Report 10-006: Runway Incursion, Dunedin International Airport, 25 May 2010

The Transport Accident Investigation Commission is an independent Crown entity established to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future. Accordingly it is inappropriate that reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

The Commission may make recommendations to improve transport safety. The cost of implementing any recommendation must always be balanced against its benefits. Such analysis is a matter for the regulator and the industry.

Final Report

Aviation Inquiry 10-006
Runway Incursion, Dunedin International Airport
25 May 2010

Approved for publication: December 2010

Transport Accident Investigation Commission

About the Transport Accident Investigation Commission

The Transport Accident Investigation Commission (the Commission) is an independent Crown entity responsible for inquiring into maritime, aviation and rail accidents and incidents for New Zealand, and co-ordinating and co-operating with other accident investigation organisations overseas. The principal purpose of its inquiries is to determine the circumstances and causes of occurrences with a view to avoiding similar occurrences in the future. Its purpose is not to ascribe blame to any person or agency or to pursue (or to assist an agency to pursue) criminal, civil or regulatory action against a person or agency. The Commission carries out its purpose by informing members of the transport sector, both domestically and internationally, of the lessons that can be learnt from transport accidents and incidents.

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Important notes

Nature of the final report

This final report may not be used to pursue criminal, civil or regulatory action against any person or agency. The Transport Accident Investigation Commission Act 1990 makes this final report inadmissible as evidence in any proceedings with the exception of a Coroner's inquest.

Ownership of report

Citations and referencing

Information derived from interviews during the Commission's inquiry into the occurrence are not cited in this draft final report. Documents that would normally be accessible to industry participants only and not discoverable under the Official Information Act 1980 have been referenced as footnotes only. Other documents referred to during the Commission's inquiry that are publicly available are cited.

Photographs, diagrams, pictures

Unless otherwise specified, photographs, diagrams and pictures included in this report are provided by, and owned by, the Commission.

Figure 1
The Aviation Security Service patrol vehicle

Figure 2
Metroliner ZK-POB
(photograph used with permission)

Source: mapsof.net

Figure 3 Location of incident

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Abbreviations

ATC	air traffic control
Avsec	Aviation Security Service
CCTV	closed circuit television
UTC	coordinated universal time

Data summary

Aircraft registration:	ZK-POB
Type and serial number:	Fairchild Aircraft Corporation Metroliner SA227-AC, AC606B
Number and type of engines:	2 Honeywell (Garrett) TPE331-11U-611 turboprop
Year of manufacture:	1985
Operator:	Airwork Flight Operations Limited
Date and time:	25 May 2010, 0608[1]
Location:	Dunedin International Airport latitude: 45° 55.7´ south longitude: 170° 11.9´ east
Type of flight:	air transport, freight
Persons on board:	crew: 2 passengers: nil
Injuries:	crew: nil
Nature of damage:	none
Pilot-in-command's licence:	airline transport pilot licence (aeroplane)
Pilot-in-command's total flying experience:	4903 hours (3700 hours on type)

[1] Times in this report are in New Zealand Standard Time (UTC + 12 hours) expressed in the 24-hour mode.

1. Executive summary

1.1. This was a serious runway incursion incident that occurred when an aviation security officer drove a patrol vehicle onto the active runway at Dunedin International Airport at night in heavy rain ahead of a landing aeroplane. A collision was narrowly avoided because the vehicle driver kept to the shoulder of the runway and stopped soon after entering the runway.

1.2. The driver intended to use the runway as a means of conducting an airfield perimeter fence check because recent heavy rain had flooded parts of the dirt perimeter road and the grassed areas from which such checks were normally accomplished.

1.3. The driver was unaware that an aeroplane had just landed when he drove onto the runway. Likewise, the pilots were unaware that a patrol vehicle had entered the runway after they landed, and they would have been in no position to take avoiding action to prevent a collision had the vehicle been driven in front of their aeroplane.

1.4. The main issues that led to the incident were a lack of awareness by aviation security officers of the significance of the runway lights being on, and inadequate local procedures for aviation security officers to access the runway safely outside the hours of service of air traffic control (ATC). Actions taken by the Aviation Security Service (Avsec) since the incident to improve the training of aviation security officers and procedures should help prevent a recurrence. Therefore, the Commission did not make any recommendation as a result of this inquiry.

