BEA
Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile

www.bea.aero
@BEA_Aero

SAFETY INVESTIGATION REPORT

Serious incident between the AIRBUS A320 registered **OE-INE** and the Robin DR400 registered **F-GTZY** on 31 December 2022 at Bordeaux-Mérignac airport

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

April 2024

BEA2023-0004

BEA

SAFETY INVESTIGATIONS

The BEA is the French Civil Aviation Safety Investigation Authority. Its investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.

BEA investigations are independent, separate and conducted without prejudice to any judicial or administrative action that may be taken to determine blame or liability.

SPECIAL FOREWORD TO ENGLISH EDITION

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation. As accurate as the translation may be, the original text in French is the work of reference.

BEA

CONTENTS

Safety investigations 2
Contents 3
Glossary 4
Synopsis 6
Organisation of the investigation 8
1. Factual information 9
1.1 History of the flight 9
1.2 Injuries to persons 13
1.3 Other damage 13
1.4 Damage to aircraft 13
1.5 Personnel information 14
1.6 Aircraft information 19
1.7 Meteorological information 21
1.8 Aids to navigation 21
1.9 Communications 21
1.10 Aerodrome information 22
1.11 Flight recorders 25
1.12 Wreckage and impact information 25
1.13 Medical and pathological information 25
1.14 Fire 25
1.15 Survival aspects 25
1.16 Tests and research 25
1.17 Organisational and management information 25
1.18 Additional information 45
1.19 Useful or effective investigation techniques 50
2. Analysis 51
2.1. Introduction 51
2.2. Controller activity in a combined frequency situation 52
2.3. Reduction in duty roster staffing before shift 53
2.4. Management of staffing after the incident 54
2.5. Taking into account the problems of combined positions and the actual presence of controllers in the processing of safety events 54
3. Conclusions 56
3.1 Findings 56
3.2 Contributing factors 58
4. Safety measures taken since the occurrence 59
4.1 Measures taken by the Bordeaux-Mérignac approach control unit 59
4.2 Safety measures taken by the DSNA 59
5. Safety recommendation 60
5.1 Automatic and nominative system for recording the presence of controllers at their place of work and in their control position 60

BEA

GLOSSARY

Abbreviations	English version	French version
ACC	Area Control Centre	-
APP	Approach	-
ASS	Assistant	-
ATC	Air Traffic Control	-
ATCO	Air Traffic Controller	-
ATIS	Air Traffic Information System	-
ATM	Air Traffic Management	-
CAPAM	Mérignac airport staff aeronautic club	Cercle aéronautique des personnels de l'aéroport de Mérignac
CSA	Administration social dialogue committee	Comité Social d'Administration
CTR	Control Traffic Region	-
DGAC	French civil aviation authority	Direction Générale de l'Aviation Civile
DSAC	Civil aviation safety directorate	Direction de la Sécurité de l'Aviation Civile
DSEC	Safety division	Direction de la Sécurité
DSNA	French air navigation service provider	Direction des Services de la Navigation Aérienne
EAPPRI	European plan for the prevention of runway excursion	-
EASA	European Aviation Safety Agency	-
EU	European Union	-
GPS	Global Positioning System	-
HR	Human Resources	-
IFR	Instrument Flying Rules	-
INCA	Air traffic incident	Incident de la circulation aérienne
INFO	Flight information service	-
ITES	Safety event processing body	Instance de traitement des événements de sécurité
LSC	Local Safety Commission	-
ND	Navigation Display	-
OD	Operations Division	-
OLAF	Licence and training authorisation management tool	Outil de gestion des licences et autorisations d'exercice-formation
OM	Operating Manual	-
QAR	Quick Access Recorder	-
QS/S	Quality of Service/Safety	-
SAR	Search and Rescue	-
SIGMA	Surface movement guidance and control system	Système informatique de gestion des mouvements des aérodromes
SMS	Safety Management System	-

Abbreviations	English version	French version
STCA	Short Term Conflict Alert	-
TA	Traffic Advisory	-
TCAS	Traffic Collision Avoidance System	-
TMA	Terminal Aera	-
TWR	Tower	-
VFR	Visual Flying Rules	-
VOR	VHF Omnidirectional Range	-

BEA

SYNOPSIS

Time	Around 10:55[1]
Operators	A320: easyJet Europe DR400: CAPAM[2]
Type of flight	A320: passenger commercial air transport DR400: local flight
Persons on board	A320: captain (PF), co-pilot (PM), 4 cabin crew members, 179 passengers DR400: pilot and one passenger
Consequences and damage	None

Clearance to land on a runway occupied by another aeroplane at runway threshold

The day of the serious incident, the duty roster had programmed the presence of six controllers. Before the shift, the tower supervisor had, in agreement with his team, reduced the programmed number of staff to three controllers at the time of the serious incident.

The tower supervisor and controller B had come on duty at 07:30, followed by a third controller (controller A) at around 10:00. The latter, at the time of the event, held the combined GND, TWR, APP and INFO positions. The tower supervisor was acting as the TWR assistant and controller B was taking a break in the control tower cab.

After an Air France A321 had taken off, controller A cleared the DR400 registered F-GTZY to line up at threshold 23, asking him to hold his position due to the wake vortex. The pilot of the DR400 started his timer for a two-minute wait. Flight EJU 49 QH, performed by an easyJet Europe A320 was established on ILS 23, and waiting for clearance to land.

The VFR traffic had become very dense at this point. Controller A, obliged to interrupt the exchanges with the VFR flights, belatedly cleared the A320 to land, having forgotten that the DR400 was holding at the threshold. The pilot of the DR400, understanding that the A320 had been cleared to land although he was still at threshold 23, reported his presence to controller A, who immediately ordered the A320 to abort the approach.

The tower supervisor and controller B, surprised, then became aware of the situation. The crew of the A320, principally concentrated on the aiming point during the final approach, never identified the presence of an aeroplane at the runway threshold.

The easyJet crew carried out a nominal missed approach. The lowest point of the fight path was at a height of 103 ft, at a distance of around 290 m from the runway threshold. The A320 flew over the DR400 at a height of 178 ft and then continued on the standard flight path.

[1] Except where otherwise indicated, the times in this report are in local time.
[2] Cercle Aéronautique des Personnels de l'Aéroport de Mérignac.

Position controller A quickly stepped back. The tower supervisor took the GND, TWR and APP positions without a TWR assistant and controller B who had been taking a break, took the INFO position.

In the absence of instructions from the control, the crew of the A320 asked to be vectored to shorten the standard missed approach path and return to land on runway 23. The aeroplane landed without further incident.

This report contains a safety recommendation concerning the check for the presence of controllers in the control position and at their workplace.

ORGANISATION OF THE INVESTIGATION

On 3 January 2023, the BEA on-duty officer was informed by the south-west air navigation services that on 31 December 2022, at 10:55, an A320 operated by easyJet Europe had been cleared to land on runway 23 of Bordeaux-Mérignac airport while a DR400 belonging to CAPAM flying club was at the runway threshold.

On 9 January 2023, based on the initial factual information collected from the control services, CAPAM flying club and the operator, easyJet Europe, the BEA classed the event as a serious incident and opened a safety investigation.

In accordance with Annex 13 to the Convention on International Civil Aviation and Regulation (EU) No 996/2010 concerning the investigation and prevention of accidents and incidents in civil aviation, the BEA informed the following stakeholders of the opening of a safety investigation:

- Austrian investigation authority as the State of Registry and State of the Operator;
- European Aviation Safety Agency (EASA);
- International Civil Aviation Organization (ICAO);
- French civil aviation safety directorate (DSAC);
- French air navigation service provider (DSNA);
- CAPAM;
- manufacturer, Airbus.

The Austrian investigation authority appointed an accredited representative (ACCREP) accompanied by technical advisers from the operator, easyJet Europe.

All of the above organisations were consulted with respect to the draft final report.

BEA

1. FACTUAL INFORMATION

1.1 History of the flight

Note: the following information is principally based on the QAR, statements, radiocommunication recordings, radar data, airport video-surveillance footage and the GPS data of the Darmin watch of the pilot of the DR400. The data from the easyJet Europe A320 cockpit voice recorder (CVR) was not preserved. The French control units are not equipped with means to record the background communication and aural environment at the controllers' stations (see paragraph 1.17.8).

The Airbus A320 operated by easyJet Europe was carrying out flight EJU 49QH[3] from London-Gatwick (United Kingdom) bound for Bordeaux-Mérignac airport. The aeroplane was on the approach, runway 23 was in use.

In the Bordeaux-Mérignac airport control tower, the GND, TWR, APP and INFO positions were combined in the tower. One controller (controller A) held these positions. A TWR assistant and a tower supervisor were also on duty.

At 10:42, the crew of the A320 were cleared to descend to 3,000 ft, then four minutes later, on descending through 10,400 ft, they were cleared for the approach ILS 23. During this phase, the TWR assistant took a break and was replaced by the tower supervisor[4]. The exchanges with the crew of the A320 were in English, all the other exchanges were in French.

At 10:50:34, the pilot of the DR400 registered F-GTZY reported in from parking LIMA, ready to taxi to runway 23. Controller A cleared him to taxi to holding point Alpha of runway 23. From this moment onwards, over a period of nearly one minute, controller A was kept busy replying to a VFR flight[5]. In the absence of instructions from the control, the pilot of the DR400 gave way to an Air France A321, call sign AF 57FC, also taxiing to runway 23, on a potentially conflicting path with him.

At 10:51:43, the A320 was established on ILS 23. It was at 13 NM from the runway threshold, at an altitude of around 4,300 ft and a speed of 223 kt (see Figure 1, point 1).

At 10:52:53, the pilot of the DR400 indicated to controller A that he was approaching holding point Alpha and would hold (see point 3). Controller A cleared him to line up and wait on runway 23, and asked him to contact him on the TWR frequency. The Air France A321 had taken off a few seconds earlier.

At 10:53:25, the A320 was 8 NM from the runway threshold, at an altitude of around 2,800 ft and an indicated airspeed of 170 kt. Controller A told the crew to continue the approach and informed them that the wind was from 150°/6 kt (see point 4).

From this moment onwards, controller A was in constant communication with the pilots of several aeroplanes:

---

[3] Radio call sign: Alpine 49 Quebec Hotel.

[4] This information is based solely on controller B's statement; it was not possible to have a more exact time for this event.

[5] Due to the positions being combined, the exchanges could be heard on the four frequencies: GND, TWR, APP and INFO.

- the pilot of a VFR flight who had filed a flight plan for Courchevel, and who asked for his flight plan to be activated in the air. This request was accompanied by exchanges regarding the desired flight level;
- the crew of flight AF 57FC who continued their climb to FL 140;
- two VFR flights in transit in the CTR, one of which required a message to be repeated;
- as well as the traffic information required between VFR flights.

