SHERIFFDOM OF GRAMPIAN HIGHLANDS AND ISLANDS

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DETERMINATION

BY

SHERIFF PRINCIPAL DEREK C W PYLE

UNDER THE INQUIRIES INTO FATAL ACCIDENTS AND SUDDEN DEATHS ETC (SCOTLAND) ACT 2016

into the deaths of

GEORGE THOMAS ALLISON, SARAH HELEN DARNLEY, GARY McCROSSAN AND DUNCAN MUNRO

Inverness, 19 October 2020

Introduction

[1] In recent years, there has been considerable public interest in helicopter accidents, particularly those which occurred during North Sea oil and gas operations. This is the second time I have presided over a major inquiry into a helicopter accident in which fatalities occurred, the first being in 2014. As will become clear, the cause of each accident is quite different. Nevertheless, there are common factors and the overriding public interest is in the identification of the lessons learned and, critically, whether those lessons have resulted in helicopter flights in the North Sea being safer than they were hitherto. A further common factor is the time which it has taken from the respective dates of the accidents to the dates when the inquiries took place.

[2] As is always the case for air accidents within the UK a full investigation is carried out by the Air Accidents Investigation Branch ("AAIB") of the Department for Transport, which usually produces an interim report shortly after the accident and follows that with a final report. That is what happened in this case. The final report is an impressive document. All parties before the inquiry in general terms accepted it as an accurate description of what took place, where errors occurred and what recommendations should be made. As will be seen, further evidence was led before the inquiry which resulted in some suggested changes to the text and the conclusions reached, although this did not materially affect the overall recommendations for the future. Accordingly, I do not intend to make detailed findings in fact. The report speaks for itself. It is full of technical detail and perforce is not an easy read. I therefore intend to describe in broader terms the lead up to the accident, the accident itself and its aftermath. Included in that will be some of the detail provided to the inquiry by the survivors who gave evidence. I will then discuss the evidence on the matters upon which differences of view from that of the report emerged and my conclusions on it, as well as some lessons which have been learned.

[3] At the first preliminary hearing I expressed my concern at the delay between the start of the inquiry process and the accident itself. The Crown has apologised for that. But it has also taken the opportunity which I gave it to explain why it took so long. I will discuss that in some detail, given that, in my opinion, it raises fundamental issues about how air accidents should be investigated and the barriers which the Crown and

Police Scotland face in carrying out their own investigation and over which they have no control.

[4] Evidence was provided for the inquiry on the overall safety of helicopter operations in the North Sea and elsewhere. I am therefore able to provide the public with that evidence and can conclude that much has improved over the last 20 years, such that while helicopter trips in the North Sea are by their nature more perilous than general flights by fixed wing aeroplanes they are a safe means of transport.

[5] Finally, I make the formal determinations required by the 2016 Act.

The Accident

[6] On 23 August 2013 the helicopter G-WNSB, an AS332 L2 Super Puma, was on a routine flight plan transporting oil and gas workers to drilling platforms in the North Sea. Its third flight on that day was from the Borgsten Dolphin semi-submersible drilling platform to Sumburgh Airport, Shetland, for a refuelling stop before flying back to Aberdeen. On board were 16 passengers and two crew. The commander was Captain Martin Miglans. He was a very experienced helicopter pilot with over 10,000 hours of flying experience and had been employed in the North Sea for 16 years. His co-pilot was Alan Bell. He had a total flying experience of over 3,000 flying hours, but had completed his training on the L2 helicopter only six months before. The pilots had flown together as a crew on several occasions, the most recent being two months before the accident. They were well within the limits for daily flying duty and flying time.

[7] The weather was not good. Shetland was situated in an area of strong east to south-easterly airflow with a trough line to the east and north east and a cold front lying across the western side of Scotland. At 11am the Met Office forecast for Sumburgh Airport was of strong south easterly surface winds, a broken cloud base of 1,000 ft with temporary deteriorations to 600 ft. Further forecasts during the day indicated that there could be periods of reduced visibility, down to 4,000 m, and a lower cloud base, down to 400 ft. By 5.20pm the wind at Sumburgh was of 140 degrees at 17 kts. Visibility was worse than forecast, namely 2,800 m in mist, with a scattered layer of stratus at 200 ft and a broken layer at 300 ft. The last forecast heard by the crew was at 4.50pm. It was close to the actual conditions 30 minutes later, namely surface wind from 150 degrees at 12 kts and visibility in mist of 2,800 m, few clouds at 200 ft and broken cloud at 300 ft. Similar weather conditions applied at the planned alternative airport for the flight, namely Scatsta on Shetland. Kirkwall was little better, the nearest airport with good visibility being Wick.

[8] As is required for all flights, Captain Miglans planned in advance his approach to Sumburgh. Because of the weather conditions, it was necessary to engage the auto pilot. In broad terms there were two choices: in 3-axes or 4-axes. The most important difference between the two is that in 4-axes the auto pilot controls the airspeed, while in 3-axes that control can remain with the pilot. As was his custom, Captain Miglans selected to proceed in 3-axes in a mode which allowed him to control the airspeed and he adopted a constant descent approach technique with reducing airspeed. He expected

to be able to see the runway at or before the minimum descent altitude of 300 ft and intended to fly the latter part of the approach at an airspeed of 80 kts.

[9] The approach was proceeding satisfactorily until the helicopter reached 1000 ft above the mean sea level, when its flight path deviated from the planned vertical profile. The speed reached the planned speed of 80 kts at 625 ft but continued to fall until it fell below the minimum operating limit of 70 kts and then down to less than 30 kts, which meant that the helicopter had entered a low energy state, which in turn compromised the auto pilot's control of the flight path. By the time the helicopter had reached the minimum descent altitude of 300 ft, it was too late for the commander to take remedial action. He attempted to increase the speed by applying the maximum collective pitch, but the helicopter had entered a vortex ring state which meant that it was bound to continue the descent until it crashed into the sea. The time was 5.17 pm.

[10] Immediately before the crash Mr Bell had the presence of mind to reach across the centre pedestal and arm the emergency flotation system. If he had not done so it is likely that more lives would have been lost. On impact, the helicopter immediately rolled over to the left and both the flight deck and the passenger cabin filled with water. Both pilots were injured: Mr Bell a head injury due to having been leaning forward at impact (presumably because he was arming the flotation system) and the commander a serious back injury. They were unable to jettison the flight deck doors using the emergency lever but managed to escape by using the normal door opening mechanism. All but two passengers managed with difficulty to escape through cabin windows. One

passenger managed to escape but died prior to or immediately after reaching the surface.

[11] Mr Bell climbed on to the upturned fuselage and with difficulty managed to release the first life raft. He and a passenger assisted the commander and some other survivors on to the fuselage and then into the life raft. Ten survivors managed to board the life raft, at which point Mr Bell, again with difficulty, released the second life raft and left the first life raft to guide the second life raft with a view to manoeuvring it to the other five survivors, but was unable to reach them due to the sea current. Despite prolonged and strenuous efforts by three passengers, including Mr Samuel Bull, to administer CPR, one passenger in the first life raft did not survive.

[12] Some 23 minutes after the crash, the first rescue helicopter arrived at the scene. All the survivors were winched from the water – five directly from the sea, nine from the life raft. Despite his severe injury, the commander insisted that he be the last survivor to be winched into a helicopter. They were all taken to a casualty reception centre at Sumburgh airport.