2. Conduct of the inquiry

2.1. The Civil Aviation Authority advised the Commission of the incident during the afternoon of Friday 28 May 2010. After initial inquiries, the Commission opened an inquiry on 1 June 2010.

2.2. The investigator-in-charge travelled to Dunedin on 8 June 2010 and interviewed the Avsec aviation security officer involved in the incident, the Dunedin Avsec station manager and the Dunedin International Airport Limited assistant manager.

2.3. The airport company provided the Commission with closed circuit television (CCTV) coverage of the incident. Airways Corporation of New Zealand provided recordings of the radio transmissions made by the pilots and the mobile patrol security officer. The Commission also had access to the Avsec internal report on the incident.

2.4. The 2 pilots of the Metroliner were interviewed in Auckland on 10 June 2010.

2.5. On 23 September 2010, the Commission circulated a draft final report to interested persons for comment. Submissions were received from the aviation security officer who drove the vehicle, Avsec and the airport operator. These were considered before this final report was approved.

3. Factual information

3.1. Narrative

The aeroplane

3.1.1. On 25 May 2010, a Metroliner SA227-AC, registered ZK-POB and with call sign Post 91, was on a scheduled freight flight from Auckland, via Palmerston North and Christchurch, to Dunedin with 2 pilots on board. At approximately 0600 the first officer transmitted on the local Dunedin control tower frequency of 120.7 megahertz that Post 91 was 10 nautical miles north of Swampy[2] and inbound for an instrument landing system approach to runway 21 (see Figure 4). The Dunedin control tower was unattended and was not scheduled to be operational until 0630.

3.1.2. Post 91 was operated by Airwork Flight Operations Limited (the company) and was a regular night freight service from Auckland. The usual arrival time at Dunedin was between 0200 and 0300, but the flight was delayed that night.

3.1.3. Heavy rain had been falling at Dunedin for 2 days and was still falling at the time of the aeroplane's arrival. A Dunedin International Airport night security agent had been in contact with the pilots throughout the night and given them regular local weather updates. His most recent update had reported a cloud base of around 600 feet with visibility of about 3000 metres in heavy rain. The minima for the instrument approach were a cloud base of 304 feet and visibility of 1200 metres. The agent had earlier turned on the runway lights for the arriving aeroplane.

3.1.4. At approximately 0604, the first officer transmitted on the local tower frequency that Post 91 was established on the instrument approach for runway 21. At about 0606, he reported that Post 91 was on final approach.

3.1.5. A few minutes later, passing about 600 feet, Post 91 descended below the cloud. Despite the heavy rain the pilots could see the runway and approach lights, so they continued the approach to land.

3.1.6. The pilots said the aeroplane touched down normally on the touch-down zone and that they then selected reverse thrust. At about that time they saw some flashing vehicle lights to their right but they thought that the lights were on the grass beside the runway.

3.1.7. Post 91 came to a stop about half way along the runway, and after the pilots had turned the aeroplane around the first officer advised they were back-tracking on runway 21. As they began taxiing to the terminal the night security agent advised them on the local radio frequency that an Avsec vehicle had been on the runway without a clearance when they landed. A conversation then took place on the frequency between the pilots and the Avsec officer. The Avsec officer said he had radioed that he was going on to the runway for a check and there had been no response from anyone to his call.

3.1.8. The first officer replied that he had made the required calls during the instrument approach and that it was the Avsec officer's responsibility to get off the runway because Post 91 was on approach to land. The Avsec officer responded that he had not heard the radio transmissions from Post 91 because he had just started duty. He later confirmed to the first officer that he had been using the local traffic radio frequency throughout.

The Avsec patrol vehicle

3.1.9. The Avsec officer had started duty at 0600 for his scheduled mobile patrol duties. After several minutes he went to his assigned security vehicle that was parked under the terminal building to check it and prepare for his duties. He turned on the amber rotating lights positioned on the roof of the vehicle and checked that the vehicle radio was ON and selected to the correct frequency.

[2] A navigation aid approximately 14 nautical miles north of Dunedin Airport.

3.1.10. He then drove the vehicle to check around the rescue fire station and the fuel farm situated near the control tower before commencing the airport perimeter fence check. Normally the perimeter fence check was done from the dirt track situated immediately inside the perimeter fence, but because heavy rain had flooded parts of the track, he decided to drive on the runway and check the fence visually with the aid of the vehicle search lights.

