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# Training Deficiency Leaves Catering Driver Unprepared to Resolve Disorientation

***During takeoff, an Airbus A330 passed directly over a motor vehicle that inadvertently was being operated on the same runway. Although experienced and authorized to drive on parts of the Sydney International Airport movement area, the driver had neither a two-way radio nor guidance for this situation, said the Australian Transport Safety Bureau.***

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*FSF Editorial Staff*

On Aug. 24, 2003, at about 0935 local time, an Airbus A330-341 — which had just become airborne during takeoff from Runway 34L — passed directly over a catering vehicle driven inadvertently onto the same runway at Sydney International Airport, New South Wales, Australia. No passengers or crewmembers were injured, and the aircraft was not damaged, when the runway incursion by the vehicle driver resulted in an infringement of air traffic control (ATC) separation standards, said the final report by the Australian Transport Safety Bureau (ATSB). The Airbus crew was conducting a scheduled international passenger flight to Denpasar, Indonesia, under Australian regulations for high-capacity air transport.

The incident occurred when the driver entered the runway at Taxiway Golf without requesting or receiving a clearance from ATC to enter the runway, the report said. Her work involved catering duties on the international apron area.

"The driver of the vehicle was authorized to drive only on the perimeter roads, airside roads and apron areas," the report said. "The driver was not aware that she had entered the runway, and [she] was not authorized, or trained, to drive on taxiways or runways. The driver eventually realized that she had entered an area of the airport with which she was not familiar. She attempted to return to the apron and was subsequently escorted from the movement area by an airport operations officer."

ATC provided air traffic services for aircraft on areas of the airport used for takeoff, landing and taxiing, excluding the apron areas, to prevent collisions between aircraft and obstructions. The ATC aerodrome controller was responsible for authorizing aircraft, personnel and vehicles to cross a runway or to operate on a runway strip.[1]

"The [Australian] *Manual of Air Traffic Services* required [aerodrome controllers] to visually scan the length of the runway prior to issuing a takeoff clearance and immediately before the takeoff is commenced to confirm that the runway was free from obstacles, including vehicles and other aircraft," the report said. "Vehicle operators and pilots were also required to obtain a clearance from ATC prior to entering an active runway, and air traffic controllers operating from the control tower maintained a routine visual surveillance of the maneuvering area of the airport."

Investigators reviewed recorded radar data to determine the sequence of events in the incident.

"When the [aerodrome] controller issued a clearance to the crew of the Airbus to enter the runway, the vehicle was in the vicinity of Bay 59 on the international apron," the report said. "That was approximately 2.78 kilometers [1.50 nautical miles] from the Airbus and approximately 0.83 kilometer [0.45 nautical mile] from the intersection of Taxiway Golf and Runway 34L. When the Airbus [crew] commenced its takeoff roll, the vehicle was near the intersection of Taxiway Golf and Taxiway Yankee. That was approximately 2.77 kilometers [1.50 nautical miles] from the Airbus and 0.5 kilometer [0.3 nautical mile] from the intersection of Taxiway Golf and Runway 34L."

At the time that the takeoff clearance was issued to the Airbus crew, the aerodrome controller observed a significant distance between the catering vehicle's position on the apron and Runway 34L.

"In the circumstances, the [aerodrome controller] would have had no indication that the vehicle was likely to enter the runway and pose a potential collision threat to the Airbus," the report said. "There was little, if any, action that the [aerodrome controller] could have taken to resolve the situation when it became apparent to him that the vehicle would enter the runway."

The report cited the following reasons for this situation:

- "The catering vehicle was not radio equipped;
- "The Airbus crew was committed to the takeoff, if not already airborne; and,
- "Any alert provided to the crew of the Airbus by the [aerodrome controller] may have exacerbated the problem, given the relative position of the aircraft to the vehicle at that time."

Sydney Airport Corp. — the airport license holder and operator of Sydney International Airport at the time of the runway incursion — was responsible for the proficiency of airside drivers under 1997 Australian Civil Aviation Regulations, was required to publish an airside-vehicle-control handbook[2] and was authorized to implement driver training through other organizations functioning as approved issuing authorities.