At 10:56:06, one of the VFR flights called back on the frequency. Controller A did not reply, he cleared the crew of the A320 for landing (see point 5). The aeroplane was then at an altitude of 766 ft, 1.7 NM from the runway threshold.

Immediately after the A320 crew read-back, controller A cleared the crew of flight AF 57FC for a heading to point PEPAX.

The pilot of the DR400 was aware that he had been lined up on the runway for more than three minutes and understood that the crew of the A320 had been cleared to land on runway 23. He did not know the exact position of the A320 and had no sight rearwards. He was also aware that controller A was busy on the radio and considering that he was not a priority as he was on the ground, he decided to wait before contacting him.

At 10:56:38, he indicated his presence on the frequency, "*La tour du Fox Yankee ?*". Controller A replied to him "*Fox Yankee ?*". The pilot then told him that he was lined up on runway 23 and that he thought that the two minutes had expired[6].

[6] Wake vortex separation from the preceding aircraft.

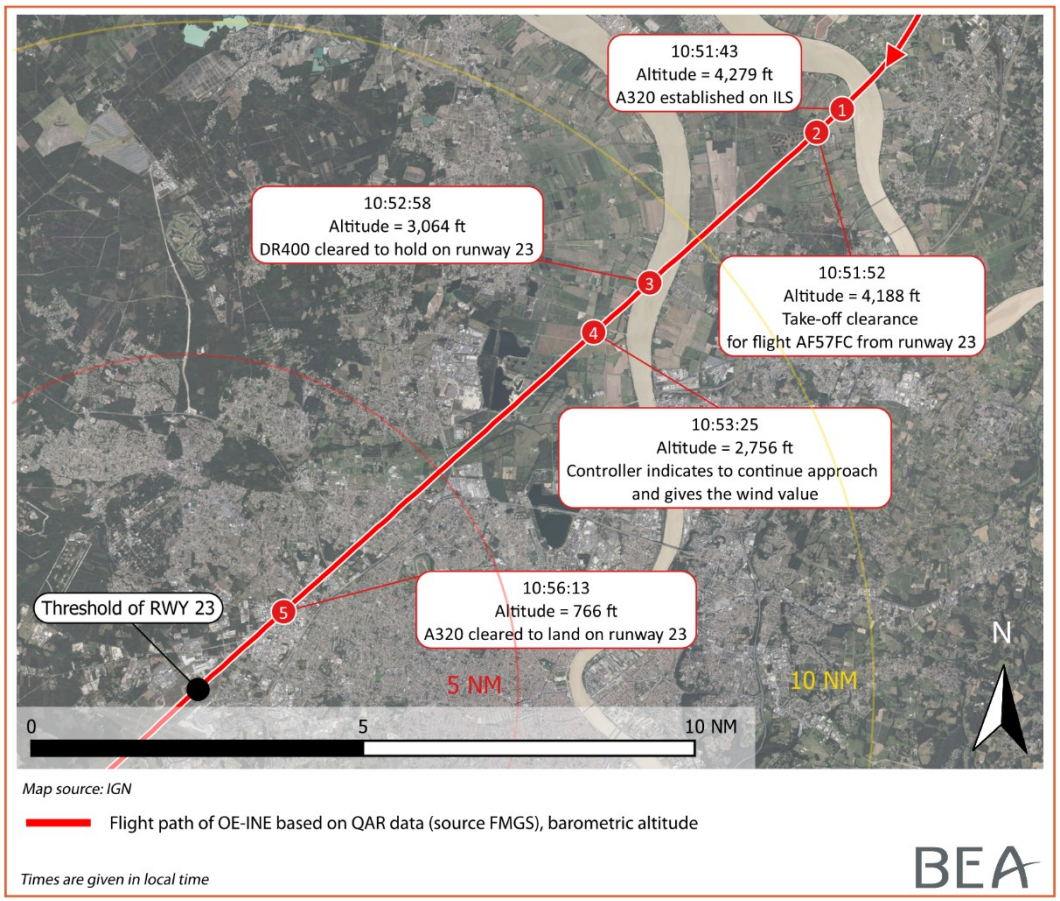

Figure 1: approach path of A320

At 10:56:45, controller A instructed the crew of the A320 to go around, "*Remise de gaz euh Alpine 49QH immediately go around go around aircraft on runway*." At this point, the aeroplane was at a height of 232 ft, at 1,000 m from the threshold of runway 23 (see Figure 3, point 6).

Immediately after the end of the radio message, the crew of the A320 flew a missed approach. At this point, the aeroplane was at a height of 133 ft, at 525 m from the threshold of runway 23. Due to the inertia of the aeroplane, the height decreased to 103 ft, at around 260 m from threshold 23 (see *Figure 3*, point 7) and then quickly increased. The A320 flew over the DR400 at a height of 178 ft (see point 8). The pilot of the DR400 saw the A320 fly over him and observed the retraction of the landing gear.

Figure 2: video footage from Bordeaux airport showing the two aeroplanes

In the control tower, the TWR assistant, who was on a break and had stayed close to the tower supervisor in the TWR assistant position, became aware of the situation.

At 10:57:21, controller A asked the pilot of the DR400 to wait on the runway and indicated that he would call him back.

At 10:58:09, the crew of the A320 confirmed, "*Alpine 49QH, on standard missed approach climbing 4 000 ft.*"

The tower supervisor decided to split the control positions: the tower supervisor relieved controller A in the TWR position and controller B opened the INFO position. The relieved controller (controller A) was no longer in charge of a position.

At 10:58:47, the pilot of the DR400 was cleared to take off.

At 11:00:14, i.e. around three minutes after receiving the control instruction to go around on the standard path, the crew of the A320, on heading 040°, asked on the frequency, "*Do we continue on the standard, or can we continue heading?*". The tower supervisor replied that they were to hold the heading and altitude and that he would call them back.

Around three minutes later, the tower supervisor asked the pilot of the DR400 to contact the Aquitaine INFO and contacted the crew of the A320: "*Turn right heading 130 descend 3,000 ft 1018, cleared ILS 23.*" The crew then questioned the heading to be taken[7]. The tower supervisor then modified the heading instruction, "*Euh turn right on heading 1 8 0 knots[8] to intercept.*"

The crew of the A320 continued its second approach and the aeroplane landed on runway 23 without further incident.

[7] The 130 heading that was given is 95° off the final approach path which is oriented 225°.

[8] The unit given by the controller was not appropriate.

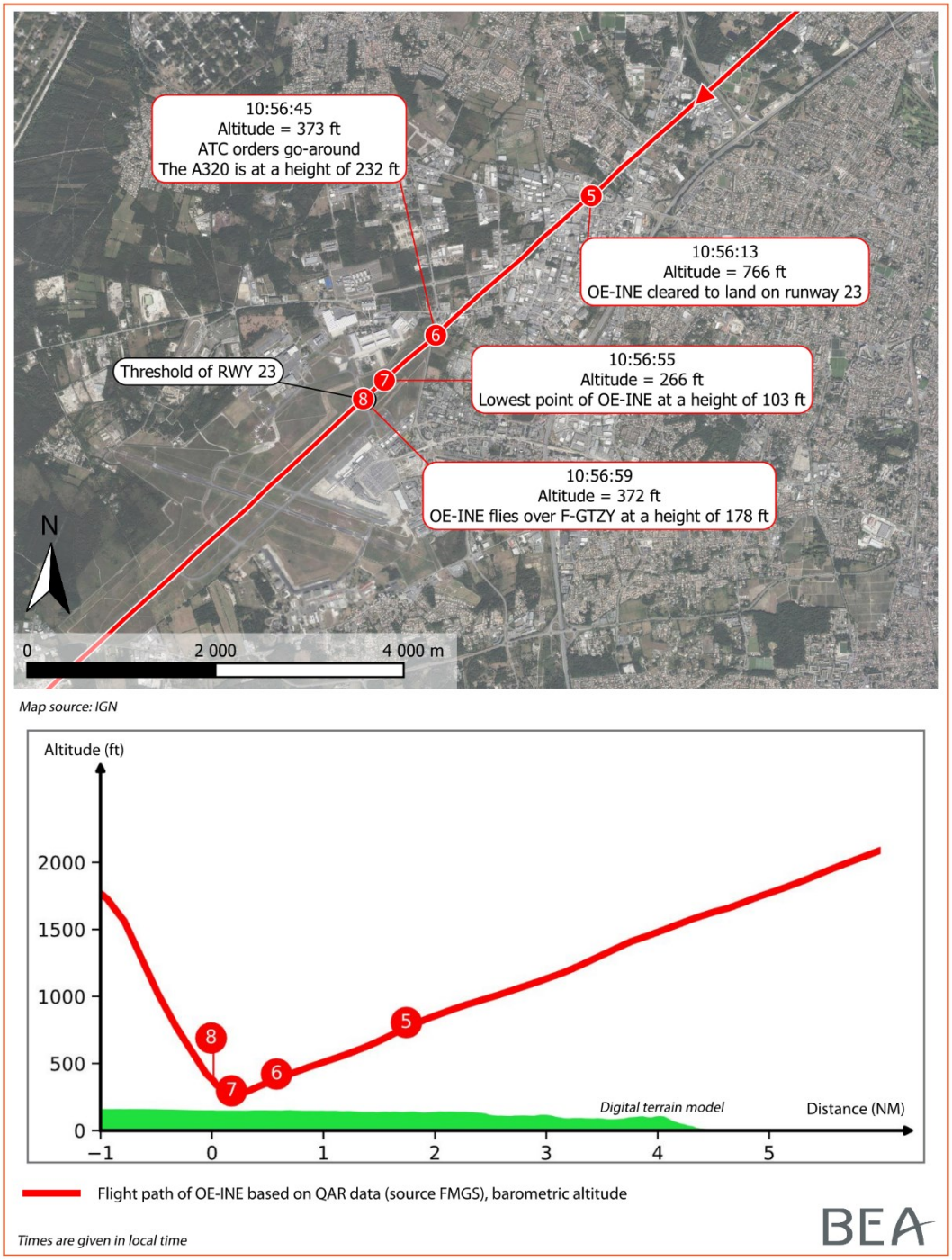

Figure 3: final flight path and go-around of A320

1.2 Injuries to persons

Not applicable.

1.3 Other damage

Not applicable.

1.4 Damage to aircraft

Not applicable.

1.5 Personnel information

1.5.1 Flight crew of flight EJU 49QH

The two crew members were experienced pilots on the Airbus and in their positions. They were based at Bordeaux and had been employed by easyJet for several years. The Italian captain held an Airline Transport Pilot Licence and had logged around 9,000 flight hours. The French co-pilot also held an Airline Transport Pilot Licence and had logged around 2,100 flight hours.

1.5.1.1 Captain's statement

The captain stated that the approach was carried out in good weather with little wind. The crew configured the aeroplane on the ILS and waited for the clearance to land.