[13] Of the deceased, Sarah Darnley and Duncan Munro died by drowning having been unable to escape from the helicopter. George Allison died by drowning immediately prior to or on reaching the surface. Gary McCrossan died from cardiac enlargement and coronary artery disease, triggered by the physical and emotional stress of the crash. As will be seen, some of the survivors have since suffered major mental health difficulties which are directly related to the crash. The commander could not remember anything about the flight from between seven and five miles out from

Sumburgh until seconds before the crash. Mr Bell was considered by a medical expert to be unfit to give evidence. The expert's report was rightly considered to be confidential, but suffice it to say that the crash has had a devastating effect upon him. Neither the commander nor Mr Bell has flown a helicopter since. Samuel Bull, who had taken an active role in looking after the welfare of other survivors before they were all winched to safety, took his own life on 10 December 2017. The coroner reported that following the accident he suffered from post-traumatic stress disorder. At the time of the accident he was aged 24 years.

Survivors' testimony

[14] The inquiry had the benefit of first hand parole evidence of some of the passengers.

[15] Matthew Bower was a colleague of Samuel Bull. He was employed by Total as a chemist. Immediately before the helicopter crashed he was able to adopt the brace position, which he described as instinct, not training. He managed to take a deep breath before submersion. He was able to take the seal off the window which was to his left hand side and push it out. He swam to the surface and eventually ended up in the first life raft. He, Mr Bull and another passenger administered CPR on Mr McCrossan throughout the time spent in the life raft. He commented that the pilot insisted that he be the last person to be winched free. As for Mr Bell, Mr Bower said that "if I met the man who got the life rafts out, I'd shake his hand". He has since worked offshore again.

[16] Paul Sharp was an offshore scaffolder. He was also able to take a breath before submersion and escaped through a window. He was followed by another passenger, Neil Ritchie. Mr Sharp ended up in the group in the water until rescued. At first, only one side of his life jacket inflated but he was able manually to fill the other half, He complained that the beacon locator and light on the life jacket was not working. He suffered minor injuries to his head and hand but suffered a haematoma two days later. He has since suffered from PTSD and anxiety and still suffers from nightmares. 18 months after the accident he had a test flight in a helicopter, but after it decided that he would never get into one again.

[17] Mark Martin was employed as an offshore construction supervisor and had spent all his working life offshore. He may have exited from the cockpit, but ended up in the group in the water. He complained that his survival suit was full of water. He said that the two pilots threw a rope towards him but he was unable to catch it and drifted away. He was very cold, started to cramp up and was going into hypothermic shock. Seagulls were attacking him, trying to peck at his eyes and ears. Because of the water in the survival suit, the waves were going right over the top of him and he had great difficulty breathing. When being winched up, the winchman cut the suit to allow the water to escape. He is still seeing a mental health therapist, has flashbacks and problems sleeping and, as for the future, thinks that he is not employable – "I can't see that far forward".

[18] Neil Ritchie was employed as an offshore wireline operator. He had been working offshore for eight years. After the submersion he managed to reach an air

pocket and take a couple of breaths. He followed another passenger (presumably Mr Sharp) out of a window. He was in the water until rescued. As to the effects of the accident, he thought that none "of us is the same since". One of his first decisions was not to go offshore again, not least because he had an 18 month old son.

[19] Toby Croft is an electrician. On submersion he had no time to take a breath, but followed another passenger out of a window having elbowed it out himself. Again, he ended up in the water until his rescue. He suffered broken ribs and still has back problems which can result in him being bedridden for a few days at a time. Mentally, he felt that he was "doing alright", but has not worked offshore since – "I won't get into a chopper again".

Causes of the Accident – the AAIB Report

[20] The AAIB reached the following conclusion:

The causal factors were:

(a) The helicopter's flight instruments were not monitored effectively during the latter stages of the non-precision instrument approach. This allowed the helicopter to enter a critically low energy state from which recovery was not possible;

(b) Visual references had not been acquired by the minimum descent altitude and no effective action was taken to level the helicopter as required by the operator's procedure for an instrument approach.

[21] In his submissions before the inquiry, senior counsel for the Crown took a slightly different approach, but in doing so rightly acknowledged that the AAIB inspectors did not have the benefit of the expert evidence given during the inquiry. Nevertheless, he submitted that on the fundamental issues there was no dispute: the accident was caused by a failure to maintain the target approach speed of 80 kts and, to avoid that error, a failure by the crew effectively to monitor the instruments. This could be further depicted as inadequate flight performance and a failure to comply with the standard approach criteria in accordance with the operator's Standard Operating Procedure (SOP). But senior counsel also accepted the expert evidence (per Dr Jarvis and Captain Prior) that the post-accident human factors research – in particular the difficulty, perhaps impossibility, of pilots to be able continuously and effectively to monitor flight instruments – may provide an explanation for these failures. That was consistent with the AAIB view that the series of events which led to this accident could have happened to another helicopter crew.

[22] There was much discussion in the evidence about whether there should be added to the failure to maintain the speed of 80 kts a failure to comply with the requirement of the SOP to have a stabilised approach from 1000 ft, rather than the decelerating approach taken by the commander. That was the view of all of the experts who were helicopter pilots and who gave parole evidence. The only witness to take a contrary view, submitted senior counsel, was Ms Campbell, an inspector with the AAIB, who gave evidence on the operational issues raised in the AAIB report in the absence of the expert who had prepared it but who had subsequently retired. Senior Counsel for

CHC Scotia Limited, the operator, submitted that in fact Ms Campbell was careful to say that she was not giving an opinion on the relevant part of the SOP. Counsel for the commander submitted that on the evidence it was unclear at what altitude he intended to achieve the target approach speed of 80 kts. In my opinion, the position adopted by the Crown and CHC is to be preferred. The controversy arises because of a finding in the AAIB report (finding 8, p 142) that the CHC "stabilised approach criteria were met at 1,000 ft amsl". On the evidence of the expert pilots I am satisfied that this is an incorrect statement. I accept, as senior counsel for CHC expressed it, that it is important that the relevance of the stabilised approach is recognised and the factors included by the AAIB in error are left out of account to avoid the risk of wrong decisions being taken on remedial measures, but this should not be overstated. As the experts agreed, the relevance of a stabilised approach is to reduce the number of tasks the crew has to perform, but in terms of the cause or causes of the accident it does not detract from the fundamental point that it was a failure to monitor the target airspeed that resulted in the crash. As Captain Prior expressed it, the failure to achieve the stabilised approach criteria may simply be a function of the failure effectively to monitor the flight instruments.

[23] In parties' submissions and during the course of the evidence there was also much discussion, often encouraged by my own interventions, about the responsibilities and roles of each pilot during the course of the flight and, in particular, during the approach to the airport. Some experts considered that there was joint responsibility while others preferred to downplay the role of Mr Bell given that it was the commander

who was flying the helicopter and, like a captain of a ship, is ultimately responsible for the safety of the passengers and crew.

[24] In my opinion, nothing really turns on these points of difference about the factors which led to the accident taking place. That is not to say that the contribution of the expert witnesses was unimportant; on the contrary, they contributed greatly to an understanding of the circumstances which arose and where errors occurred. But I do not find it necessary to discuss their evidence in any detail. As senior counsel for the Crown submitted, at the end of the day we know that for whatever reason or reasons the commander failed to maintain the target approach speed of 80 kts. If he had done so, the helicopter would not have reached the critically low energy state from which recovery was impossible. That is where ultimate responsibility rests, but as several witnesses explained there are other safety barriers in place each of which of its own would prevent such a failure either occurring or, if it does occur, quickly and effectively remedying it. One of those barriers is the importance of the monitoring of instruments by the commander as the pilot flying; another is the monitoring role of the pilot non-flying, Mr Bell. We had the benefit of statements given by the crew to the police as well as a video recording of the police interview of the commander. We also had the benefit of the evidence from the helicopter black box recorder, in particular the transcript of the voice recorder, all of which gave us information about what the crew did and said during the critical period. But it is difficult, indeed impossible, in my opinion, to come to any definite conclusions in a comprehensive way about what happened and why. We do not know, for example, whether Mr Bell was performing other duties during the

critical phase when monitoring of the instruments might have allowed him to warn the commander about the drop in airspeed, such that his failure to notice the deceleration can be explained.