3.1.11. The airport CCTV recording showed that the Avsec officer drove past the night security agent's vehicle parked near Gate One by the terminal just after 0608, and proceeded straight to the taxiway, entering the runway approximately 25 seconds later (see Figure 4). The vehicle lights and rotating beacons were seen to be on and reflecting off the rain and standing water on the apron. The night security agent said that the Avsec officer waved to him as he drove past and that the vehicle travelled quickly along the taxiway and was not seen to stop before it entered the runway. The aeroplane was not identifiable on the CCTV recording because of scattered light in the heavy rain.

3.1.12. As the patrol vehicle approached the runway, the Avsec officer transmitted, "Dunedin tower security one", then 5 seconds later, "… Dunedin airport security one proceeding for runway checks". The Commission considered the audio record of the first transmission was difficult to understand when first heard and the first few words of the second transmission were barely discernable, mainly because the words were spoken quickly.

3.1.13. The Avsec officer said he did not hear any other radio transmissions up to that time. He noticed that the runway lights were on, but he was not aware this could mean an aircraft might be landing or taking off. He said the night freight aeroplane normally landed between 0200 and 0300, so he did not expect an aircraft to be landing at the time he was making his inspection. He said he did not stop before turning right onto the runway, but he looked left and saw nothing.

3.1.14. The Avsec officer said that as he turned right from the taxiway onto the shoulder of the runway he stopped quickly, because the reflection of the vehicle lights and rotating beacons off the rain were making it difficult for him to see. He was about to turn back and leave the runway when he heard and saw Post 91 overtake him, about 10 metres away.

3.1.15. The night security agent said the Avsec vehicle was moving quite quickly when it passed him and continued towards the taxiway. He said that he did not hear the Avsec officer's radio transmissions. The security agent did not consider that the vehicle would enter the runway, so when he realised the vehicle was going onto the runway it was too late to intervene. The agent watched Post 91 land and the aeroplane was approaching abeam the taxiway when the Avsec vehicle turned onto the runway. The agent said the aeroplane's bright landing lights were clearly visible and he believed that the Avsec security officer should have been able to see them if he was looking in that direction.