He indicated that he did not understand French well but was aware that the frequency was very busy. He told the co-pilot to press the push-to-talk to attract the controller's attention in order to obtain the landing clearance. He believed that this had worked as the controller cleared them to land at around 400 ft.

He did not notice the aeroplane on the runway as he was not looking at the threshold but at the wheel touchdown zone. When the controller instructed them to go around, he realised that something serious had happened.

He stated that they then followed the missed approach procedure. In this phase, he indicated that strangely, nothing more happened on the frequency. It was the co-pilot who had to ask for radar vectoring for ILS 23. According to the captain, the controller seemed to be "lost".

1.5.1.2 Co-pilot's statement

The co-pilot indicated that their flight was the only commercial flight on the frequency and that no-one was ahead of them. He was aware that there were a lot of VFR flights, particularly heading towards Saucats. The control told them to call back at 4 NM on final, with no speed restriction.

At around 4 NM, he tried to contact the controller, but the frequency was saturated. He indicated that at one point, the controller was quiet but that instead of giving them the landing clearance, he started exchanging again with the pilot of another VFR flight.

He stated that at a height of around 500 ft, and still not cleared to land, he checked to see whether the runway was occupied. He did not see anything. The captain then asked him to interrupt the controller to obtain the landing clearance.

He indicated that they were finally cleared to land and then the controller instructed them to go around as there was an aeroplane on the runway. He looked for the aeroplane but could not see anything.

He then found the behaviour of the controller quite "amateurish". During the go-around, he expected the controller to give them instructions. The controller had simply asked them to carry out a standard missed approach. The standard flight path took them to point EPTAR which was at a considerable distance from the airport. He indicated that without instructions from the controller, they had to take the initiative to request headings.

He stated that the controller gave them a heading and cleared them for the ILS approach with a heading offset by 90° to the ILS heading. They asked him to confirm and the controller gave them a more suitable interception heading.

He indicated that at Bordeaux, in the mornings of weekends and public holidays, the GND, TWR and APP frequencies were generally combined.

1.5.2 Pilot of DR400

The pilot held a Private Pilot Licence (PPL(A)) obtained in 2012 and had logged around 210 flight hours. He had been a member of the CAPAM flying club since 2018.

The pilot of the DR400 stated that on that day he was carrying out a local pleasure flight, north of the airport, in the company of his nine-year-old son. The meteorological conditions were CAVOK.

He did not have English radiotelephony qualifications, but understood and spoke English very well.

On engine start-up, he indicated that he set the mode S transponder to ON, with the code 7030, and the strobe lights to ON as specified in the club's instructions.

On completion of the engine tests, he was cleared to taxi to holding point Alpha. An Air France A321 arrived level with him via taxiway Papa. In the absence of instructions from the control, it seemed logical to him to let this aeroplane pass in front of him. On arriving at holding point Alpha, the controller cleared him to line up behind the A321 and to hold, and asked him to switch to the tower frequency. He then started the timer on the A321 lifting off.

While waiting for the controller to call him back for the take-off, he heard the controller in English, clear an easyJet flight to land on runway 23. The sequence seemed strange to him. His reflex was to turn around to try and see the position of the aeroplane on final, but there is no rear visibility in the DR400. The aeroplane was equipped with a GNS530 GPS but without the option to interrogate the transponders of aircraft in the vicinity to display them on the moving map. He then thought that the easyJet was at a distance on the ILS and that he was going to be cleared to take off quickly.

In his mind, at this time, he did not think that the controller had forgotten him and did not imagine that the pilots on final could not see an aeroplane, even a light one, at the threshold of the runway where he was ready to take off. He thought that they all shared awareness of the situation.

When his timer showed it was nearly four minutes since the wheel lift-off of the A321, he decided to call back the controller, initially providing his call sign. On hearing the controller's reply, he started to understand that he was no longer in the controller's action plan and reminded him of his position.

The controller immediately ordered the easyJet flight to go around. He then perceived, around two to three seconds later, the noise of the A320 engines increasing in power. He believed that the aeroplane flew over the DR400 four or five seconds after the go-around instruction. He saw the landing gear retracting and then understood that the crew had not seen him despite their proximity.

The controller then asked him to hold his position. The pilot indicated that this was followed by an interval where there were no exchanges. He used this interval to assess his capability of carrying out the planned flight. He considered that he could carry out his flight. He was then cleared to take off. The flight proceeded without incident.

1.5.3 Air navigation services personnel information

1.5.3.1 Tower supervisor (in TWR assistant position at time of event) - information and statement

Tower supervisor, 46 years old	
Controller licence	25 May 2000, valid
Medical fitness certificate	Valid
Assigned to ACC/North	from 25 May 2000 to 31 May 2015
Assigned to Bordeaux-Mérignac	1 June 2015
Qualified as senior controller for Bordeaux-Mérignac	28 July 2016
Qualified as tower supervisor for Bordeaux-Mérignac	19 October 2021
Declared experience in position in 2022	527 h, no hours as on-job-training instructor
Recent experience 2022	October 35 h - November 51 h - December 30 h

Statement
The tower supervisor indicated that he arrived at the tower at 07:30. A controller (controller B) also arrived at the same time. For 31 December 2022, 40 inbound and 40 outbound flights under IF were scheduled including 14 inbound and 14 outbound flights in the morning. As it was a Saturday, there was no military activity.

He indicated that they relieved the night team. All the control positions (GND, TWR, APP and INFO) were combined on the TWR position (night configuration). The weather was good. Controller B took the TWR position and kept the combined configuration.

The tower supervisor indicated that another controller (controller A) arrived at around 09:45 and relieved controller B who took the TWR assistant position. The latter then had to leave to go to the toilets. The tower supervisor replaced her. The tower supervisor's main activity as TWR assistance during this period was to fill in the strips for the VFR flights who called the INFO frequency. He also had to activate a VFR flight plan. He indicated that he was kept quite busy with the SIGMA system used to generate the strips for the VFR flights which called the TWR controller and the VFR flight plans.

When controller B returned, the tower supervisor asked the TWR controller if he wished to separate the INFO from the combined positions. There was not a lot of traffic. The position controller, who considered that the traffic was compatible with the combined configuration, stated that it was not necessary.

The volume of traffic subsequently increased for the INFO frequency, with around eight aircraft under VFR which corresponds to a moderate traffic level. He indicated that most of the flights were in the Arcachon Bay area and that the TWR position controller had to provide traffic information when the pilot left the CTR.

When the DR400 lined up on runway 23, the A320 was around 8 or 9 NM away on final. The tower supervisor indicated that he had not monitored the traffic because he was very busy.

Both he and controller B were surprised by the incident. He indicated that the TWR controller had not put the strip for the DR400 on the white band representing the runway on the strip board.

Following the instruction for the A320 to perform a go-around, he indicated that he immediately split the INFO position from the other positions and relieved the TWR position controller who stepped back. He then performed the duties of tower supervisor and the combined TWR, GND and APP positions without an assistant, since controller B was in charge of the INFO position. He added that the traffic he had on the frequency was light at this point and the workload as tower supervisor was, in his opinion, virtually non-existent.

For this day, he had made a planned adaptation of the duty roster[9] as follows:

- arrival of tower supervisor and controller B at 07:30;
- arrival of a second controller (A) at 10:00;
- arrival of a controller at 11:00 for lunch on the airport grounds and another at 11:45. These two controllers were programmed to arrive at 11:45 in the control tower cab having already had their meal;
- the sixth controller programmed on the duty roster (back-up controller, part of the D1 shift) was not present on site;
- all of the team relieved at 18:00 by the night team.

1.5.3.2 TWR position controller at time of serious incident - information and statement

Controller, 53 years old	
Controller licence	11 October 1993, valid
Medical fitness certificate	Valid
Assigned to ACC/west	Between 1993 and 2003
Assigned to ACC/south- west	Between 2003 and 2017
Assigned to Bordeaux-Mérignac	2 May 2017
Qualified as senior controller for Bordeaux-Mérignac	9 November 2018
Declared experience in position in 2022	598 hours, 20 hours as on-job-training instructor
Recent experience 2022	October 55 h - November 46 h – December 47 h

Statement

Controller A indicated that on that day, he arrived at 09:45 in the car park and at around 09:50 in the tower where the tower supervisor and controller B were present.

[9] See paragraph 1.17.3.3.

He relieved controller B at around 09:55 and accepted to take the four combined positions (TWR, GND, APP and INFO) as proposed. According to him, VFR flights would not be in the air before 10:00.

An Air France flight was cleared to line up and then take off. He then had the DR400 line up and made it wait to ensure that there was a sufficient distance with the Air France A321 which had just taken off. According to him, the easyJet A320 was still at a distance. Then VFR flights started to call and certain situations required traffic information.

The strip for the DR400 had been completed by the tower supervisor who had been in the TWR assistant position when first contact was made. The TWR position controller indicated that he did not put the strip on the white band representing the runway area on the strip board after clearing the DR400 to line up on runway 23[10].

He had not felt that he had a high workload before the serious incident. He had always had the impression of keeping up with the traffic. According to him, the two safety barriers, namely the strip board and in particular the runway area, and the out-of-window scan were not effective.

After the serious incident, he asked to be relieved. The tower supervisor, who was acting as the TWR assistant at this time, relieved him because he was the closest. Controller B, on a break but in the control tower cab, a few metres from the active position, took the INFO position. He then had no position responsibilities before becoming TWR assistant. In hindsight, he indicated that he was in shock.

Controller A indicated that in the winter, it was common to combine positions and that the tower supervisor often authorised "staggered arrivals"[11] with respect to the programmed duty roster. For the weekend in off-peak periods, the number of staff programmed by the duty roster is six controllers. The day before the shift, the tower supervisor and the controllers can decide on staggered arrivals according to the forecast traffic and weather.

1.5.3.3 Controller B on break in tower at time of serious incident - information and statement

Controller, 49 years old	
Controller licence	16 October 1995, valid
Medical fitness certificate	Valid
Assigned to ACC/south- west	16 October 1995 to 29 April 2018
Assigned to Bordeaux-Mérignac	30 April 2018
Qualified senior controller	20 January 2020
Declared experience in position in 2022	598 hours, 32 hours as on-job-training instructor
Recent experience 2022	October 56 h - November 27 h - December 45 h

[10] The controller did not specify the reasons for this omission.

[11] Controllers start their shifts at a different time to their scheduled arrival times (see paragraph 1.17.3.3).

Controller B indicated that she arrived at 07:30, the traffic was quiet and all the control positions were combined on the TWR position. She took the position and then opened the INFO. She then managed the four combined positions.

When the second controller (controller A) arrived at around 09:45, he relieved her and she took the TWR assistant position. She indicated that her main duties that morning consisted in coordinating by telephone, mainly with the ACC/south-west.

She had to leave her station to go to the toilets. When she returned, they considered splitting the positions, but did not do so because the traffic did not necessitate it.