[25] There were two particular things that struck me about Captain Miglans. The first was his demeanour during the video of the police interview which took place within a matter of days after the accident when he was still in hospital recovering from his serious back injury. The second was his insistence, spoken to by another, that he be the last survivor winched from the life raft, despite being in considerable pain. His counsel readily accepted that there was a failure to maintain air speed and a failure to monitor the instruments. On one view, Captain Miglans had little choice but to accept that, standing the technical evidence. But my impression is that he went further and accepted that for good or ill he was ultimately responsible for the safety of his fellow pilot and passengers and short of there being a mechanical defect in the helicopter itself he must by definition be responsible for the crash. In my opinion, that is correct. But it is only part of the story. He was a pilot of huge experience with a first class record of flying over many years. There was plainly no wilful neglect. Rather, there was, as one witness described it, a perfect storm of circumstances which resulted in all the safety barriers in place not preventing – or remedying – his one failure, to maintain the correct speed. As the expert witnesses confirmed, helicopters, by their nature, are very complicated machines to fly and the experts readily accepted that they are more difficult to fly than fixed wing aircraft, both in the sense of the technical handling which is required and in the sense of the duties which they are required to perform.

[26] As for Mr Bell, on the evidence it can be accepted that he did not notice the critical reduction in air speed, but the reasons for that are unknown and cannot now be known. For all we know, he may have been performing other duties which prevented him doing so. And that is before we even take into account the emerging evidence from Dr Jarvis that the human brain has inherent difficulties in effectively monitoring aircraft instruments, particularly when automation, such as auto pilot, is engaged, albeit that in only very exceptional cases and circumstances might these difficulties have fatal consequences. In addition to that, we have of course his exemplary conduct both in the seconds immediately before the crash and his critical efforts to save the survivors, but for which others would almost certainly have died. One expert witness described Mr Bell as brave. I agree.

[27] There is one final point to make under this heading. In reviewing the papers prior to the last day of evidence, it struck me that one explanation of the commander's behaviour was that he mistakenly thought that they had reached the airport, rather than still being 1.7 miles from it. There was some support from that in the diagram which gave the information from the black box recorder. On one reading of the conversations between the crew, Mr Bell was giving inaccurate information on the distance from the airport the helicopter reached at various points and the verbal reaction of the commander on coming out of the cloud immediately before the crash could be interpreted as surprise because they were not over land. The final expert, Mr Newson, would not be drawn on it and, in any event, he agreed under cross-examination by senior counsel for CHC that the commander's expression of surprise could be because of

the yawing movement of the helicopter and that if he had maintained the speed of 80 kts he would not have decreased that until the helicopter was below the cloud level so that he had a visual check of their position. A number of experts, rightly in my opinion, criticised the crew for not using the prescribed technical terms during the final approach (although none suggested this as a cause of the accident), but the interpretation of what the pilots meant is not something upon which any definite conclusions can be reached without the evidence of the pilots themselves as to what was going through their minds at the time.

Contributory Factors – the AAIB Report

[28] The AAIB identified the following contributory factors:

(a) The operator's SOP for this type of approach was not clearly defined and the pilots had not developed a shared unambiguous understanding of how the approach was to be flown;

(b) The operator's SOP at the time did not optimise the use of the helicopter's automated systems during a non-precision approach;

(c) The decision to fly a 3-axes with V/S mode, decelerating approach in marginal weather conditions did not make optimum use of the helicopter's automated systems and required closer monitoring of the systems by the crew;

(d) Despite the poorer than forecast weather conditions at Sumburgh Airport, the commander had not altered his expectation of being able to land from a non-precision approach.

[29] Any discussion on CHC operating procedures is necessarily historic given that changes have been made following the accident. Although in the event that the failures in such procedures were material in identifying the causes of the accident, their significance would require detailed analysis. But in this case I am not satisfied on the evidence that the AAIB criticisms of the SOP are justified. Unsurprisingly, that was the position of CHC. But apart from one matter it was also the position of the Crown. The criticism arose, first, from a misunderstanding of the requirement of a stabilised approach which all the other experts agreed was so and, secondly, from a statement by Mr Bell that deviations below the vertical profile were allowed despite the evidence of the experts, including Ms Campbell, that pilots should observe the published approach flight profile. The Crown submitted that, albeit with the benefit of hindsight, the SOP did lack clarity in that it did not require the use of 4-axes. In my opinion, that criticism is unfair. In fact, the expert evidence was that at the time of the accident there might well be good reasons why a pilot would fly in 3-axes. That was the evidence of Ms Campbell, as well as of the other experts. In any event, the term "clarity" suggests that pilots might become confused. But in fact on the evidence it is clear that at critical points during the approach the commander was perfectly clear that 3-axes meant that he had sole control of the collective, being the mechanism by which he would control airspeed. The evidence of the cockpit recorder is also consistent with the view that Mr Bell well understood the mode which the commander had chosen for the approach. The fundamental point was that the SOP gave pilots a discretion as to how they would use the auto pilot during the approach. None of the experts said that this was wrong at

the time of the accident. The fact that CHC removed the discretion after the accident is no more than an example of standard operating procedures being contained in a living breathing document which necessarily changes over time in the light of experience, although thankfully rarely because of a fatal accident. Nor do I accept that the weather forecasts and the commander's understanding of them were material. No expert suggested that it was unsafe to fly in the weather which prevailed. Instead, pilots are trained to fly in such conditions until they reach the missed approach point, a technical term for the point when the crew, usually the pilot non flying, decide whether to land or execute a go round. Given that the crew never reached that point, it is self-evident that weather was not a contributory factor.

Lessons Learned

[30] I do not intend to discuss every recommendation made by the AAIB in its report. Some have already been accepted, whether by the Civil Aviation Authority or the European Aviation Safety Agency. Some have not. Many of them are very technical in nature. Neither the Crown nor any other party invited me to make any formal recommendations in terms of sections 26(1)(b) and 26(4) of the 2016 Act "which might realistically prevent other deaths in similar circumstances". Nevertheless, it should assist general understanding if I, albeit briefly, set out some of the general changes which have taken place since the accident.

Flight Data Monitoring

[31] A Flight Data Monitoring (FDM) programme involves an operator analysing flight data both for safety purposes and to check compliance with an operator's SOPs. At the time of the accident FDM programmes were not a regulatory requirement but some operators, including CHC, had nonetheless implemented them. FDM programmes for helicopters are not straightforward due to the sheer complexity and flexibility of helicopters which make them that much harder to monitor than fixed wing aircraft. And, as Captain Prior pointed out, the current FDM systems do not provide the desired operational insight. Nevertheless, it is clear that this is a developing issue, with the Civil Aviation Authority recording four years ago:

> "The CAA will seek to improve the intelligence generated by FDM by working with the industry to improve their programmes. This will be realised in the form of guidance on best practice to support the EASA SPA.HOFO mandate for FDM."[1]

Flight Crew Operating Manuals

[32] To the layman, it might appear obvious that beyond issuing a Flight Manual manufacturers should also produce a manual on their aircraft which will inform the operators when they are preparing their SOPs for commercial operations. As the AAIB record (p 120, Final Report), manufacturers of fixed wing aircraft require to provide comprehensive operational guidance in the form of a Flight Crew Operating Manual (FCOM). The position is not the same for helicopters. The AAIB therefore

[1] CAP 1386 Safety Review Progress Report 2016, pdf page 29 (Production No 220)

recommended that EASA change the rules for the provision of operational information in flight manuals to align them to the rules which apply for large aeroplanes and, specifically, manufacturers of large rotorcraft develop FCOMs for public transport types already in service. These recommendations were not accepted by the EASA, although it noted that some manufacturers, including Airbus, the manufacturers of the helicopter in this inquiry, have voluntarily created FCOMs for some of their helicopters and specifically a Flight Operations Briefing Note (FOBN) for the AS332 L2. And of course we know that CHC amended its SOP to require 4-axes mode, which was the trigger for the AAIB to make the recommendations. But I agree with senior counsel for the Crown that the industry and the regulatory authorities should take note of Captain Prior's evidence that:

> "by working together, the manufacturer and the operators, you can create that bridge so that the operators understand how the auto pilot was designed to be used and the quirks and the pros and cons of various modes of flight, and at the same time the manufacturer can understand how the operators intend to the use the aircraft, provide guidance, and as well make sure that the product is optimised for use… The FCOM is perhaps a good way to improve the SOPs."