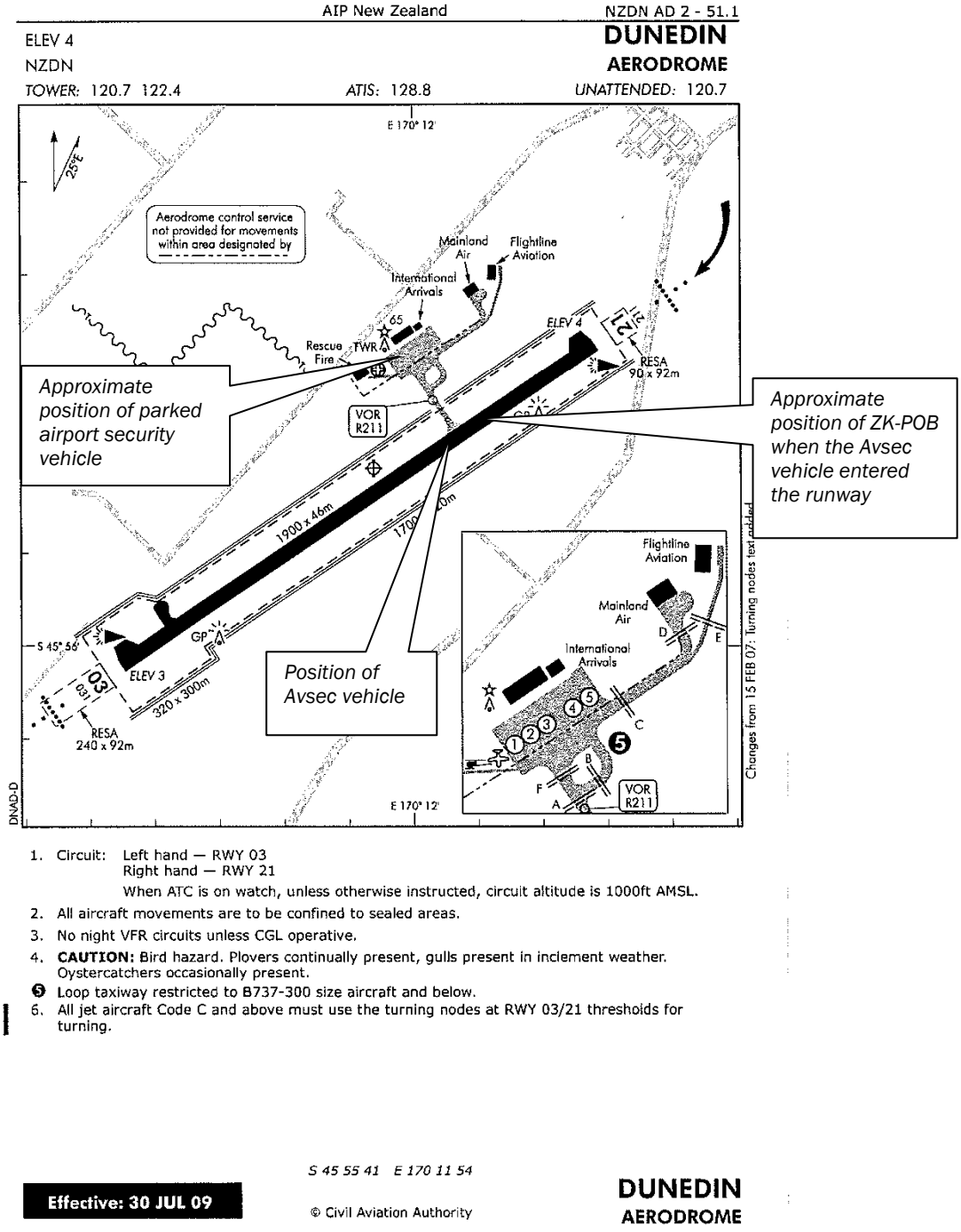

Figure 4
Dunedin International Airport

3.2. The vehicles involved

Aircraft information

3.2.1. The Metroliner SA227-AC was a pressurised twin-turboprop aeroplane with 2 Honeywell (Garrett) TPE331-11U-611 engines, manufactured by Fairchild Aircraft Corporation in the United States in 1985.

3.2.2. The aeroplane was designed to be operated by 2 pilots and carry passenger, cargo or mixed loads. The maximum certified take-off weight was 16 000 pounds (7257 kilograms).

The Avsec vehicle

3.2.3. The Avsec vehicle was a red-coloured Honda CRV 4-wheel-drive vehicle equipped with rotating hazard beacons and radio communication equipment that met the requirements of Civil Aviation Rules Part 140.[3]

3.2.4. The vehicle equipment was serviceable and functioning correctly at the time of the incident. A plan of the airport was available in the cab.

3.3. Personnel

Pilots

3.3.1. The captain had an airline transport pilot licence (aeroplane) and a current class one medical certificate valid until 13 October 2010. He had a total of 4903 flying hours, with 3700 hours on the Metroliner.

3.3.2. His most recent flight before the incident had been on 21 May 2010, when he was on duty for 4.5 hours and flew for 1.1 hours. He started work on 24 May 2010 at 2130, the evening before the incident, and had been on duty for 8.5 hours at the time of the incident, which was within the company duty limits.

3.3.3. The co-pilot had a commercial pilot licence (aeroplane) and a current class one medical certificate valid until 18 August 2010. He had a total of 1764 flying hours, with 1140 hours on the Metroliner.

3.3.4. His most recent flight before the incident had been on 20 May 2010, when he was on duty for 4.5 hours and flew for about 2.2 hours. He started work on 24 May 2010 at 2130, the evening before the incident, and had been on duty for 8.5 hours at the time of the incident, which was within the company duty limits.

Avsec officer

3.3.5. The Avsec officer had been employed by Avsec for 4 years as an aviation security officer at Dunedin International Airport. His duties included mobile patrols of the airport and its facilities. Avsec had no record of his being involved in any previous incident.

3.3.6. Avsec training records showed that the officer had received the prescribed training for airside driving as detailed in the Avsec airside[4] driving procedures. He had completed his basic training in June 2006, and by July 2006 he had accrued the necessary supervised mobile patrol (airside) experience. Included in the demonstrated competencies for airside driving were adherence to correct radio procedures, the use of standard radio phraseology and compliance with ATC clearances. Aviation security officers who were approved for airside driving were checked every 150 days. The officer involved in this incident had been previously checked on 19 January 2010.

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[3] Civil Aviation Rules Part 140 prescribed the certification requirements for organisations that provided aviation security services.

[4] Airside refers to the airport aircraft manoeuvring areas, such as aprons, taxiways and runways.