She did not return to her station and indicated that the amount of traffic at that time was such that extra attention from her in the eventuality that she would have to help out was not necessary. She therefore stayed behind the control position, on the control tower cab's central console. Not being at her station, she was surprised by the incident that she had not seen coming.

After hearing the instruction "*Go Around*", she indicated that she had to look twice before seeing the DR400 on the runway, as it was difficult to pick it out against the runway stripes.

The first reflex during the missed approach by the A320 was to split the control positions. She then took the INFO position; at this time, there were around six VFR flights on the frequency.

In her opinion, the highly seasonal nature of the traffic means that it is necessary to "train" in winter, which is what the controllers do by combining sectors in order to have a sufficient traffic load. She considered that the simulation resources currently available were very limited and did not allow controllers to carry out this training in a simulator.

She also indicated that excessive splitting of the positions leads to hypovigilance, and that this is a topic of discussion within the team. In her opinion, there is neither training nor any clearly defined criteria for splitting the positions. This decision is left to the discretion of the person on duty. She indicated that while ACCs can rely on fairly reliable traffic forecasts to anticipate splitting positions, the approaches cannot because VFR flights are unpredictable and not subject to a flight plan.

She also felt that the "runway area" on the strip board should be reviewed, and that it was in a poor state of repair, which made it difficult to use. She perceived the SIGMA tool as "archaic", to the extent that some controllers prefer to write out the strips by hand. Before the serious incident, she indicated that the tower supervisor had in fact devoted a lot of his resources to entering VFR flight information into SIGMA, which probably affected the attention he could pay to the controller's actions on the frequency.

1.6 Aircraft information

F-GTZY is a DR400-160 belonging to the flying club, CAPAM. Its colour livery is shown below. It is equipped with a transponder which does not have the "ground mode" function. Other TCAS therefore always see it as being in flight.

Figure 4: photo of DR400 from side (source: CAPAM)

Figure 5: photo of DR400 looking forwards (mostly white - source: CAPAM)

OE-INE is an A320-214 operated by easyJet Europe.

1.7 Meteorological information

ATIS E recorded at 10:16 gave the following information: runway 23 in use, approach ILS 23, dry runway, transition level 060, wind 150°/7 kt, CAVOK, temperature 11°C, dewpoint 9°C, QNH 1018, QFE 1012.

1.8 Aids to navigation

Not applicable.

1.9 Communications

At the time of the serious incident, both aeroplanes were on the TWR frequency. This frequency was combined with the GND, APP and INFO frequencies.

The examination of the radiocommunications found that the frequency was busy 60% of the time, between the clearance for the DR400 to line up at 10:52:58 and the instruction to go around given to the crew of the A320 at 10:56:46. Communications in connection with VFR flights took up 50% of the frequency (26 messages with 4 aeroplanes) and with IFR flights 10% (9 messages with 2 aeroplanes).

Figure 6 below graphically illustrates (in white) when the frequency was busy.

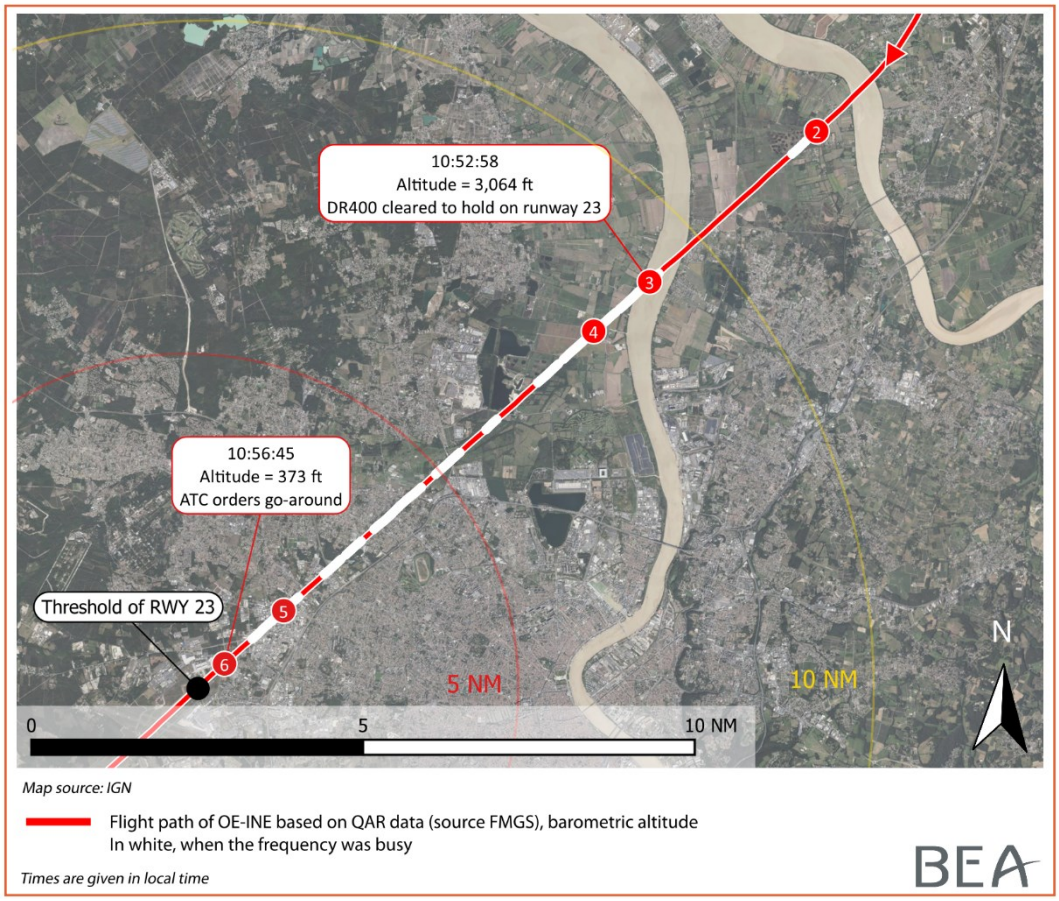

Figure 6: illustration showing when the radio frequency was busy

1.10 Aerodrome information

1.10.1 Bordeaux-Mérignac airport

Bordeaux-Mérignac airport, at an altitude of 166 ft, is a civil, controlled aerodrome open to public air traffic. The airport has two runways, 05/23 and 11/29. On the day of the serious incident, runway 23, measuring 3,100 m in length, was in use.

The centre handles very different types of flights: IFR, VFR (aeroplanes, gliders, parachute drops), military flights due to the proximity of the Mont-de-Marsan, Cazaux and Cognac areas, flight tests of Dassault aircraft based at the airport (Rafale and Falcon) and in the summer, civil defence flights.

The ILS 23 procedure approach path is on 225°. In the event of a missed approach, the published instruction is to continue straight ahead in climb to 4 NM from DME BD, then turn right to intercept radial 354 of the VOR BMC to EPTAR, climbing to an altitude of 4,000 ft (see Figure 7).

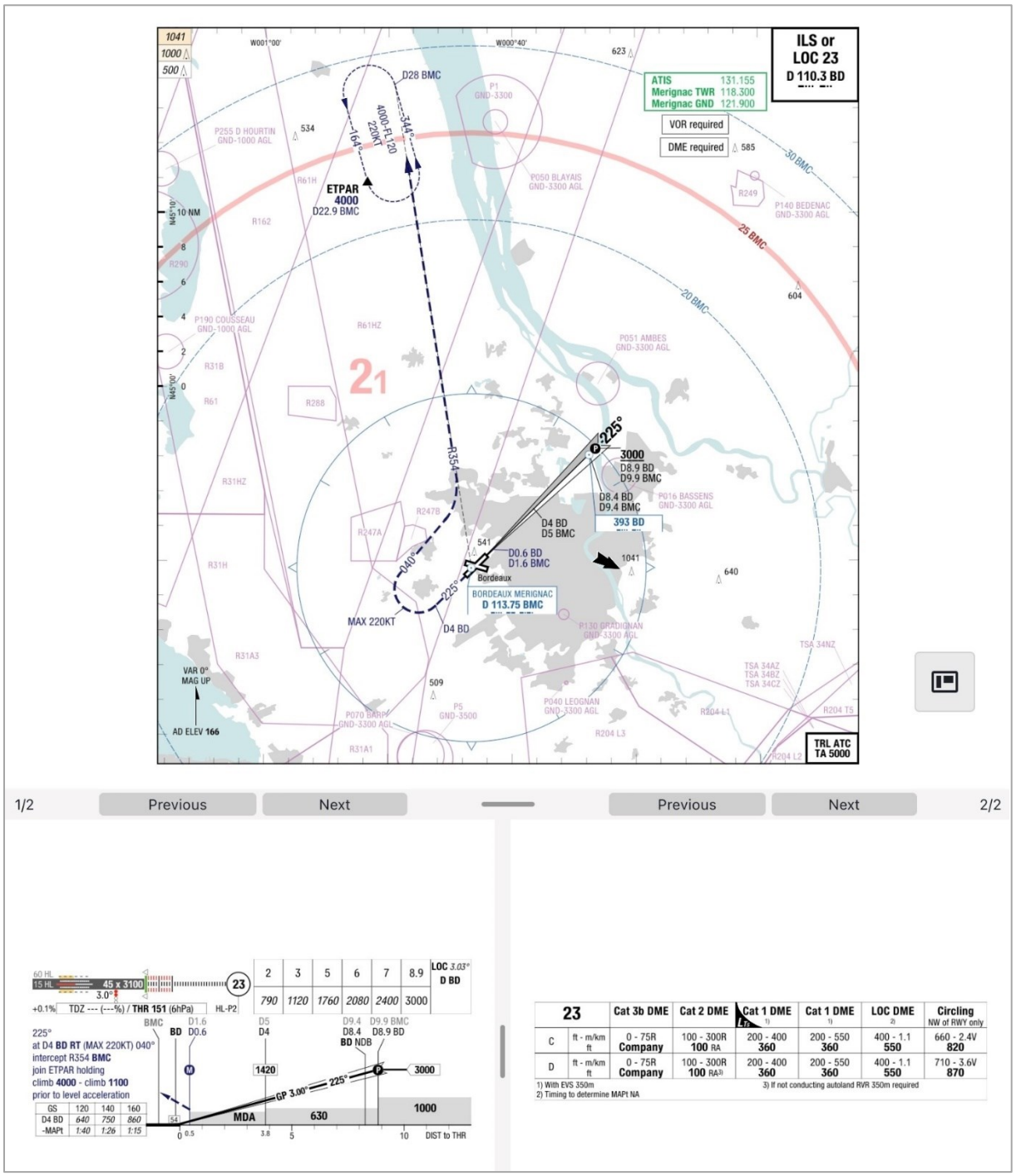

Figure 7: excerpt from ILS 23 approach chart

1.10.2 Runway 23 threshold

Unlike the rest of the runway and the taxiways which are dark grey, the threshold of runway 23 is light grey.