Helicopter Terrain Awareness Warning System

[33] The historic development of Terrain Awareness Warning Systems for fixed wing aircraft is set out in detail in the AAIB final report (p 64 et seq). I do not repeat it here. Suffice to say that the form in which such technology existed at the time of the accident would not have prevented it. A new warning system, known as Mode 7, has since been developed. Some types of helicopter are now required to have HTAWS fitted on manufacture and EASA and indeed authorities worldwide are considering the extension

of the technology to helicopters already in service. Captain Prior was able to confirm that was so, given his involvement in an aviation working group of which he and Airbus are members. He said that not only was it agreed that the Mode 7 should be improved but also that there should be developed a vortex ring warning system, Mode 7B, which is of particular interest given what happened in this case.

Instrument Scanning

[34] I have already commented on Captain Miglan's demeanour during the police interview. Allowing for him presumably still being in a state of shock after the accident, I also gained the impression that he was utterly bemused about how the crash could have happened. That bemusement chimes with the evidence of Dr Jarvis and Professor Dalton. The critical passage of Dr Jarvis's evidence, which best summarises his views and their significance for both this accident and aviation generally, is, as senior counsel for the Crown noted, contained in his answer to a question about Captain Prior's view that Dr Jarvis's research could provide an explanation for why the instrument displays were not monitored effectively by the crew:

> "Yes. I think from a general perspective, I would certainly agree with that. I think at that time Captain Prior didn't have access to the full report, but certainly the general report that he did have access to I think led to his conclusion. I would tend to agree from a general sense. In terms of a specific sense, that is much more complicated, but from a general sense in terms of the fact that we see that monitoring is not as we imagine it to be, and for all sorts of reasons, things drop out of the scan and so on and so forth, then, yes, I would agree. And when it comes to the issue of training, whereas of course I technically agree with that, I don't think one should infer from what Captain Prior says that the current training was in some way poor or insufficient. Because I think what he would say and I would agree with is that the training actually -- we are not in a position

> at that time particularly, and at this time as well, to provide training that could have stopped this and every other circumstance of this kind of monitoring occurring. Particularly given that we are not just talking here about the loss of airspeed, we could be talking about the loss of any parameter; we could be talking up an upset situation, a descent below a minimum altitude. We could be talking about lots of things. So we are not just talking about, 'look more at the airspeed, please', we are talking about monitoring better in general, and what the research has brought up is that that is a big problem -- not a big problem, it is just that it is something that we don't yet -- we haven't yet got a full grip on about what is actually going on and how the human brain is fusing with automation in these machines. We don't have a good handle on that at this time and that will happen hopefully as research becomes more common on this, and the situation becomes better understood."

This is important evidence – not just in giving one possible explanation for the failure of the crew to monitor the airspeed but also in guiding future developments in the manufacture of automatic systems and flight instruments in helicopters and pilot training for them. However, I agree with senior counsel for the Crown and CHC that it is simply not possible at this early stage of the research to recommend any precautions which could reasonably have been taken at the time of the accident or indeed what precise modifications are required to helicopter manufacturing or pilot training. Dr Jarvis was careful to point out the risk of unintended consequences in trying to change the way in which training of instrument scanning is carried out before current research is concluded.

Safety Equipment and Training

[35] The AAIB readily concluded that there were no major defects in the safety equipment which was provided to the passengers or in the training provided for passenger escape routines from helicopters. It was plain that much of the pre-flight

guidance and instruction given to passengers is focussed on the situation of a controlled ditching in the sea where the passengers will have time to prepare for it. There was some discussion during the evidence of the survivors about their view of the effectiveness of the submersible training, with particular contrast to such training for workers in the Norwegian sector, which some survivors considered was more realistic. But it became clear that a balance has to be struck between realism and the safety of those being trained, such that in truth it would be impractical, perhaps impossible, to provide realistic training which would ensure that passengers had sufficient experience to make a significant difference.

[36] During its investigation, the AAIB identified that the passengers were unaware that the hybrid rebreather emergency breathing system could be used even if they had not managed to inflate it manually with an expelled breath prior to submersion. As a result, UK operators in the North Sea have amended the pre-flight safety briefing video for passengers to include information on the automatic air supply feature. Moreover, it is now compulsory for operators in the UK to provide compressed air breathing systems for commercial offshore helicopters, which do not require an initial breath and can be deployed even if the user is already submerged. But the overall impression is that much of this is relevant to controlled ditching but less so in the circumstances of this accident where there was such little warning of what was about to happen.

[37] As I record earlier, Mr Bell reacted quickly to arm the flotation devices, but it is now a requirement for larger helicopters coming into operation that flotation devices are

deployed automatically on contact with water without any action being required by the crew.

[38] There was no evidence that floor lighting in the helicopter would have made a difference in the circumstances of the accident.

Delay

[39] The accident occurred on 23 August 2013. The Crown did not lodge the formal notice for the fatal accident inquiry until 21 November 2019. The inquiry itself commenced on 31 August 2020 – over seven years after the accident. At the first preliminary hearing I was publicly critical of the delay, but invited the Crown to explain what lessons they had learned. Their response is contained in an appendix to this determination. It does in my opinion shed considerable light on the reasons for the delay and of more general public interest offers the court the opportunity to explain why delays in air accident inquiries seem to be endemic and, critically, why much of the delay is, despite its best efforts, beyond the control of the Crown. This raises an important point of principle (perhaps several points) which in my view is in the public interest to air and to comment upon.

[40] This is not the first time I have had to deal with delay in a fatal accident inquiry. In my determination in the other Super Puma accident in 2014 I said this (para [52]):

> "[The solicitor advocate for the families of the deceased] criticised the time which it has taken since the accident both in the publication of the AAIB report and the start of this inquiry. I consider he was well justified in doing so. It is instructive to note that the Lockerbie fatal accident inquiry occurred in less than three years from the date of the crash - in contrast to this inquiry which was nearly five

> years. The Crown produced with its submissions a timeline showing what steps were taken. The period of the AAIB investigation was not explored in any detail in the evidence. I, myself, am aware of the difficulties which occurred in finding suitable dates and venue. I could easily explain all the steps taken by me and the Scottish Court Service. But I do not think that a detailed investigation of every action taken by every public body, whether investigatory, supervisory or judicial, over every month would add much. What can, I think, very properly be said is that nearly five years is on any view far too long and that we all have a responsibility for that. And that everyone concerned in future fatal accidents involving aircraft of whatever kind should do much better."

[41] I do not repeat here the very full explanation given by the Crown of the regulatory framework for the investigation of air accidents and all the steps they took. These are set out in the appendix. But I do wish to comment upon it and express some conclusions.