3.3.7. In the 7 days preceding the incident, the Avsec officer had completed 22 hours of duty time and had been off duty for the 2 days before the incident. On the day of the incident, he was rostered for duty from 0600 to 1000, then from 1500 to 1800.

3.3.8. The Avsec officer said that he had driven on the runway before to do an airport perimeter fence check, so he had confidence to do so again. He said he had received no training about the significance of runway lighting and he did not have an aviation background.

3.3.9. The officer said he knew that an ATC clearance was required to go onto the runway, and that outside the ATC hours of operation, he had to listen out on the local radio frequency for any traffic and make an advisory radio call before proceeding, with caution, onto the runway.

3.4. Organisation and management

3.4.1. Civil Aviation Rules Part 140 set out the requirements for aviation security service providers. Avsec was the provider at New Zealand airports. At airports other than Auckland, Wellington and Christchurch, Avsec did not have to conduct continuous patrols as long as the aerodrome operator provided a 24-hour security presence, as was the case at Dunedin International Airport.

3.4.2. Civil Aviation Rules Part 140 required Avsec mobile patrol officers to have a "thorough knowledge" of their operating environments and to be able to "exercise sound judgement in situations likely to arise in the course of their duties". The senior officer at Dunedin aerodrome said he too was unaware of the significance of illuminated runway lights.

3.4.3. Avsec was required to do passenger screening prior to all domestic and international jet aeroplane departures, and to carry out airport security patrols from 90 minutes before each international departure until 15 minutes after the departure. The first domestic jet service on the day of the incident was at 0650, but the first international flight departure was not scheduled until 1700.

3.4.4. Local Avsec practice had been to conduct a mobile security patrol of the airport perimeter before the start of domestic passenger screening to ensure that there were no unauthorised vehicles or people in the secure area and that the perimeter fence was undamaged. The patrol was scheduled to start at 0600 so that it could be completed in time for the officer to undertake the screening duty.

3.4.5. Avsec's policy, procedures and competencies for airside driving required Avsec drivers to comply with all specific airside driving requirements of aerodrome certificate holders. When communicating by radio, Avsec drivers were required to conform to the radio procedures and phraseology standards listed in the New Zealand Aeronautical Information Publication. The procedures included the statements "Unless there is an essential operational requirement, taxiway and runway crossings are to be avoided", "Where there is the unavoidable need to operate on taxiways and runways, access to these areas MUST be in accordance with ATC clearances; a good lookout is essential", and "In other circumstances, unless responding to an incident or emergency, the crossing of taxiways and runways is to be avoided".

3.4.6. At Auckland, Wellington and Christchurch airports, ATC and Avsec maintained 24-hour operations and clearances were always available for any runway operations. However, at the regional airports, including Dunedin, ATC operated on reduced hours each day.

3.4.7. The Dunedin airport operational rules stated, "Vehicle movements on the manoeuvring area are restricted to those vehicles under Air Traffic Control." The airport company rules had not specifically addressed vehicle movements when ATC was not on watch.

3.4.8. The airport company said it had not known, before this incident, that Avsec conducted routine perimeter fence inspections outside the hours of ATC service, because the company conducted its own inspections that were a maintenance requirement under Civil Aviation Rules Part 139.

3.4.9. The Avsec practice at Dunedin Airport of using the runway to do airfield perimeter fence checks when no ATC service was provided was said to have been long-standing and was usually resorted to only when heavy rain adversely affected the grassed areas and dirt

perimeter track. That was usually a winter problem, but no procedure had been published for the practice.

3.4.10. There was no procedure in place for the Dunedin airport company to advise Avsec of any known aircraft movements outside the hours of operation of ATC, because the company had been unaware of the Avsec inspections, nor was there any procedure for Avsec to check expected movements with the airport company at the start of each day.

3.4.11. At Dunedin, Avsec did not have a team briefing before officers started their rostered duties. There was no discussion between the supervising aviation security officer and the officer assigned to the morning mobile patrol to discuss any known issues such as local flooding or how the mobile airfield perimeter check could best be achieved.

3.4.12. Avsec audits of its Dunedin station from May 2005 until May 2010 and the Civil Aviation Authority audits of Avsec operations at Dunedin from 2004 to 2010 were reviewed. No findings or observations relevant to the runway incursion incident were found.