Figure 8: aerial view of runway 23 threshold (source: IGN)

Figure 9: view of runway 23 threshold from TWR controller position (source: BEA)

1.11 Flight recorders

The data recorded in the QAR of the A320 confirmed that its TCAS was operating during the final approach. A Traffic Advisory (TA) was generated at 302 ft RA. As the aural warning “Traffic Traffic” is inhibited below 400 ft, no warning was emitted in the cockpit. Only an amber circle corresponding to the presence of the DR400 was displayed on the ND.

1.12 Wreckage and impact information

Not applicable.

1.13 Medical and pathological information

Not applicable.

1.14 Fire

Not applicable.

1.15 Survival aspects

Not applicable.

1.16 Tests and research

Not applicable.

1.17 Organisational and management information

1.17.1 Bordeaux-Mérignac approach control unit

According to the OM, the Bordeaux-Mérignac approach control unit has the following control positions:

- approach control:
  - two control positions (TMA W and TMA E), each position to have one controller and one assistant; these positions are situated in the “IFR” room,
  - one INFO position for the FIS, with one controller;
- aerodrome control:
  - a TWR position with one controller and one assistant,
  - a GND position, with one controller.

In addition to these controllers, a tower supervisor is responsible for organizing and supervising the real time operational functioning of the air traffic services (see paragraph 1.17.2.1). In certain situations, the tower supervisor can also hold a control position.

When all the control positions are open, eight controllers in position and one tower supervisor are required. According to the traffic, certain control positions can be combined.

The following table lists the radio frequencies associated with the various control positions. Other frequencies can be used when instructed by the control.

Control position	Call sign	Frequency
INFO	*AQUITAINE INFO*	120.575 MHz
TMA E	*AQUITAINE APPROACH*	119.275 MHz
TMA W	*AQUITAINE APPROACH*	129.875MHz
TWR	*MERIGNAC TOWER*	118.300 MHz
GROUND	*MERIGNAC GROUND*	121.900 MHz

Table 1: main radio frequencies used by Bordeaux Aquitaine unit

1.17.2 Role of various controllers

1.17.2.1 Tower supervisor

This section is based on the French order of 28 October 2009 laying down the privileges and method of appointment of tower supervisors and shift supervisors of air traffic control units.

Duties of tower supervisor

Article 1 of the order describing the duties of the tower supervisor indicates that the complexity and importance of an air traffic unit and the need to react quickly may require a tower supervisor to be identified on the duty roster for all or part of the unit's operational hours. They are responsible for organising and supervising the real-time operational functioning of air traffic services.

The identification of a tower supervisor does not necessarily mean that a specific position is manned, as the tower supervisor may simultaneously hold a control position needed for operational reasons.[12]

Privileges of tower supervisor

Article 2 of the order indicates that the tower supervisor must ensure first and foremost that:

- flight safety is maintained;
- operational instructions are complied with;
- capacity is optimised while respecting environmental constraints.

It also states that the tower supervisor ensures that all the rules set out in the unit's tower supervisor manual are complied with, and in particular, that:

- the control positions are correctly manned according to the number of staff on duty. To this end, they draw up and adapt the workstation manning table, taking into account the staff present and training needs; the technical management of control positions. In particular, they decide on the opening and closing of the various workstations, taking into account the duty cycle, the staff present and the traffic forecast. They may also supervise, in coordination with an approach room correspondent, when one exists, the opening, management and closing of the approach room;
- events or infringements are recorded;
- the relief procedures in the case of a serious event are implemented;
- the immediate notification procedure, in coordination with the operational duty manager is complied with;
- the event processing and notification processes are complied with;
- the internal rules inside the tower are complied with;

[12] If this is the case, it must remain exceptional (source: DSNA).

- the TWR and APP strips for one day are collected and grouped in the TWR for archiving and processing (Manchef).

In addition, the Bordeaux OM specifies in section 1.1.1.1 Management of staff and manning of stations, that the tower supervisor is responsible for checking for the presence of the staff listed on the duty roster and ensuring that they are divided between the control tower cab and the IFR room in such a way as to allow optimum operation, adapted to the traffic.

The tower supervisor reports any malfunction or serious incident to their immediate superior or to the operational duty manager.

In addition, the tower supervisor participates, as required, in:
- preparing for specific events and exercises;
- analysing and providing feedback on events observed during their time in the tower.

The method of appointment, training and duties of the tower supervisor of the air traffic units are described in the order.

Appointment of tower supervisor
Article 5 specifies that tower supervisors are appointed for a three-year term by the head of the air navigation service on the recommendation of the head of the operations service, after consulting the commission defined in article 13, from among the senior controllers. This appointment is made on the basis of experience.

Article 13 states that a commission shall be set up at each aerodrome concerned to issue an opinion on the candidate's suitability for the position of tower supervisor and shift supervisor. It will analyse and rank the candidates on the basis of the following elements:
- the technical file: information about the agent's career;
- criteria relating to the agent's suitability for the position of tower supervisor or shift supervisor;
- any special rules defined after consulting the competent joint technical committee.

When the commission does not select an agent for one or all of the posts to be filled, it sends the appointing authority a record of its deliberations, which must include the position of each of its members.

Tower supervisor training
Article 7 specifies that the appointment as tower supervisor is preceded by two compulsory training courses: "shift supervisor" training given at the ENAC, and compulsory training in the operational management of the unit, lasting a minimum of five days and covering the following subjects:
- shift supervisor privileges, compliance with the shift supervisor manual;
- emergency procedures;
- legal information, in particular, in the form of a conference;
- emergency and search and rescue (SAR) plans;
- assimilation of service quality;
- fire safety;
- human factors.

To renew their mandate, tower supervisors must have attended two "tower supervisor" refresher training days over the three years of their mandate.

1.17.2.2 TWR position controller

According to the unit's operations manual (OM), the TWR controller provides control, information and alert services in their area of responsibility, and ensures the separation between IFR, IFR/special VFR control service and the traffic information service between VFR and IFR/VFR flights (including VFR flights at night).

They use radar surveillance and assistance functions as part of the radar services.

The TWR controller:

- monitors the 118.3 MHz tower frequency;
- manages the runway in use;
- ensures the landing and take-off rate;
- handles outbound controlled IFR and military flights, from the runway holding point until transfer to the BW sector;
- handles outbound VFR and military V flights, from the runway holding point until they have left the CTR sector and their possible transfer to the sector concerned;
- handles inbound aircraft when they enter the CTR or when they are transferred by the APP until the runway in use is vacated;
- handles conflicting transit flights in the CTR;
- is responsible for the initial separations between outbound traffic or go-around traffic;
- is responsible for managing their strips and organising their board.

The TWR controller is assisted by a TWR ASS when the IFR room is open.

Figure 10: screens in TWR position and strip board (source: BEA)

1.17.2.3 TWR assistant

The OM indicates that the TWR assistant:

- assists the TWR controller;
- coordinates the actions of the TWR controller and the GND controller;
- organises inbound and outbound sequences;
- prints the VFR strips for inbound traffic;
- manages VFR flights entering the CTR (entry time);
- checks and completes the strips before archiving;
- activates outbound controlled VFR, military V and non-test/acceptance military flight plans;
- closes VFR, military V and non-test/acceptance military flight plans on arrival;
- transfers the VFR or military “arrival” strips to GND;
- manages the use of the interphone with the assistant TMA (see OM 12.3.8.2);
- these tasks are carried out by the TWR controller when the IFR room is closed.

Figure 11: SIGMA workstation used by TWR assistant

1.17.2.4 Approach controller, APP position

The OM specifies that the approach controller's area of responsibility includes all controlled airspace within the boundaries of the Aquitaine INFO, with the exception of the Bordeaux-Mérignac and Bergerac CTRs.

Within this area, the approach controller provides air traffic control services:

- to all controlled IFR and military flights in class C, D and E airspace;
- to all VFR and military V flights in class C and D airspace.

Figure 12 below shows the radar screen, set to display the airspace managed by the controller in the APP position when the IFR room is closed and this position is held from the control tower. The same scale is used for the INFO position.

Figure 12: display set to APP and INFO scale

1.17.2.5 FIS controller (Aquitaine INFO)

According to the OM, the INFO position provides information and alert services in its area of responsibility for the VFR or military V aircraft for which it is responsible.

The controller in charge of the flight information service:

- monitors the INFO frequency: 120,575;
- provides information and alert services in class E and G airspaces of the Aquitaine INFO;
- provides radar services in these airspaces;
- coordinates with the TMA ASS for VFR and military V transfers;
- coordinates with the TWR ASS before transferring VFR and military V flights which have to enter the CTR.

1.17.3 Organisation of controllers' work

1.17.3.1 Working hours of controllers

According to an undated DSNA memo, working hours for control staff are calculated on the basis of an effective annual working time of 1,413 hours. The work cycles are based on every second day being worked over a reference period, comply with a 32 working-hour week baseline (including breaks) on average and take into account the specific provisions applicable to holidays.

These provisions mean that controllers work 155 days a year. It is on this generic basis that the organisation of the work is defined.

To determine the hours a controller works in position over one year, the hours spent on training, attending meetings and taking breaks must be deducted from these 1,413 hours. For this purpose, it is assumed that the training and meeting time in the year amounts to a flat rate of 11 working days (100 hours). Shifts are organised in such a way that the total rest time is spread evenly and represents at least 25% of the total shift time in the cycle. Between 05:00 and midnight, the breaks last between 30 minutes and 1 hour.

Therefore, after deducting the time for training, meetings and breaks, the hours in position worked by a controller in a unit that is open 24/7 should be 984 hours a year.

A 2002 order sets out the organisation of the working time for controllers[13]. According to this order:

- with the exception of night shifts [...] which may be extended to 12 hours, the maximum duration of a shift may not exceed 11 hours;
- breaks are taken within each shift;
- between 05:00 and midnight, the breaks last between 30 minutes and 1 hour.

By law, a break must be taken at least every six hours.[14] It is standard practice in the Bordeaux-Mérignac unit to take a break at least every four hours.

1.17.3.2 Organisation of work in the Bordeaux-Mérignac unit

1.17.3.2.1 Drawing up duty cycle

The organisation of the controllers' work at Bordeaux-Mérignac is defined in the OM. Six teams take it in turns to provide an ATC service 24/7. Each team operates on a six-day cycle defined as follows:

- day 1 (D1): 07:00/18:00;
- day 2 (D2): 09:00/19:30;
- day 3 (E/N, evening/night): 19:30 - 07:00 (07:30 weekends and bank holidays):
  - three of the team controllers hold the night shift (N: 19:30 - 07:00/07:30 weekends and public holidays),
  - the rest of the team, the evening shift (E: 18:00 - 23:00),
- days 4, 5 and 6: team rest days.