[42] Perhaps the most crucial point to make is that for air accidents the Crown has two duties. The first is to investigate the circumstances of the accident under the 2016 Act; the second is to investigate whether a crime may have been committed. These are two quite separate functions and particularly for the latter requires, as one would expect, the ingathering of evidence being done in a manner which conforms to the rules of criminal evidence and procedure, as well as being subject, rightly, to the protection of the rights of a suspect. In practice, that of necessity means, for example, that the taking of witness statements and the labelling of potential productions must be done in a manner which conforms to the rule of corroboration which applies in Scots criminal law. Thus, an interview of a potential suspect must be carried out by two police officers, not one – and for suspects is governed by rules on video and sound recording and so on. Moreover, there is no obligation on a suspect to co-operate. The law requires that a

suspect is given a caution that he or she is not required to answer the questions posed by the officers. These are just some examples of the very different nature of a criminal investigation from one under the 2016 Act – or indeed by the AAIB under its own statutory framework. It is almost inevitable that a criminal investigation will take much longer.

[43] But the principal difficulty for the Crown when performing its criminal investigation of air accidents is that the AAIB takes control of the investigation of the circumstances of the crash. This will include, for example, the transporting of the recovered items of wreckage to the AAIB facilities at Farnborough. Doubtless, much written material, such as the pilot flying records and the maintenance records of the helicopter, will also quickly end up in the possession of the AAIB. It is noteworthy that police officers interviewed Captain Miglans within days of the accident, but it is inevitable that the officers could not begin to ask him meaningful questions which would be informed by the other evidence. The importance of this is that the regulatory framework provides that sensitive information, such as witness statements and inspectors' opinions, obtained by the AAIB are not to be disclosed to any person for purposes other than accident or incident investigation, albeit that they can – and do – share factual evidence.

[44] The difficulties which this can cause are well illustrated in this case. The Crown understandably wanted access to the cockpit voice recorder. The AAIB were prohibited by law from releasing it without a court order. The Lord Advocate was therefore required to petition the Court of Session to ordain the Secretary of State for Transport to

make the recorder available to the Crown and Police Scotland. The application was opposed by the British Airline Pilots Association and both members of the helicopter crew. In a comprehensive judgment Lord Jones, who incidentally before being called to the Bar had a distinguished career as a fighter pilot in the Royal Air Force, granted the order sought subject to certain conditions. But an appeal was marked to the Inner House of the Court of Session by the Association, albeit eventually being abandoned. This court process alone caused 18 months of delay.

[45] It can therefore be seen that in practice the Crown and the police could not properly conduct the criminal investigation until the AAIB had completed its own, which was not until March 2016 – well over two years from the date of the accident.

[46] But the obstacles before the Crown do not end there. The AAIB report cannot be used for the purposes of any criminal proceedings and AAIB personnel can be called to give evidence in such proceedings only in the most exceptional circumstances. Thus, to a large extent the Crown and the police have to start from scratch long after the accident has occurred and without the opportunity to take the informed advice of the crash investigators. (I acknowledge that the Crown has said that a great deal of work was carried out by the police from the date of the accident, but there is little doubt that it was greatly hampered by the parallel investigation by the AAIB.)

[47] It is an obvious point to make that the investigation of a helicopter crash is much more complex than the investigation of a road traffic accident. The relevant criminal offence under investigation was whether the pilots had recklessly or negligently acted in

a manner likely to endanger an aircraft or any person in an aircraft.[2] The legal test is that a pilot, like any other professional person, will not be held to have been negligent in the exercise of his judgment unless he has followed a course which no ordinarily competent member of his profession would have adopted if acting with ordinary care[3]. As in civil proceedings, for the Crown to be able to mount a prosecution against either of the pilots it required to find experts, almost certainly helicopter pilots, who would agree with that high test. As explained in the appendix, despite considerable efforts, including with some assistance from the Civil Aviation Authority, the Crown was unable to identify an expert, Captain Prior, until late 2017. By February 2018, the CAA had provided the Crown with the information it required to instruct him. His final report was issued in October 2018.

[48] It can therefore be seen that not until October 2018 (over five years after the accident) through no fault of its own or the police the Crown reached a position to decide whether or not criminal proceedings should be brought. Within a matter of weeks, Crown Counsel instructed that there should be no criminal proceedings against the crew, which given the evidence before the inquiry is unsurprising. There was a further delay from January to June 2019 when one of the families of the deceased, as was

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[2] Art 137, Air Navigation Order 2009

[3] Hunter v Hanley 1955 SC 200 It is the same position under English Law - Archbold Criminal Pleading - Evidence & Practice (2020 edition) at para 17.40

their right, requested that this decision be reviewed. But from then, when the decision was announced to hold a fatal accident inquiry, matters proceeded at pace.

[49] In the light of this explanation, I am satisfied that while the Crown apology was welcome there was no period over the last seven years during which the Crown failed to perform its duties diligently and expeditiously. On the contrary, the delay which did occur was beyond the Crown's control.

[50] In his judgment[4], Lord Jones explained the legal foundation, based on international and UK law, for the principle that air accident investigations should be conducted with the sole objective of the prevention of accidents, not to apportion blame or liability. As he noted, however, (para [11]) only the system for voluntary incident reporting, as opposed to the investigation of accidents and serious incidents and mandatory incident reporting, is recommended to be the subject of a non-punitive system. The test for the court is whether the interests of justice outweigh any adverse domestic and international impact which disclosure may have on the investigation into the accident or incident to which the record relates or any future accident or incident investigation undertaken in the UK (para [15]). While the AAIB did not oppose the petition, the Advocate General's Office submitted a letter setting out the concerns of the Secretary of State for Transport about disclosure of the cockpit recorder, including the startling proposition that it is likely "that, were recordings to be made public, pilots would develop a habit of erasing the CVR record after incidents, to ensure that their

[4] [2015] CSOH80

words and comments do not become publicly known and so are not used by third parties seeking to apportion blame or liability" (para [26]). Lord Jones was able to accept on the basis of other information before him that it was in fact unlikely that pilots would behave in this manner, not least because of the risk of criminal sanctions, but the comment does illustrate the potential tension between investigations of accidents by regulatory authorities, including the Secretary of State, and criminal investigations by the Crown.

[51] In the longer term, I note that consideration is being given to establishing a protocol between the CAA and the Crown for the investigation of air accidents. I would encourage that initiative. It would also be timely that the Memorandum of Understanding between the Association of Chief Police Officers (Scotland) which no longer exists and the AAIB and others is updated to reflect the foundation of Police Scotland and, if appropriate, lessons learned from this and other accidents.

Helicopter Safety in the North Sea

[52] In 2014 the Civil Aviation Authority carried out a review of offshore public transport helicopter operations in the North Sea. That review was updated in 2015 and 2016 and again in December last year. For those interested in them, the reports can be studied in detail. Captain Newson, the CAA's Flight Operations Manager for helicopters, gave evidence on the last day of the inquiry. It was plain from his evidence that there has been a considerable improvement in the safety standards of helicopter offshore operations in recent years. By way of examples he noted that:

1. Between 1976 and 2012 there were 12 fatal accidents resulting in 115 fatalities.

2. There have been no fatalities over the last five years.

3. If one travelled in an offshore helicopter every day the probability is that you would survive for 1,277 years. That is less than fixed wing aircraft, but that is due to the nature of helicopter operations and is in any event a useful way to illustrate the general safety standards and the risk.

[53] Every death is a tragedy, but the reports on any view do illustrate that the aviation industry has taken major steps to ensure that helicopters are a safe means of transport. In one sense, this tragic accident illustrates that point given that the various experts were in agreement that the circumstances which led to the crash were so unusual – "a kind of perfect storm" or "millions to one against", as Dr Jarvis put it.