3.4.13. The Civil Aviation Authority database had 167 reports of runway incursions between October 2005 and October 2010[5]. Two of the incidents involved Avsec: one was the subject of this report and the other was a minor event at Queenstown in October 2010 when a patrol vehicle crossed the end of a runway not in use at the time. Dunedin Aerodrome had a total of 6 reported occurrences for the period.

[5] Since mid-2007, runway incursion reports entered into the Civil Aviation Authority database have been coded in accordance with the descriptions and severity levels of the International Civil Aviation Organization. Occurrence data before 2007 might not have been coded in the same way.

4. Analysis

4.1. This runway incursion incident was brought about when an Avsec officer drove his patrol vehicle onto the active runway at night in heavy rain ahead of an aeroplane that had just landed. Fortunately there was no collision because the vehicle was not driven to the centre of the runway, but instead it remained on the runway shoulder and came to a stop as the aeroplane passed.

4.2. There were no issues identified with the operation of the aircraft, so the discussion that follows looks at the individual and systemic issues that allowed the Avsec vehicle to enter the runway in front of a landing aircraft.

The aeroplane

4.3. The incident occurred outside the hours of operation of Dunedin control tower, so no ATC services were available. The aeroplane crew had made the standard radio calls for an unattended aerodrome, advising the local traffic on the correct radio frequency several times of their intentions. The crew were aware of the actual weather conditions from the reports of the airport night security agent, and commenced the instrument approach confident that they could land off the approach. When they broke out of cloud at about 600 feet (300 feet above the minimum altitude) and had the runway lights in sight and no visible obstruction on the runway, they had every reason to continue the approach and land. At that stage the Avsec officer's vehicle was not near the runway.

4.4. The Avsec officer did make a radio call immediately prior to entering the runway, but the pilots did not hear it. Although the exact timing of events could not be determined, it is almost certain that the pilots were engaged in the critical touchdown phase of flight and that the radio call could have been masked by the noise of the aeroplane engines being selected to reverse thrust after landing. Once reverse thrust had been selected, the pilots, if they had seen a vehicle enter the runway, could only have steered the aeroplane to avoid a collision. A go-around at that point would not have been a viable option to prevent a collision. The combination of rain and darkness reduced the visibility to the extent that the pilots did not see the vehicle on the runway and were unaware of the high collision risk until later.

The patrol vehicle

4.5. The Avsec officer stated duty at 0600. When he turned on the patrol vehicle radio several minutes later, the aeroplane would have been established on the final approach and the first officer would have made the last of his radio calls, advising of their intention to land on runway 21. Consequently the Avsec officer could not have heard the radio calls. Having not liaised with the airport company night security agent, the Avsec officer did not know about the impending aircraft arrival.

4.6. An examination of the Avsec officer's duty time and rest pattern did not suggest that fatigue contributed to the incident.

4.7. There was no procedure for an Avsec officer to check with the airport night security agent for any expected aircraft movements before the officer entered the runway outside the normal hours of ATC, because the need for Avsec vehicles to enter the aircraft manoeuvring area in such circumstances had not been anticipated. Had there been such a procedure, the Avsec officer would have been alerted to the unusual arrival time and would have been unlikely to consider using the runway to attempt the perimeter inspection. The lack of procedure was one missed opportunity that could have averted the near collision.

4.8. When the Avsec officer drove past the night security agent, the agent did not consider that the officer would drive onto the runway. Although there were about 25 seconds between the patrol vehicle passing the night security agent and when the vehicle crossed the holding point for the runway, the agent did not know the Avsec officer's intentions, because he had not heard the officer's radio call. The agent was therefore surprised and had no time to intervene once he realised the vehicle was entering the runway. The rain and reflected lights also reduced the agent's ability to assess the position of the Avsec vehicle.

4.9. The Avsec officer knew that he had to make a radio call, but it would seem that he assumed that by having made the call he had the right of way to the runway. He displayed little appreciation of the fact that there could be several other participants who needed time to receive, acknowledge and build a mental picture of the effects of his intention to enter the runway. In this case the landing aircraft was close to, if not already, landing when the Avsec officer made his call. The Avsec officer's actions were indicative of a 'tunnel' focus on completing his own tasks with little regard for the bigger picture of the aerodrome operation.