This organisation into work cycles and the breakdown into three shifts and three rest days is called a "duty cycle".

The OM specifies that on weekends and public holidays, as was the case on Saturday 31 December 2022, the D1 shift is not worked. The team working the D2 shift works alone from 07:30 to 19:30, with part of the team working the 07.30 to 18:00 shift and the other part working the 09:00 to 19:30 shift. When the D2 team is understaffed, the organisation provides for the

[13] Article 13 of the order of 19 November 2002 relating to the organisation of the working time of staff of the French civil aviation authority providing control services in air traffic control units or coordination units in civil coordination postings. Version in force on the day of the serious incident.

[14] Decree No 2000-815 dated 25 August 2000 relating to the adjustment and reduction of working time in the civil service and the magistrature.

reinforcement of the D2 team by a controller from the team normally scheduled for the D1 shift, for the 10:00 to 19:30 slot.

1.17.3.2.2 Drawing up duty roster

The control unit draws up a duty roster, based on the duty cycle, for each week. This roster indicates the names of the controllers who must be present on each day and for each shift (D1, D2 and N). The number of staff corresponds to the minimum number of controllers that the unit considers necessary to ensure air traffic control with a sufficient level of safety[15].

To define these requirements, the unit uses the following information:

- the open control position configuration: the TWR position must be open 24/7, the approach must be open from 07:30 to 19:30, and a tower supervisor must be present 18 hours a day;
- the history of open control positions in previous years. To this end, the DSNA Operations Division (OD) has the times when the VHF PTT was pressed for each control position. The assistant positions are not monitored and are therefore considered to be always open when the associated control position is open;
- the regulatory working time in a controller position (984 hours, see paragraph 1.17.3.1).

The target workforce, known as the shift requirement, as well as the minimum number of controllers that must be registered for the duty cycle for each type of shift, depending on the day of the week or weekend and the periods of the year to come, is the subject of an organisation memorandum voted on annually by the unit's Technical Committee (TC)[15]. The organisation memorandum for 2022 was approved by the TC on 21 October 2021.

In practice, each controller knows the recurring D1, D2 and E/N shifts for the year. At Bordeaux-Mérignac, the duty roster for week N is published on the Thursday of week N-1. On this date, the duty roster for the week is fixed, but may exceptionally be modified at the request of agents, which in this case must be validated by the Operations Department.

1.17.3.3 Duty roster on day of serious incident

The duty roster for the week of the serious incident is given in Figure 13 below. For Saturday 31 December 2022, the team on the D2 shift was covering the period from 07:30 to 19:30, as provided for in the OM (see paragraph 1.17.3.2.1).

[15] Commission implementing regulation 2017/373 requires that air navigation service providers be "*able to provide its services in a safe, efficient, continuous and sustainable manner, consistent with any foreseen level of overall demand for a given airspace. To this end, it shall maintain adequate technical and operational capacity and expertise*." This last point includes a sufficient number of staff to carry out the service provider's tasks and assume its responsibilities. Version in force on the day of the serious Incident.

TABLEAU DE SERVICE

Semaine 52 : du 26 décembre au 01 janvier 2023

	PC en poste + CAF disponibles						
	Lundi 26	Mardi 27	Mercredi 28	Jeudi 29	Vendredi 30	Samedi 31	Dimanche 01
J1	EQ 6 4 + 0	EQ 1 4 + 1	EQ 2 5 + 0	EQ 3 4 + 0	EQ 4 5 + 0		
J2	EQ 5 4 + 1	EQ 6 4 + 0	EQ 1 4 + 1	EQ 2 5 + 0	EQ 3 4 + 0	EQ 4 5 + 1	EQ 5 5 + 1
N	EQ 4 5 + 0	EQ 5 5 + 1	EQ 6 4 + 0	EQ 1 4 + 1	EQ 2 5 + 0	EQ 3 4 + 0	EQ 4 5 + 1

Figure 13: excerpt of duty roster for the week of the serious incident

The duty roster programmed for the D2 shift, a team of five controllers, including the tower supervisor, plus a controller in on-the-job training[16]. It was also planned that there would be a back-up from the D1 team from 10:00 to 19:30. This back-up was one of the five controllers on the D2 (J2) shift line, the +1 being a controller in on-the-job training.

The D2 shift at the weekend lasts 12 hours. However, controllers cannot work more than eleven hours, including breaks. In this case, it is necessary to stagger the times at which the controllers arrive at the start of the shift and leave at the end of the shift. A Bordeaux-Mérignac unit document issued in 2001, but still in force, specifies how the arrival times should be staggered in this case: three controllers start the shift at 07:30, the rest of the team arrives at 09:00 and the back-up controller (from the D1 team) arrives at 10:00. This document could not be found and was therefore not communicated to the BEA.

For the D2 shift on the day of the serious incident, the D2 team only had five controllers available due to absence entitlements (notably leave or training), out of the six programmed on the duty roster. In accordance with the arrangements agreed with staff representatives in the TC, one person from the D1 team would provide back-up to reach the number of six controllers. The programmed staffing for the D2 team on the day of the serious incident was therefore:

Time	07:30 to 09:00	09:00 to 10:00	10:00 to 18:00	18:00 to 19:30
Programmed staff for D2 shift	3	5	6	3

The controllers to be present that day were as follows: the tower supervisor and two controllers between 07:30 and 18:00, plus two controllers between 09:00. and 19:30, plus the back-up from the D1 team between 10:00 and 19:30.

[16] Trainee controller qualified for GND and TWR positions only.

Based on the OM, the expected staffing levels at the time of the serious incident (10:55) were:

- 1 tower supervisor;
- 1 controller in the GND position;
- 1 controller in the TWR position;
- 2 controllers in the APP position (controller and assistant); the approach controllers manage the INFO;
- 1 additional controller to allow the regulatory breaks to be taken.

This staffing level corresponds to the "combined TWR" staffing in the OM. This is the case when the approach room (IFR room) is not open and the approach positions are held in the tower.

1.17.3.4 Actual organisation on day of serious incident

Presence on site

For the specific requirements of the investigation, the BEA requested the following information. This information is based on the badging in and out of personal badges in the car park, the two-door entrance and, in some cases, the badge reader on the first floor of the building[17]. There is no way of knowing the length of time the controllers were actually present in a position.

Figure 14 shows:

- the number of staff for the D2 shift programmed by the duty roster (black dotted line);
- the number of staff for the D2 shift planned by the tower supervisor and indicated by him in interviews (dotted grey line);
- the number of staff for the D2 shift actually present on the day of the serious incident (solid amber line);
- the number of staff for shift N programmed by the duty roster (dotted green line);
- the number of staff for shift N actually present on the day of the serious incident (solid green line).

[17] The analysis of this data in order to check for the presence of staff is provided for in the service's GDPR register.

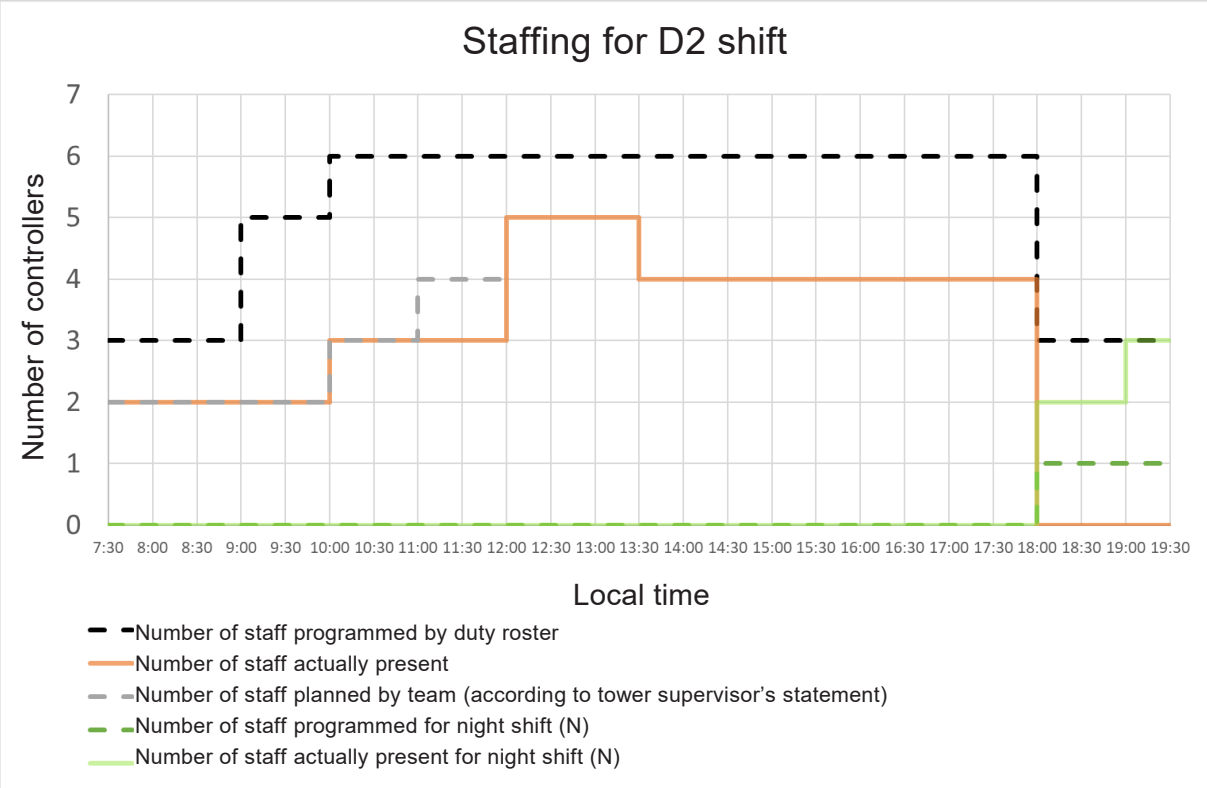

Figure 14: programmed and actual staffing levels for the D2 shift

The following observations can be made:

- at the time of the serious incident, 10:55, the actual number of staff present was two controllers and a tower supervisor, instead of five controllers and a tower supervisor;
- the number of controllers actually present remained below the number programmed by the duty roster for the entire D2 shift; this is explained by the fact that the five controllers of the D2 shift team came and stayed for less than the scheduled working time, and that the backup controller from the D1 shift team did not come to work;
- the team carrying out the D2 shift finished its shift at 18:00 and team N arrived ahead of schedule at 18:00 to man the tower. The two teams had agreed on this organisation for that day.

The arrival times and the length of time the controllers on the D2 shift and the back-up controller from the D1 shift were to be present had been decided upon before the shift by the tower supervisor, in coordination with the controllers concerned.