Formal Determination

[54] In accordance with the provisions of Section 26 of the Inquiries into Fatal Accidents and Sudden Deaths etc. (Scotland) Act 2016, I make the following determination:

When and where each of the deaths occurred

George Thomas Allison, born on 28 July 1956, who resided in Winchester, died at or about 1717 hours UTC/1817 hours BST on 23 August 2013 at a location in the North Sea approximately 1.7 nautical miles west of Sumburgh Airport in Shetland.

Sarah Helen Darnley, born on 3 March 1968, who resided in Aberdeen, died at or about 1717 hours UTC/1817 hours BST on 23 August 2013 at a location in the North Sea approximately 1.7 nautical miles west of Sumburgh Airport in Shetland.

Gary McCrossan, born on 21 November 1953, who resided in Inverness, died at or about 1717 hours UTC/1817 hours BST on 23 August 2013 a short time after the crash in a life raft at a location in the North Sea approximately 1.7 nautical miles west of Sumburgh Airport in Shetland.

Duncan Munro, born on 22 September 1966, who resided in Bishop Auckland, died at or about 1717 hours UTC/1817 hours BST on 23 August 2013 at a location in the North Sea approximately 1.7 nautical miles west of Sumburgh Airport in Shetland.

When and where the aircraft crash occurred

The accident resulting in the deaths of George Thomas Allison, Sarah Helen Darnley, Gary McCrossan and Duncan Munro occurred at or about 1717 hours UTC/1817 hours BST on 23 August 2013 when the AS332 L2 Super Puma helicopter with registration G-WNSB operated by CHC Scotia Limited crashed into the North Sea approximately 1.7 nautical miles west of Sumburgh Airport in Shetland.

The cause or causes of each of the deaths

The cause of the death of George Thomas Allison was drowning due to being a passenger in the helicopter when it ditched in the North Sea.

The cause of the death of Sarah Helen Darnley was drowning due to being a passenger in the helicopter when it ditched in the North Sea.

The cause of death of Gary McCrossan was cardiac enlargement and coronary artery disease, triggered by the stress, both emotional and physical, caused by the crash of the helicopter when it ditched in the North Sea.

The cause of the death of Duncan Munro was drowning due to being a passenger in the helicopter when it ditched in the North Sea.

The flight crew of the helicopter failed to maintain the target approach airspeed and the stabilised approach criteria contained in the operator's operations manual during the latter stages of the non-precision approach to Sumburgh Airport. This was due to the flight crew not effectively monitoring the helicopter's flight instruments, thereby allowing the helicopter to enter a critically low energy state resulting in the loss of control of the aircraft.

Any precautions which could reasonably have been taken and, had they been taken, might realistically have resulted in the deaths, or the accident resulting in the deaths, being avoided.

None

Any defects in any system of working which contributed to the death or any accident resulting in the deaths.

None

Any other facts which are relevant to the circumstances of the deaths.

None

Any recommendations in relation to specific matters which might realistically prevent other deaths in similar circumstances.

None

Conclusion

[55] This was a dreadful accident with long term repercussions for the survivors and the families of the deceased which no determination by this court can properly describe. I do hope that it has at least assisted in an understanding of what occurred, the reasons for it and what has been done to ensure so far as practicable that such an accident does

not occur again. My condolences go, in particular, to the families of the deceased, including – lest it be forgotten – the family of Mr Bull.

Inverness, 19 October 2020

Appendix

SUBMISSIONS

by Crown Office and Procurator Fiscal Service

in the

Fatal Accident Inquiry

into the deaths of

GEORGE THOMAS ALLISON

SARAH HELEN DARNLEY

GARY MCCROSSAN

DUNCAN MUNRO

Introduction

In his note dated 3 September 2020 (the "Note"), the Sheriff Principal stated:

"It seems to me that the public would be interested to know more about how the respective investigations by the AAIB and the Crown proceed, the framework under which each has to operate and the constraints placed on each, both as a matter of law and practice."

In the Note, the Sheriff Principal also made a number of particular requests. At the hearing in chambers at which the Note was discussed with the participants, the Sheriff Principal indicated that he considered that his requests would be best addressed by the Air Accidents Investigation Branch (the "AAIB"), the Crown and the Civil Aviation Authority (the "CAA") respectively.

These submissions have been prepared to address those parts of the Sheriff Principal's requests which may most effectively be answered by the Crown Office and Procurator Fiscal Service ("COPFS"). In particular, these submissions address the following requests made by the Sheriff:

- The constraints on the investigation by the Crown which arise from the AAIB's investigation; and

- The difficulties experienced by the police and prosecutors in the manner in which aircraft accidents are investigated.

These submissions also seek to illustrate these points by reference to the difficulties experienced in the investigations in the present case and to identify the lessons that may be learned from this case.

Accordingly, the remainder of these submissions is structured under the following headings:

- First, the role of the Crown in the investigation of deaths in civil aviation accidents in Scotland;
- Second, the Framework for the Investigation of Helicopter Accidents by the AAIB and the constraints which arise from that framework on the investigation by the Crown;
- Third, the role of the CAA;
- Fourth, the key stages in COPFS' investigation of the four fatalities which occurred at Sumburgh; and
- Finally, the lessons that may be learned from the present investigation.

At the outset, COPFS wishes to apologise for the fact that its investigation and these proceedings were not concluded sooner.

COPFS accepts that 7 years is a very long time for all those involved to wait for a Fatal Accident Inquiry to be held. This is particularly true of those who survived and the families of those who died.

That time was used to ensure that the correct decision was taken as to whether any criminal proceedings should be brought and that the evidence provided to this Inquiry can properly inform any recommendations arising out of it which could affect the future safety of others working in the offshore oil and gas industry.

Role of the Lord Advocate and Procurator Fiscal in the investigation of deaths in civil aviation accidents in Scotland

The Lord Advocate is responsible for the Procurator Fiscal's investigations into potential criminality and prosecutions. He also has sole responsibility for directing the investigation of deaths in Scotland. In respect of every fatality reported to the Procurator Fiscal, the Lord Advocate directs that the Fiscal must: (i) investigate the full circumstances of the death; and (ii) consider if criminal proceedings are appropriate. Such investigations are in the public interest.

As the four people who lost their lives in the G-WNSB helicopter crash at Sumburgh died in the course of their employment, their deaths required to be the subject of a mandatory fatal accident inquiry ("FAI") unless criminal proceedings were concluded against any person in respect of the deaths, and the Lord Advocate was satisfied that the circumstances of the deaths had been sufficiently established in the course of such proceedings.[5]

In practical terms, the Procurator Fiscal instructs the Police to carry out investigations under his direction.

[5] Section 1(2) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976 now section 2(1) and (3) of the Inquiry into Fatal Accidents and Sudden Deaths etc (Scotland) Act 2016.

In view of the serious consequences of the crash, including the four fatalities, a thorough and effective investigation by the Procurator Fiscal and Police Scotland was essential in the public interest.

The State's obligation to investigate deaths under Article 2 of the European Convention on Human Rights ("ECHR") is well established. The investigation requires to be independent, effective, reasonably prompt and involve a sufficient element of public scrutiny. To ensure that a thorough and effective investigation of any death is carried out, all relevant material must be available to those conducting the investigation.

The purpose of the investigation by Police Scotland was to ascertain for the purposes of the Crown what had caused the tragedy and, further, to identify any potential criminality in relation to any individuals or corporate entities.

Framework for the Investigation of Helicopter Accidents by the AAIB

The AAIB is part of the UK government's Department for Transport and is responsible for the investigation of civil aircraft accidents and serious incidents within the UK. In 2013, at the time of the Sumburgh accident, the AAIB operated under the Civil Aviation (Investigation of the Air Accidents and Incidents) Regulations 1996 ("1996 Regulations"). The 1996 Regulations give effect to Annex 13 of the Chicago Convention and implement Council Directive 94/56/EC.