4.10. The Avsec officer had a responsibility to ensure that the runway was not being used, or intended to be used, by any aircraft before he entered it and he was required to give way to all aircraft moving on the runway, taxiway or apron. It is a requirement and good aviation practice for pilots to check in both directions before moving their aircraft onto runways, even when given permission to do so by ATC. Drivers of airport vehicles should be similarly trained and required to follow this good practice. The Avsec officer said that he looked left before entering the runway, but he did not stop his vehicle before doing so. In spite of the rain and possible reflections of his own lights off the standing water, the aircraft landing lights should have been visible to a careful observer. If the environmental conditions had not allowed an effective search of the runway and approaches, he should not have entered the runway.

4.11. Local practice was for the airport perimeter fence check to be completed before the start of domestic screening, but it could have been delayed until daylight, which was logically a better time to achieve the check. It was not unusual for patrols to use the runway for conducting the check outside ATC hours of operation, particularly during the winter months, but the practice was not standardised so created an unnecessary risk to airport operations.

4.12. Because the Avsec and airport company procedures had made no provision for vehicles to enter the runway without an ATC clearance, vehicles should not have entered the runway outside the hours of operation of ATC, except in the case of an emergency. The flooded perimeter track was not an emergency situation, but the established unauthorised practice of using the runway at such times would have influenced the Avsec officer's decision to enter the runway.

4.13. The Avsec officer's decision was also probably influenced by his not expecting any aircraft movements at that time. The officer did not appreciate that flights could be delayed or that aircraft movements could occur at any time, nor did he appreciate that the illuminated runway lights meant the runway was active and an aircraft was about to land or to depart. This lack of awareness, together with the speed with which he entered the runway without conducting an effective visual check to ensure it was clear, suggested that the officer had not been trained in these aspects to the standard required by the Civil Aviation Rules.

4.14. Had there been a pre-duty briefing with the senior Avsec officer or a team meeting, and established procedures for entering the runway when the control tower was not operational, the Avsec officer would likely have delayed his decision to carry out the perimeter fence check until after the control tower was operational. The procedures should have required him to check first with his supervisor, and have been explicit in requiring drivers to come to a stop at the holding point for a thorough look along the runway before proceeding. Had such a requirement existed, it is more likely than not that the officer would have seen the aeroplane lights and not entered the runway.

Summary

4.15. This was a serious runway incursion and a collision was fortuitously narrowly avoided. The heavy rain and consequent flooding of the perimeter track combined with the lack of clear procedures to cover situations when Avsec officers might need to enter the runway when ATC was unavailable to create the opportunity for the incident.

4.16. Had the Avsec officer had a more "thorough knowledge of the operational environment", including the meaning of the aerodrome lighting, the incident would likely not have occurred.

4.17. As Avsec and Dunedin International Airport Limited took the safety actions shown in Section 6 to help prevent a recurrence, the Commission did not make any recommendation.

5. Findings

The following findings are not listed in any order of priority:

5.1. A near collision occurred when an Avsec patrol vehicle entered the active runway at night in heavy rain and reduced visibility ahead of an aeroplane that had just landed.

5.2. The aircraft was making a standard approach to the aerodrome in adverse weather conditions that were above the required minima and had right of way to land.

5.3. The airport company's procedures did not permit vehicles to enter the runway without an ATC clearance, and vehicles were not permitted on the runway when the control tower was not operational except in cases of emergency. The need to inspect the perimeter fence was not a case of emergency.

5.4. A factor contributing to the Avsec officer's decision to enter the runway was the established unauthorised practice of using the runway when the perimeter road was unusable for conducting perimeter fence inspections outside the hours of ATC service.

5.5. The absence of a procedure to allow access to the runway when ATC was not in attendance, and no requirement for a pre-shift briefing or co-ordination with the airport company meant that the Avsec officer was inadequately prepared to make the proper decision about entering the runway.

5.6. The Avsec officer had not been as thoroughly trained in the aerodrome operational environment as was envisaged by the Civil Aviation Rules. Had he understood why the runway lights were on, the incident would have been unlikely to occur.

6. Safety actions

General

6.1. The Commission classifies safety actions by two types:

(a) safety actions taken by the regulator or an operator to address safety issues identified by the Commission that would otherwise have resulted in the Commission issuing a recommendation; and

(b) safety actions taken by the regulator or an operator to address other safety issues that would not normally have resulted in the Commission issuing a safety recommendation.

The following safety actions are not listed in any order of priority.