Controllers heard on frequency

For the specific needs of the investigation, the BEA asked for access to all of the ATC communications over the 07:30 to 19:00 period. Based on the playbacks, it was possible to determine that:

- between 07:30 and 08:56, controller B was at the mike on the GND, TWR, APP and INFO frequencies, no telephone or INFO frequency conversation was recorded for this period;
- between 08:57 and 09:58, the tower supervisor was at the mike on the GND, TWR, APP and INFO frequencies;
- at 10:01, controller A was heard for the first time at the mike on the GND, TWR, APP and INFO frequencies and controller B was heard on the telephone.

- at the time of the serious incident at 10:56, controller A was on the frequency and the tower supervisor was heard on the telephone, this conversation having started a few minutes beforehand;
- between 10:58 and 11:58, the tower supervisor was heard on the GND, TWR and APP frequencies and controller B in the INFO position;
- during this period, at 11:18 and 11:28, the TWR controller was heard on the telephone;
- at 11:48, the tower supervisor was heard on the telephone while he was managing the GND, TWR and APP frequencies;
- at 12:02, one of the two controllers who had arrived at midday was heard for the first time on the INFO frequency. Controller B was not heard again on the frequency after this time;
- between 12:46 and 13:51, the four frequencies were combined again and held by one of the controllers who had arrived at midday;
- from 17:34, the four frequencies, GND, TWR, APP and INFO were combined again;
- the four frequencies were combined for five hours between 07:30 and 18:00.

The presence of the controllers identified on these playbacks is consistent with the information about the presence of the controllers in position, based on the statements, for the 07:30 to 12:00 period.

1.17.3.5 Prerogatives of tower supervisor for managing staff

Based on the tower supervisor's OM, the tower supervisor is responsible for checking for the presence of the staff listed on the duty roster and ensuring that they are divided between the control tower cab and the IFR room in such a way as to allow optimum operation, adapted to the traffic.

It emerged from the various interviews conducted by the BEA in the course of the investigation, that tower supervisors can take the liberty of deciding, in consultation with their team, on having fewer controllers than that programmed by the duty roster and on the arrival and departure times of the various controllers. These decisions, which are not part of the official remit of the tower supervisor, are internal to the team and are not recorded or communicated to the control centre management. The latter therefore has no way of knowing in advance who will be present and when.

In practice, the various interviews[18] conducted by the BEA in the course of the investigation found that the duty roster drawn up by the control centre management coexists with a parallel organisation of the work within the team. This organisation is not accessible to management. It is facilitated by the use of external Internet tools not managed by the DGAC, enabling controllers to organise the length of time that they are actually present at their place of work.

The control centre management is aware of these practices, which have been in place for many years.

[18] See paragraph 1.18.

1.17.4 Monitoring of hours in position and presence at place of work

1.17.4.1 Recording of actual control hours in position

On 1 July 2016, the DSNA set up a register to record the actual control hours. It had to be completed by all those holding an air traffic controller licence or trainee controllers exercising their licence.

From 1 May 2022, in parallel with the register, controllers could enter, in a new tool called OLAF ATCO, the total number of control hours for each day worked, as well as the number of occurrences[19] for each group of sectors.

As of 1 October 2022, the OLAF ATCO tool became the sole means for all controllers to declare their control hours and occurrences. This tool has replaced any other means used previously.

Controllers must declare their hours on OLAF ATCO no later than one month after the control shift. Recording these hours enables controllers to fulfil the conditions for revalidating their control licences (minimum of 200 actual control hours per year).

It should be noted that at Bordeaux-Mérignac, the OLAF ATCO system only has two sections: TWR and APP. The hours worked in the GND and TWR assistant positions are included in the TWR section, while the hours worked in the INFO and APP assistant positions are included in the APP section. If positions are combined, in particular the GND or INFO position with the TWR and/or APP positions, it is not possible to determine how the GND or INFO hours are counted, and in particular whether they are counted as TWR or APP control hours.

1.17.4.2 Declared control hours

For the needs of the investigation, the BEA asked for the actual control hours declared on OLAF ATCO by the controllers programmed on the duty roster of 31 December 2022. The following hours were declared[20]:

- tower supervisor: no hours declared;
- controller A: three hours in TWR position and two hours in APP position;
- controller B on a break at the time of the serious incident: two hours in TWR position and three hours in APP position;
- controller C: six hours composed of two hours in TWR position and four hours in APP position;
- controller D: one hour in TWR position and two hours in APP position.

The playback of the ATC communications shows that in this sample there are differences between the hours declared and the hours actually worked. In particular, the tower supervisor carried out about two control hours in the TWR and APP positions between 07:30 and midday and did not declare any control hours on OLAF ATCO.

[19] An occurrence is a period worked of more than thirty minutes.

[20] OLAF ATCO data extracted on 6 March 2023.

One of the controllers of the D2 team arrived at 11:50 and left at 18:00. He declared six actual control hours on OLAF ATCO. This declaration would imply that he worked without a break between his arrival and departure times.

For the year 2022, the hours declared by the controllers on duty at the time of the serious incident were 527 hours for the tower supervisor, 598 hours for the TWR controller and 598 hours for the assistant controller.

These hours are well below the 984 annual hours that should be worked in position. Generally speaking, according to the DSNA, the hours are often declared late, several weeks after the hours actually worked, and in an imprecise manner.

Furthermore, according to the DSNA, spot checks for the presence of controllers carried out in various centres in 2021 and 2023 found that at least 15% of the controllers that should have been present on site according to the duty roster were absent for the entire duration of the shift.

1.17.4.3 Checking hours present at place of work

According to the information provided by the DSNA, there is no automatic standardised system at national level to check for the individual presence of controllers on site. The only systems that make it possible to track the presence of controllers on site are those that record the badging times to access the centre car parks or buildings. These systems differ from one centre to another. In some centres, these systems only record the badging in to the site and not the badging out. In other centres, these systems do not even exist.

Only the head of the entity is authorised to extract this information, which is only done at the request of the DSNA's Operations Division (DSNA/OD), in exceptional cases.

During the course of the investigation, the BEA was informed by various sources, of the existence at certain control centres of the practice of the "*car park U-turn*", which consists of badging in at the car park entrance at the start of the shift and leaving the car part immediately afterwards.

Thus, as a general rule, the management of a control centre has no means of checking for the presence of controllers on site.

1.17.5 Working method

1.17.5.1 Managing the strip board

According to the OM, a "runway area" is represented by a white band on the strip board. When the strip of an aeroplane is positioned on this band, this indicates that the aircraft is on or is cleared to enter the runway.

As take-offs and landings take place, the TWR controller slides the strip of the aircraft that is going to use the runway onto the white band (see RUNWAY indication below).

In the case of a line up, the controller must:

- materialize the clearance to line up by positioning the strip in the “runway area”;
- materialise that the runway has been vacated after take-off by removing the strip from the “runway area”.

In the case of a landing, the controller must:

- materialize the landing clearance by transferring the strip to the "runway area" after visually checking the runway. Any strip already in this area should alert the TWR controller;
- materialise that the runway has been vacated by removing the strip from the "runway area".

Figure 15: photo of the strip board used on the day of the serious incident; theoretical positioning of a strip for an aeroplane at the runway threshold, represented by a white band, here covered with transparent adhesive tape.

1.17.5.2 Managing line-ups

The OM specifies that a line-up and/or take-off clearance can only be given when the aircraft is at or approaching the runway holding point.

Line-ups more than 90 s before the take-off clearance are to be avoided[21]. In the event that this is justified by operational requirements, the controller must specify the reasons and must endeavour to communicate the waiting time to the pilot.

1.17.5.3 Landing clearance

At airports where this is given, as is the case at Bordeaux-Mérignac, a controller may defer a landing clearance when they cannot issue it in due time on final, for example when a departing aircraft is still on the runway or an arriving aircraft has not cleared the runway. In this case, they ask the crew to continue their approach and specify the reason for this.

[21] This maximum time is to avoid the controller forgetting that an aeroplane is lined up.

The DSNA phraseology manual in force at the time of the serious incident provides the following example:
"Rapidair 3245 Continuez approche Boeing 737 au départ";
"Rapidair 3245 Continue approach Boeing 7 3 7 departing".

1.17.6 Relieving agents in the case of a serious event

1.17.6.1 OM provisions

The OM adopts, and details, the items of a national directive issued by the DSNA/OD. It indicates that serious events affecting air traffic safety are, most of the time, events that generate stress for front-line players, stress that can lead to a state of shock in the most severe cases. In such a situation, it may be that the controller is temporarily unable to carry out their duties in complete safety. Therefore, in order to preserve air traffic safety and to avoid the negative effects of stress, it may be necessary to relieve the staff member(s) involved in such an event as soon as possible.

The OM adds that relieving the controller can enable a reliable incident report to be made and the relevant elements (status of frequency couplings, operation of printers, precise chronology of the situation, etc.) recorded, as any element may be distorted or forgotten over time. When a controller or an instructor/trainee pair, at their work position, is involved in a serious event, the tower supervisor must, at the controller's request or, if they deem it necessary, organise the relief at this work position as soon as possible. The tower supervisor takes any appropriate traffic management measures that may be necessary.

The OM lists the events that may require the controller to be relieved at the position, giving as examples:

- if the controller witnesses an accident involving a person in the manoeuvring area;
- if the integrity of the aircraft has been compromised;
- for any other event, if it immediately appears that an accident has been narrowly avoided.

The OM indicates that after the controller has been relieved, the tower supervisor collects, with the controller, the technical elements and defines the actions necessary for the immediate processing of the event (notification of BEA, filling in of an event notification form, preserving data). He also proposes, if the controller so wishes, the provision of psychological support.

1.17.6.2 Relieving of controller after the serious incident

In the moments following the serious incident, the tower supervisor himself relieved the controller in the TWR position and split the INFO position from the other three control positions (GND, TWR and APP). Controller B who was on a break in the control tower cab then took the INFO position.

Given the staff present at the time, two controllers and the tower supervisor, the relief options were reduced. The tower supervisor was not able to take charge of controller A.

Once the emergency was over, no back-ups or changes to the team's internal organisation were requested by the tower supervisor. In particular:

- the tower supervisor did not request any back-up to enable the TWR controller to be relieved on a more permanent basis. In theory, it was possible to call on the controllers from the D2 team who were to arrive around midday, or on the back-up controller from the D1 team who had been authorised by the tower supervisor not to come to work that day. The investigation was not able to determine whether these three controllers would

have been able to arrive before noon in the case of the first two, or to come to work in the case of the third;
- between 12:46 and 13:51, the four positions, GND, TWR, APP and INFO were combined again and held by one of the controllers who had arrived at midday;
- at around 13:45, controller B left the premises, even though her shift, as programmed on the duty roster, was scheduled to end at 18:00. In contrast, the controller on duty at the time of the serious incident continued his shift until 18:00.