Currently, the AAIB conducts safety investigations in accordance with the Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2018 (S.I 2018/321) ("2018 Regulations") and Regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20th October 2010 on the investigation and prevention of accidents and incidents in civil aviation.

The AAIB has a series of powers to enable it to carry out investigations. These rights include a right of access to the accident site and to key pieces of evidence such as cockpit voice recorders and flight data recorders.

Regulation 4 of the 1996 Regulations stated that: "The sole objective of the investigation of an accident or incident under these Regulations shall be the prevention of accidents and incidents. It shall not be the purpose of such an investigation to apportion blame or liability". This wording is broadly mirrored in Regulation 8 of the 2018 Regulations.

It is clear from the regulatory framework that the AAIB's investigation may run in parallel with the investigation to be conducted by the Crown. This is recognised in the Memorandum of Understanding ("MOU") between the AAIB, the Marine Accident Investigation Branch, COPFS, and the Association of Chief Police Officers (Scotland) for the Investigation of Air and Marine Accidents and Incidents in Scotland dated 11

January 2008.[6] While the Association of Chief Police Officers (Scotland) is no longer extant, the MOU is followed in practice by Police Scotland.

However, the regulatory framework also provides that evidence obtained by the AAIB is not, subject to certain qualifications, to be disclosed to any person for purposes other than accident or incident investigation. This was true at the time of the investigation into the Sumburgh accident and remains true under the current regulatory framework (Regulation 18(1) of the 1996 Regulations and Article 14 of Regulation 996/2010).

While it is recognised that the AAIB seek to cooperate so far as possible with COPFS, the AAIB is prevented by the regulations under which it operates from sharing certain information by way of statements, technical findings, human factors reports, and discussions with operators etc. This contrasts with the provision to the AAIB of all relevant information which becomes available to Police Scotland which it is believed can be utilised by the AAIB.

As discussed in further detail below, an illustration of how the regulatory framework operates in practice arose in the present case in the context of the petition which was presented by the Lord Advocate seeking an order in terms of regulation 18 of the 1996

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/359580/MOU-InvestigationsInScotland.pdf

Regulations (see [2015] CSOH 80). By means of that petition, the Lord Advocate sought to obtain access to the cockpit voice flight data recorder in order to progress his investigations into the four deaths at Sumburgh. That petition was not opposed by the AAIB but, nonetheless, the process took about 18 months to conclude.

Accordingly, in terms of COPFS fulfilling its duties to investigate deaths, the net effect of the current regulatory framework is to require COPFS to carry out an entirely separate but parallel investigation to that being undertaken by the AAIB.

Also, although there is some scope for the investigations proceeding at the same time, practically, the AAIB's safety investigation requires first to establish the technical cause of an accident before COPFS can then assess the significance of those findings. As such, the AAIB's safety investigation report provides a focus for the ongoing Police investigation. It will only be after the AAIB's report has been issued that the Police will become aware of the full extent of material discussions with, for example, operators and manufacturers, and factual reports, such as testing results of equipment and fuel samples.

In certain cases, experience also indicates that early efforts by the Police to progress their investigations can meet with a lack of cooperation from organisations on account of there being an ongoing safety investigation and so the parallel investigation by the Police can be significantly constrained.

Furthermore, the safety investigation report that is produced by the AAIB cannot be used for the purpose of criminal proceedings and AAIB witnesses can only be called to give evidence in such proceedings in the most exceptional of circumstances.

An additional consideration for the Police is that they must ensure that the results of their investigation are properly evidenced and authenticated so that they may be used in a criminal prosecution, if that form of proceedings is appropriate. It is, of course, possible that any death occurring as a result of an accident while the person is in the course of their employment could be the subject of both a criminal prosecution and FAI proceedings.

Role of the CAA

The CAA is now constituted under section 3 of the Civil Aviation Act 1982. It is the UK's aviation regulator and its functions are set out in section 3 of the 1982 Act, the Airports Act 1986, the Transport Act 2000, and the Civil Aviation Act 2012, as well as in secondary legislation made under those Acts, principally the Air Navigation Order 2016 ("ANO").

In England and Wales, the CAA takes enforcement action for breaches of the ANO. The CAA may do so in Scotland by reporting the breach to the Procurator Fiscal.

As regulator in terms of the 1982 Act, the CAA assists COPFS in the investigation of incidents involving civil aviation such as the fatalities at Sumburgh. This assistance includes, for example, assessing the material uncovered by the investigation and the provision of expert advice. COPFS considers the views of the CAA to be essential in terms of identifying key priorities, in particular having regard to potential breaches under the ANO and the identification of further evidential lines to be followed/information to be ingathered, all of which would require to be thoroughly explored with the assistance of the CAA in order to make a fully informed assessment in relation to criminality.

An example of this vital assistance can be seen in the investigation into the crash of G-REDL on 1 April 2009 off Crimond Head. In that investigation, the CAA assessed the base material ingathered by the Police, from its perspective.

It is notable that, during the course of the present investigation, the assistance provided by the CAA was neither the subject of any formal arrangement nor any protocol for joint investigations by the Police and the CAA.

Key milestones in the investigation

<u>23 August 2013</u>

Immediately following the crash on 23 August 2013, the AAIB commenced its safety investigation.

At the same time, a parallel but separate investigation was launched, under the direction of COPFS (Health and Safety Division), by the Police Service of Scotland in conjunction with the CAA.

While a great deal of work was carried out by the Police from the date of the accident, for the reasons set out above, limited information in relation to the AAIB's safety investigation was available to the Police and COPFS.

A CAA investigator was appointed on 29 August 2013.

AAIB Special Bulletin 7-2013

By October 2013, with the publication of AAIB Special Bulletin 7-2013, the AAIB reported its conclusion that there was no technical fault with the helicopter and that the focus of its investigation was on the handling of the flight by its crew.

In the apparent absence of technical fault, COPFS required to consider the performance of the flight crew and to consider whether criminal proceedings were appropriate.

COPFS also required to ensure that, if prosecution was merited, the necessary evidence was secured.

Following consultation with the CAA's Safety and Regulation Group ("SARG"), COPFS concluded that it required access to the data held on the helicopter's cockpit voice flight data recorder ("CVFDR") which was in the possession of the AAIB. It was understood that any analysis of the CVFDR data contained in the AAIB report could not be used in criminal proceedings.

April 2014 to October 2015: Proceedings in respect of the CVFDR

In April 2014, COPFS wrote formally to the Chief Inspector of Air Accidents and Incidents to request that a copy of the CVFDR data be made available for the Crown's investigation. On 28 April 2014 that request was refused.

Following this refusal, in June 2014, the Lord Advocate petitioned the Court of Session to seek an order under Regulation 18 of the 1996 Regulations. The petition was formally opposed by the British Airlines Pilots' Association ("BALPA") and both pilots. The AAIB did not formally oppose the Petition but set out their position in a letter to the Court.

After a protracted process, the case came before Lord Jones for a hearing on 19 May 2015.

On 19 June 2015, Lord Jones granted an order in favour of the Lord Advocate, requiring the disclosure of the CVFDR. In terms of Lord Jones' order, any analysis of the recordings on the CVFDR was to be carried out by personnel within SARG who have the expertise and experience necessary for the performance of these tasks.

A reclaiming motion was marked in respect of Lord Jones' decision by BALPA. However, this was dropped at the end of October 2015.

March 2016

The publication of the AAIB report on 15 March 2016 was clearly a milestone in the investigation.

On 8 April 2016, following publication of the AAIB report, COPFS contacted the CAA to seek its assistance in identifying further lines of enquiry and to obtain an assessment of the available evidence from its perspective.