(a) Safety actions addressing issues identified by the Commission

6.2. Shortly after the incident, the Avsec Dunedin Regional Station Manager took the following actions:

> All officers notified not to enter taxiways and runways during the times the ATC are not in attendance unless in extreme emergencies.
>
> All officers notified to contact [Dunedin International Airport Limited] if the need to enter these areas during non-ATC attendance arises to check if any known traffic activity in area.
>
> [Dunedin International Airport Limited] airside safety and security booklet latest version supplied to all officers to be read in conjunction with Avsec [policy and procedures manual].
>
> Airside driving recurrent testing form revamped to reflect knowledge of protocols listed above.
>
> Supervisors meeting held to advise them of the need to make a "call on the day" as to whether conditions outside are conducive to conducting safe and effective mobile patrols, if not, [mobile] patrol to be carried out later in the morning.

6.3. On 29 June 2010, Avsec also instructed its station managers and regional quality assurance officers that, with immediate effect, they were to:

> Ensure that each station has access to current versions of the "airport driving procedures" as produced by the Part 139 aerodrome certificate holder, that aviation security officers tasked with airside driving duties are familiar with the content of these procedures and that these procedures are followed, in conjunction with our own airside driving standards as published in the PPM under "mobile patrols" and "airside driving procedures."
>
> Ensure that our airport airside driving trainers/instructors/assessors have access to all current airside driving procedures to enable them to carry out their role effectively and that the level of instruction provided delivers the required safety outcomes.
>
> Review regional airport airside driving standards to ensure there are established procedures in place to cover those times when ATC is not present (if that situation applies).

6.4. On 17 September 2010, Avsec amended its Airside Driving Policy and Procedures that were applicable to all stations. The amendments included, in part:

> A provision for supervisory staff to confirm that weather and lighting conditions were suitable to achieve effective mobile patrols.
>
> A clear statement of the requirements to be met for airside access when ATC was not on watch.

Restatement of the requirement for station staff to comply with the current airside driving procedures for the relevant aerodrome.

A requirement to liaise with the relevant airport company to establish expected aircraft movements prior to any necessary movement by an Avsec vehicle onto a taxiway or runway.

6.5. On 22 October 2010, the Dunedin International Airport Limited advised the Commission that the "company" had introduced specific training and [an] associated register for those few people that do operate [on the manoeuvring area] outside ATC hours."

Recent Aviation Occurrence Reports published by the Transport Accident Investigation Commission (most recent at top of list)

10-001	Aerospatiale-Alenia ATR 72-212A, ZK-MCP and ZK-MCJ, severe turbulence encounters, about 50 nautical miles north of Christchurch, 30 December 2009
09-002	ZK-DGZ, Airborne XT-912, 9 February 2009, and commercial microlight aircraft operations
10-009	Interim Factual: Cessna C152 ZK-JGB and Cessna C152 ZK-TOD, mid-air collision, near Feilding, Manawatu, 26 July 2010
09-007	Piper PA32-260, ZK-CNS, impact with ground following a loss of control after take-off, near Claris, Great Barrier Island, 29 September 2009
09-005	Cessna 182N ZK-FGZ and Bombardier DHC-8 Q311 ZK-NEF, loss of separation and near collision, Mercer, 40 km south of Auckland, 9 August 2009
08-007	Robinson Helicopter Company, R22 Alpha ZK-HXR, loss of control, Lake Wanaka, 1 November 2008
09-006	Cessna 207, ZK-DEW aircraft starting incident resulting in runway incursion, Queenstown Aerodrome. 5 September 2009
09-004	Britten Norman BN2A-Mk III Trislander, ZK-LOU loss of engine propeller assembly, near Claris, Great Barrier Island, 5 July 2009
08-005	Kawasaki-Hughes 369D, ZK-HWE, un-commanded yaw and loss of control, Maori Saddle, near Haast, Westland, 11 August 2008
08-001	Cessna 152 ZK-ETY and Robinson R22 ZK-HGV, mid-air collision, Paraparaumu, 17 February 2008
07-006	Hawker Beechcraft Corporation 1900D, ZK-EAK, landing gear malfunction and subsequent wheels-up landing, Woodbourne Aerodrome, Blenheim, 18 June 2007
07-010	Fletcher FU24-950, ZK-DZG, in-flight vertical fin failure, loss of control and ground impact, 5 kilometres west of Whangarei (Pukenui Forest), 22 November 2005

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