paragraph 18 it says that you were awarded the CASA Above and Beyond Award in about – I'm not quite sure of the date. What was that award for?

20

LTCOL LANGLEY: So in 2019, in the same year that we were doing – sorry, 2020. End of 2019 is when it started, and then in 2020 is when it was conducted. Because I was very busy with all of this activity with Army Aviation, I delayed my civil employment full-time, and helped out CASA by doing an assessment for them on the Victoria Police helicopters that were modifying their fleet for their Staff Force Group. So they had fast roping, and a mission equipment package, and a sight, and a few other things put on it. And I conducted that as a Military Test Pilot, assisting CASA to provide civil certification so that the Victoria Police could have their aircraft certified, and then subsequently I joined CASA full-time.

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COL GABBEDY: Thank you for that. I think in your resume, between 2016 and 2019, you worked at AATES?

LTCOL LANGLEY: That's correct.

35

COL GABBEDY: Were you the predecessor to LTCOL Reinhardt?

LTCOL LANGLEY: Yes.

40

COL GABBEDY: There's been a lot of questions about the OPEVAL, which followed after the initial AATES reporting. Is there anything inappropriate in doing further testing by way of an OPEVAL, as opposed to sending it back to AATES for testing?

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LTCOL LANGLEY: No.

5 COL GABBEDY: Before the OPEVAL was performed, I understand you had the AATES “Unacceptable” finding, and there were a number of safety conditions built into the OPEVAL. Given that you had that finding, it was entirely appropriate to build safety conditions into the OPEVAL, wasn’t it?

10 LTCOL LANGLEY: That was the purpose of the Military Permit to Fly, plus the flight conditions, to specifically have AATES involved in that process to ensure that we had effectively covered everything that they were concerned about.

15 COL GABBEDY: Just a couple of other areas I want to cover. I think your evidence was that after the OPEVAL, it was a DASA decision as to whether or not further testing was required before Service release. Is that right?

20 LTCOL LANGLEY: I couldn’t be sure about that, but certainly they would be involved in the loop, yes.

25 COL GABBEDY: Just one final element. There’s been lots of to and fro about who should have spoken to who, as between AATES and Standards, about the OPEVAL and the testing. And it’s been put to you that Standards didn’t reach out to AATES in relation to the OPEVAL. Did AATES reach out to you before this letter that’s been described by LCDR Gracie as a repechage from LCDR Reinhardt? Did they seek further information from you before they did that letter?

30 LTCOL LANGLEY: Not to me specifically, but I would almost be certain that COL Norton had been speaking with them. So they were certainly aware and, if they’d needed to, I’m sure they would have asked me to set time aside to brief them. They could also have done their own – given where the testing was, they could have done – and the fact that they had a Military Permit to Fly and flight conditions, they could have done their own assessment with their own test pilots as well.

COL GABBEDY: Thank you. I have nothing further.

40 MS McMURDO: Any other applications to cross-examine? Any re-examination? Well, thank you very much, Lieutenant Colonel. You are free to go.

LTCOL LANGLEY: Thank you, ma’am.

MS McMURDO: I should say some people find giving evidence to Inquiries like this challenging, so if you – I'm sure you're aware of the support services that are available. So if you feel the need, don't hesitate to use them.

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LTCOL LANGLEY: I might say that Aviation Command have been extremely forward-leaning in that regard, so I'm sure that someone will either give me a call, regardless of whether I need to hear from them or not.

10 MS McMURDO: Well, as I say, don't feel afraid to – not afraid; that's not the right word – but don't feel hesitant to use the services, if needed.

LTCOL LANGLEY: Yes, ma'am.

15 MS McMURDO: Thank you.

LTCOL LANGLEY: Thank you, sir.

20 <WITNESS WITHDREW

MS McMURDO: Yes, COL Streit.

25 COL STREIT: Thank you, Ms McMurdo. If I could say something briefly about the evidence? My remarks of the hearing in October on the last day should be recalled, and that is evidence that we've heard this week is probative of issues for the Inquiry's consideration, and all evidence is a piece of the puzzle, or may be a piece of the puzzle, for the Inquiry's
30 consideration, relevant to the matters the Inquiry has to address in its Directions.

The Inquiry was informed on the last day of the October hearings of a plan to conduct a hearing in the second half of February next year. That plan
35 remains on foot. There may be adjustments in dates in relation to when we start and when we may finish. Communication of those dates will be made through the usual channels by Counsel Assisting as soon as possible, but from Counsel Assisting's perspective, the Inquiry will continue on as an inquisitorial process, and call further evidence in relation to the issues it's
40 required to examine.

MS McMURDO: Yes, thank you. So that's the end of the proceedings for today.

45 COL STREIT: Yes.

MS McMURDO: As I understand it then, we'll be conducting further hearings in the second half of February. All those who need to be notified, will be notified in the coming weeks.

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COL STREIT: Yes.

MS McMURDO: And the notice will be on our website as to when the next hearings are to commence.

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COL STREIT: Yes.

MS McMURDO: Otherwise, could I just again reiterate for anybody who is feeling troubled through events arising from this Inquiry that help is always available, and the help organisations are listed on the website here – I think they've come up now – and also on our website. We'll adjourn now until next year.

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**PUBLIC INQUIRY ADJOURNED UNTIL
DATES TO BE FIXED IN FEBRUARY 2025**