Expert Assistance

Following the conclusion of the petition proceedings, the CVFDR data was handed over to the Police by AAIB officials in November 2015. The Crown then immediately arranged for the CVFDR to be handed over to the CAA.

Following initial consideration of the CVFDR data by the CAA, steps were taken to identify a suitable expert to comment on the performance of the flight crew. In this regard, it was agreed that the CAA would assist in identifying such a witness with the necessary experience and/or expertise should the CAA be unable to provide this in-house.

Unfortunately, this process proved to be very protracted.

An appropriate expert could not be secured from within the CAA. Thereafter, following liaison and discussion (including an in-person meeting) between COPFS the CAA, attempts were made to locate an expert with appropriate North Sea experience from experienced former employees of the CAA and the CAA's counterpart in Norway. However, again, these efforts were unsuccessful.

It appeared, in general, that there was a reluctance by pilots with the appropriate experience to provide an opinion which might be critical of their fellow pilots. This was apparent from the fact that all those pilots who were approached declined to assist.

During this period, COPFS continued to work with the CAA to try to identify an appropriate expert. The Police also continued to progress their investigation.

Finally, in October 2017, COPFS identified a potential expert, Mark Prior, who is both a helicopter pilot with North Sea experience and an independent aviation safety expert. In December 2017, the CAA advised COPFS that Mr Prior appeared to be a suitable expert. In February 2018, following initial discussions, Mr Prior was formally instructed by COPFS to provide an independent expert report.

On 19 February 2018, the CAA provided COPFS with a report the purpose of which was to provide an opinion on the evidence ingathered by Police Scotland in terms of the legislation ensuring the safety of those on board the aircraft in the context of civil aviation.

After a consultation process, Mr Prior issued his final report in October 2018.

The Decision to proceed with a Fatal Accident Inquiry

In November 2018, informed by Mr Prior's report, Crown Counsel instructed that there should be no criminal proceedings against the flight crew.

The decision was intimated to the nearest relatives on 28 November 2018. They were advised that, under the COPFS Victims' Right to Review Procedures, they had the right to ask for Crown Counsel's decision to be reviewed.

On 8 January 2019, one of the families bereaved by the crash intimated that they wished such a review to take place. That process concluded on 4 June 2019 and the decision intimated to the nearest relatives on 7 June 2019.

The decision to hold the FAI was announced by COPFS on 12 June 2019.

COPFS continued to work with Crown Counsel on the preparations for the commencement of the FAI proceedings including the instruction of further expert assistance. This work culminated in the drafting of focused terms for the First Notice which was lodged with the Court on 21 November 2019.

The First Order was granted on 5 December 2019, with 29 January 2020 being appointed as the first preliminary hearing.

Lessons to be learned

<u>Co-operation with the CAA</u>

Clearly, as detailed above, a significant amount of time was spent by COPFS in the present investigation, working with the CAA. Among other things this time was spent seeking to identify and instruct an appropriate expert to assess the conduct of the flight crew.

In relation to a serious marine accident, assistance is provided by the Maritime and Coastguard Agency as enforcing authority. For a railway accident, the expertise would be provided by the Office of Rail Regulation as enforcing authority. Serious health and safety accidents in most situations would fall to be investigated by the Health and Safety Executive as enforcing authority. Where the accident has resulted in work related fatality, those enforcing authorities would work with the Police Service of Scotland under the terms of the Work Related Deaths Protocol until it has been established that there is no evidence to support a prosecution under the Corporate Manslaughter and Corporate Homicide Act 2007.

At present, there are no formal arrangements and/or protocols for joint investigations into fatal accidents by the Police and the CAA. The fact is that, whilst thankfully rare, a serious accident involving aviation is likely to result in multiple deaths. The investigation of these deaths would be greatly assisted by the existence of a framework for investigation to enable the Lord Advocate to discharge his onerous obligations for the investigation of death.

To this end, and as a reflection on the present case, consideration is being actively given to establishing a protocol between COPFS and the CAA.

Resourcing and oversight of the process – lessons learned

The complexities of a helicopter crash of the type being examined in this case bring particular challenges, and responsibilities, that impact on the length of the investigation. In recognition of these complexities, the Helicopter Incidents Investigation Team was set up in early 2014 (having previously been managed by the Health and Safety Division). This team was responsible for two extremely challenging and complex investigations which were running in parallel. These were the Sumburgh and Clutha investigations. These were just two of a significant number of large and complex cases being investigated by the Crown.

In recognition of the changing nature and complexity of casework, in 2017 the COPFS Operational Performance Committee (OPC) devised the Case Management Panel process, the purpose of which is to:

- provide a framework for senior management oversight and influence in significant, high profile cases,
- better understand the risks in relation to those cases, and
- ensure a level of appropriate scrutiny, challenge and support, with an identified chain of escalation if required.

This allows for:

- much better scrutiny of the investigation,
- a greater understanding for those tasked with oversight of the investigation, of the direction of travel and the proposed investigative strategy from the investigating agency, the legal manager and allocated Crown Counsel;
- greater transparency of progress and identification of impediments/blockers; and
- assessment of required resource.

The criteria for referral to a Case Management Panel, illustrative rather than exhaustive are as follows:

- Case is due to last 2 months or more at trial/inquiry;
- very high-profile cases, particularly those attracting or likely to attract substantial media attention;
- perceived risk that the case has potential to cause significant reputational damage to COPFS;
- excessive delay in the circumstances of the case; and
- any other reason where the Panel considers a review would be of benefit.

Appointment of a dedicated Advocate Depute

While an Advocate Depute was appointed to deal with the petition to recover the CVFDR, dedicated counsel was not appointed until early 2018.

In future, a dedicated Advocate Depute will be identified at an early stage for all fatal helicopter accidents as is the case with homicide cases and those dealt with by the Serious and Organised Crime Unit. This would have the clear benefit of Crown Counsel influencing and providing instructions in relation to key matters and having a significant role in the direction of travel of the investigation, in tandem with the Case Management Panel process.

Instruction of Experts

COPFS, through the Police Service of Scotland, has access to and routinely uses experts across a wide range of disciplines including Road Traffic accidents, Indecent Images, Firearms, Communications, Crime Scene management and so on. However, they do not retain expertise in the aviation field and, in particular, in respect of helicopters.

In the present case, the experience of the Police and COPFS has highlighted the significant difficulties in obtaining expert witness evidence in cases involving the piloting of helicopters. The difficulties in obtaining this assistance significantly impeded the progress of COPFS' investigations.

However, the experience of the present case will greatly assist the identification of expert witnesses in this field if required in future. This is because as a result of this case,

COPFS has established contacts which will expedite the identification of witnesses with the appropriate expertise.

As a result, in a future case, it would be possible to obtain the assistance of an expert at very early stage in the investigation. Such assistance will aid both in the focussing of the investigation and in providing advice on key decision making.

Delays in General

It should also be noted that COPFS has taken steps through the modernisation project for the Scottish Fatalities Investigation Unit ("SFIU") to make significant improvements in this regard.

The modernisation project, which concluded in December 2019, was a whole systems review of the processes involved in a deaths investigation, the aim being to reduce the time for the completion of the investigation and to ensure that the processes involved were consistent across COPFS.

As part of the modernisation project, SFIU was restructured. Since 25 November 2019, there have been two teams within SFIU; one responsible for the initial stages of a death investigation and the other responsible for FAIs.

Following an increase to the COPFS budget, SFIU was allocated additional legal managers who were dedicated to exclusively focus on the progress of FAIs.

The modernisation project is clearly of great importance and a major development in the management of the deaths investigations. As a direct result of the modernisation project, SFIU has submitted a significantly higher number of first notices (70) and concluded more FAIs (53) during financial year 2019- 2020 when compared with previous years.

14 September 2020