Under this system for the management and control of surface vehicles, the incident driver had been trained about two years earlier, and she operated authorized airport vehicles under the limitations of airside-driving Category 2. Drivers in this category were authorized to drive only on perimeter roads, airside roads and apron areas of the airport as specified in the Sydney Airport Corp. *Airside Vehicle Control Handbook*.

Training covered recognition of perimeter-roadway markings, apron-roadway markings, live-taxiway-crossing markings, runway markings and taxiway markings, but not the use of a radio for two-way communication with ATC. Moreover, in the absence of a requirement, the catering vehicle was not equipped with that type of radio.

"While a runway incursion by a vehicle driven by [a Category 2 driver] may have been reasonably unforeseeable, this occurrence has identified a significant risk to the safety of operations at [the] Sydney airport," the report said.

The *Airside Vehicle Control Handbook* required that approved issuing authorities perform the following duties:

- "Provide the [Sydney Airport Corp.] manager [of] safety with reasonable access to its records and premises to enable the [Sydney Airport Corp.] manager [of] safety to carry out audits to ensure that the [approved issuing authority] is maintaining satisfactory standards in the carrying out of its functions as an [approved issuing authority]; and,
- "Train and test its employees and employees of its subsidiaries to drive airside to the standard required by the [Sydney Airport Corp.] manager [of] safety."[3]

The handbook contained requirements for the management and control of surface vehicles operating on, or in the vicinity of, the airside area of the airport.[4,5] These included the following prerequisites and training requirements for applicants seeking the Category 2 authorization:

- A current state or territory driver's license;
- Completion of a minimum of four hours of driving airside;[6] and,
- A requirement to demonstrate 12 practical competencies and theoretical competencies to an approved training officer.

Absent from the Category 2 driver training and from the airport's *Driver's Pocketbook, Category 2,* were "recommended actions or guidelines for drivers should they become lost or [disoriented] while driving airside," the report said.

The airport operator published one quick-reference handbook intended for Category 2 drivers and a separate handbook for Category 3/Category 4 drivers. The Category 3 drivers operated authorized vehicles on all movement areas, excluding runway strips. Category 4 drivers operated authorized vehicles on all airside areas, and could enter a runway strip by following the airport procedures. The incident driver had received the quick-reference handbook for Category 2 drivers.[7]

Implementing driver training through third parties was based on issuing the authority to drive airside to airport workers

who had an employment-related requirement to operate a motor vehicle in these areas. The airport operator remained the organization with final responsibility after delegating the training, testing and issuance of authority to drive airside.[8]

The report said that application of quality-assurance methods to detect drivers' knowledge deficiencies and to periodically evaluate driver proficiency may have identified a knowledge deficiency in recognition of taxiway/runway markings and other areas that contributed to the runway incursion.

"Such quality assurance would enable [the airport operator] … to recognize and address systemic deficiencies in driver competence on an ongoing basis," ATSB said. "The driver of the catering vehicle was properly licensed, and had been driving on perimeter roads and apron areas of the airport for two years. Despite her training, the driver may not have been operationally familiar with taxiway [markings] and runway markings because she had not operated on runways or taxiways since she obtained her [authority to drive airside]. … The driver of the catering vehicle became [disoriented] and entered Runway 34L.

"None of the training programs included advice to drivers about recommended actions they could take that might assist them should they become lost or [disoriented] while driving airside."

The report said that a procedure to resolve driver disorientation may have had the following effects in the incident circumstances:

- "Reducing the likelihood of a runway incursion in the first instance; and,
- "Reducing the time the catering vehicle remained on the runway following the [runway] incursion."

After this incident, Australian civil aviation authorities took additional steps to educate airport users about preventing runway incursions. Among these were general reminders by Airservices Australia (the air traffic services provider) in a January 2004 newsletter to air traffic controllers, which cited the following possible risk factors:

- "Inadequate supervision of the maneuvering areas of the airport;
- "Lack of adequate coordination between controllers in the tower;
- "Ambiguous clearances and instructions issued by controllers;
- "Incorrect readback of clearances and instructions by pilots and vehicle drivers; and,
- "Controllers not detecting the errors in [pilot/vehicle driver] readbacks."

At the time of the incident, Airservices Australia was investigating for Sydney International Airport, and other Australian airports, the advanced surface movement guidance and control system (ASMGCS) concept of the International Civil Aviation Organization.

ASMGCS initiatives would combine improved surface-movement radar, improved airport mandatory-instruction signs and airport-information signs, and stop-bar lighting.[9] The projected benefits would include better conflict detection by ATC, fewer runway incursions, lower risk of a collision on the surface and improved ATC situational awareness, the report said.

Based on the incident investigation, ATSB issued the following safety recommendations:

- "That Sydney Airport [Corp.] review the procedures used to ensure initial and ongoing driver competency and knowledge [Recommendation R20040059]; [and,]
- "[That] Sydney Airport [Corp.] ensure that approved issuing authorities' driver-training programs at Sydney [International] Airport include a course of action that drivers can take should they find themselves lost or [disoriented] while driving airside [Recommendation R20040060]."

The report said that Sydney Airport Corp. took the following actions after the incident:

- "Formulated an updated letter of agreement with Airservices [Australia] on the exchange of safety information;
- "Nominated single points of contact between [Sydney Airport Corp.] and Airservices [Australia] to act as representatives for the distribution of safety-related information;
- "Established a runway-incursion working group with participation from Airservices [Australia], Qantas [Airways], Regional Express, Virgin Blue, Jetstar [Airways] and Eastern Australia Airlines (involvement from other parties will be sought as required);
- "Audited all [approved issuing authorities] in accordance with the *[Airside Vehicle Control Handbook]* … and acted to ensure any recommendations made, as a result of those audits, were implemented;
- "Developed and issued updated Category 2 testing examinations to all [approved] issuing authorities which include guidelines for use by approved issuing authorities when conducting the written tests;

- "Reissued the [*Drivers's Pocketbook, Category 2*] with advice to drivers to stop and wait for assistance if they become lost or [disoriented] while driving airside; and,

- "Established an airside-driving forum cofacilitated with [WorkCover New South Wales][10] that includes various airside users."♦

[This article, except where specifically noted, is based on the Australian Transport Safety Bureau Air Safety Occurrence Report no. 200303726, Nov. 5, 2004. The six-page report contains one diagram.]

## Notes

1. The Australian Transport Safety Bureau (ATSB) report said that the International Civil Aviation Organization's *Manual of Air Traffic Services,* Part 10, Section 1, effective April 15, 2004, defined a runway strip as "a defined area, including the runway (and stopway if provided), intended both to reduce the risk of damage to aircraft running off a runway and to protect aircraft flying over it during takeoff, or landing operations."

2. The report said that Australian Civil Aviation Regulation 89 defined the airport operator as "in relation to a licensed aerodrome — the license holder." The applicable regulations were in the Australian Airports Act 1996, Section 172, Airports (Control of On-Airports Activities) Regulations 1997.

3. Sydney Airport Corp. *Airside Vehicle Control Handbook.* June 2003.

4. In accordance with the Australian Airports Act 1996, Section 172, Airports (Control of On-Airports Activities) Regulations 1997.

5. Sydney Airport Corp.

6. ATSB said that the four hours of required initial airside-driver training could comprise experience "either as an observer or preferably as the driver under the supervision of another driver with at least a Category 2 [authority to drive airside]."

7. Sydney Airport Corp. *Driver's Pocketbook, Category 2.* May 2002.

8. The report said, "An approved issuing authority … was generally delegated to those organizations that employed airside drivers. [Sydney Airport Corp.] maintained overall responsibility for the training and testing standards of approved issuing authorities at Sydney [International] Airport."

9. The report said, "Stop-bar lighting consists of a row of red unidirectional, in-pavement lights installed on the taxiway along the holding position marking the entrance to a runway."

10. WorkCover New South Wales is a statutory authority administered by the Australian Minister for Commerce. The agency said that its primary objective is "to work in partnership with the [New South Wales] community to achieve safe workplaces, effective return to work and security for injured workers." <www.workcover.nsw.gov.au>.



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