1.17.7 Incident processing system

1.17.7.1 Principles of just culture

The principles of the just culture are described in (EU) regulation No 376/2014 of the European Parliament and of the Council. Article 2 defines the *"just culture "*, as "*a culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, wilful violations and destructive acts are not tolerated."*

These principles were adopted by the DSNA in its just culture charter.

1.17.7.2 DSNA safety event analysis system

According to the DSNA's manual for processing safety events, the sole aim is to improve flight safety, and the safety events are processed within the framework of a just culture.

Safety events mainly come from the notification of an event observed by a DSNA agent, but can also come from the readout of STCA[22] recordings, or from a third party (pilot, airline, aerodrome operator, military organisation, etc.).

Reporting safety events

According to European regulations and the DSNA methods[23], DSNA agents are obliged to report to their superiors, any event likely to present a significant risk to aviation safety. This must be done within 72 hours of an agent becoming aware of the event. For "*sensitive*" events[24], the DSNA entity concerned must also notify the BEA by e-mail within the same time frame.

When the DSNA learns of an accident or serious incident[25],the entity must notify the BEA, the DSAC and the DSNA's central management within three hours, by telephone and e-mail. This is an "*immediate*" notification.

[22] Short Term Conflict Alert

[23] EU regulation No 376/2014, DSNA methodology document MET-009.

[24] List of events defined in the DSNA procedure for the processing of findings and actions (PRO-003).

[25] Narrowly-avoided accidents involving the loss of separation between an aircraft and another aircraft, a vehicle, a person, the terrain or an obstacle; landings/take-offs or attempted landings/take-offs on an occupied or closed runway; serious events deemed to be of interest; on-board events such as an "emergency situation" reported by the pilot to the controller.

A safety event is generally reported by means of an event notification form, completed by the agent concerned. Safety events are also entered in a DSNA database called INCA[26].

Analysis and processing of events

An initial analysis of the event is carried out at local level by the control unit's QS/S (Quality of Service/Safety) entity. If the unit does not have a QS/S, the analysis is carried out by the QS/S of the control unit they are attached to. According to the QS/S manual for processing safety events, this analysis must include the factual data relating to the sequence of the event and context data including, in particular, manning of positions, the splitting of positions or the relieving of a controller, an on-the-job training situation.

The QS/S entity can propose an extended peer review, in particular by convening a Local Safety Commission (LSC). The decision to present a safety event to the LSC is taken on the basis of a seriousness criterion and on the probability of it occurring again, or at the request of the control centre management. Subsequently, the most serious events or those of specific interest to safety, from among all the events reviewed at the LSC level of the various units, are analysed by the DSNA's national body responsible for processing safety events (ITES).

The analysis, whether local or national, may identify the need for corrective or preventive measures and search for associated actions. At local level, it is the control unit which is responsible for the implementation, follow-up and closure of the actions decided upon. At national level, the ITES measures may take the form of a lessons learnt type publication, or national action plans.

1.17.7.3 Processing of the serious incident by the Bordeaux-Mérignac approach control unit

An event notification form was completed the same day by the controller in the TWR position and sent to QS/S electronically. The tower supervisor did not immediately notify the duty manager and external bodies (BEA, DSAC in particular) of the event. However, this event corresponded to the narrowly-avoided accident category, namely "landing or attempted landing on occupied or closed runway", which requires immediate notification.

On 3 January 2023, a sensitive event notification was drawn up by the QS/S entity, and the BEA was informed the next day by e-mail.

A CLS was held on 27 January 2023. The CLS classified the event as being a major incident (serious for all of ATM), very serious for ground ATM, and a moderate probability of reoccurrence. The cause of the event was described as forgetting that an aircraft was on the runway when issuing the landing clearance. It establishes the following contributing factors:

- the presence of the DR400 on the runway not being visually acquired by ATS and not being perceived by the crew on final;
- time on the runway too long (the EAPPRI group recommends a maximum of 90 s);
- the controller's attention being dispersed due to him working in a combined configuration;
- the assistant's workload which did not allow cross-monitoring of tasks.

The combining of the control positions was therefore identified as one of the contributing factors by the DSNA. However, the report does not mention the number of controllers actually present on

[26] The INCA database was replaced by the SafetyCube database on 12 October 2023.

site at the time of the serious incident compared with the number of controllers programmed on the duty roster.

The CLS report does not take into account the problem of relieving the controller and the management of the post-incident staffing, which may have affected the level of safety.

1.17.7.4 Taking into account the manning of positions and the number of controllers present in DSNA's analysis of safety events

As indicated above, the DSNA manual for processing safety events[27] specifies what data is to be collected to provide the context:

Management of positions:

- manning of positions;
- whether positions were split or a controller relieved;
- whether it is an on-the-job training situation.

In the INCA database, which is used to enter information on safety events, there is a field relating to manning: the "manning compliant" field. It can be filled in as follows: "yes", "no" or "undetermined".

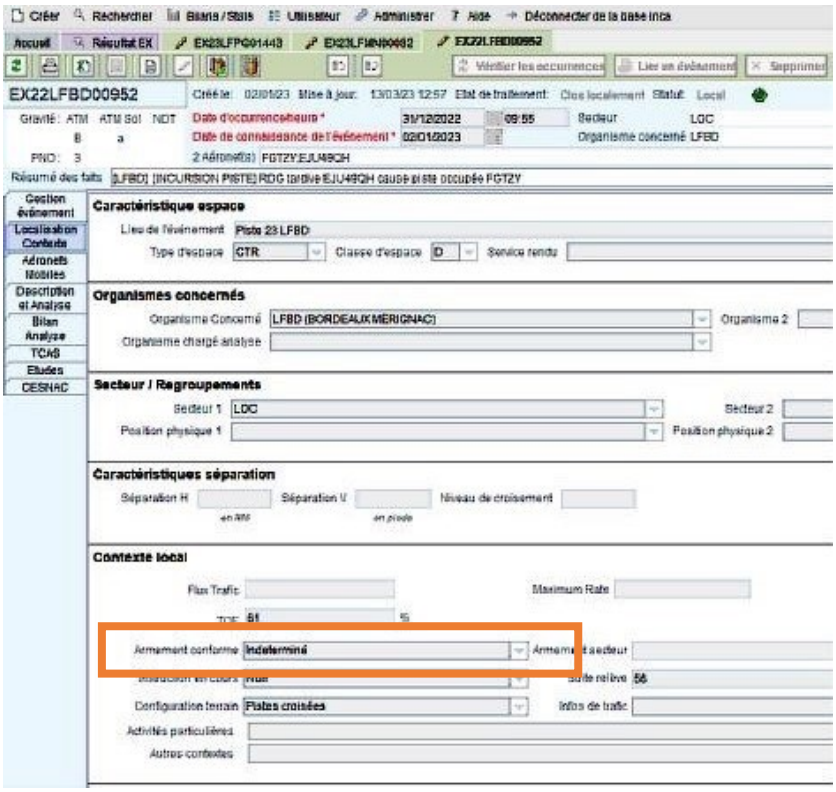

Figure 16: screenshot of the record for this serious incident in the INCA database

[27] Excerpt from MANTES (DSNA manual for processing safety events).

In practice, according to the DSNA, this field is very rarely filled in, and when it is, it is mainly filled in as "undetermined" and is rarely used for subsequent analysis. In addition, the methodology to fill in the INCA database does not require the hours and individual details of the controllers nor information about the manning of the control room to be retrieved.

Furthermore, aside from the information recorded in the INCA database, the QS/S and the control centre management do not have direct access to information on the actual manning of control positions at a given date and time. Only the tower supervisor and the controllers present know this information.

In the ACCs, the configuration (opening of sectors and control positions) of the control room is known at all times. However, the manning is not directly known and, in general, the assumption is made that if a sector is open, it is manned.

In the approach control units, as the configuration is not recorded, knowledge of when a position was open varies according to the systems. It is possible to listen to recordings of the radio frequencies and the coordination telephone to determine at what time positions were open. As this work is very time-consuming, the QS generally does not have the resources to carry it out.

Information about the number of controllers actually present at their place of work is not collected. There are no tools or working methods for doing this.

The possible impact in terms of safety of the actual manning of control positions during a safety event is therefore rarely analysed, either locally in the CLS or nationally in the ITES. The number of controllers actually present is almost never analysed.

1.17.8 Background communication recording at controller work stations

In Europe, European regulation (EU) 2017/373[28] sets out that, *"Unless otherwise prescribed by the competent authority, air traffic services units shall be equipped with devices that record background communication and the aural environment at air traffic controller's, or the flight information service officer's, or the AFIS officer's work stations, as applicable, capable of retaining the information recorded during at least the last 24 hours of operation. Such recordings shall only be used for the investigation of accidents and incidents which are subject to mandatory reporting."*

There are similar provisions in ICAO Annex 11. In application of this regulation, France produced an order dated 9 June 2020, amended by an order dated 8 February 2022[29], which states that until 31 January 2025, providers of aerodrome control, approach control and en-route control services rendering services to general air traffic are not required to equip their control units with such devices.

Consequently, at the date of publication of this report, no control unit in France is equipped with such a system.

[28] Modified by Commission Implementing regulation (EU) 2020/469 of 14 February 2020 introducing requirement ATS.OR.460.

[29] Order of 9 June 2020 on recording of data relating to air traffic management, their storage and use and Order of 7 February 2022 modifying the order of 9 June 2020 on recording of data relating to air traffic management, their storage and use.

1.18 Additional information

1.18.1 Management statements

In the course of the investigation, the BEA took statements from the management of the Bordeaux-Mérignac approach control unit, the DSNA Operations Department (DO), and the Safety Division (DSEC).

Bordeaux-Mérignac management statements

During the interviews with the Bordeaux-Mérignac management, the following topics were discussed: the traffic context, the human context, the organisation of work and the drawing up of the duty roster, the local safety commission (CLS) review following the serious incident, the role of the tower supervisor, checking for the presence of staff and the organisation of work.

Traffic context at Bordeaux-Mérignac approach control unit

The management indicated that:

- the post-COVID traffic was very different, with a much more pronounced summer-winter seasonal pattern;
- by the summer of 2022, the traffic had risen to 85% of the 2019 traffic level and VFR traffic had increased;
- before COVID-19, the IFR room was opened every day except at weekends, but since then, it is only open in the summer;
- military traffic has increased because, during the COVID-19 period, the airspace was empty, so it expanded geographically, and this situation has persisted;
- traffic generally peaks in the late morning and evening, and is very quiet the rest of the morning and early afternoon.

Human context at Bordeaux-Mérignac approach control unit

The management indicated that:

- based on their observations, the summer of 2022 had been difficult and the controllers "came out of it tired" and seemed to have felt a sort of need to compensate in the winter period;
- during the COVID-19 period, staff had had to be segregated and controllers were asked to work half shifts instead of full shifts, and some teams had found it difficult to return to the programmed working rhythm when traffic resumed;
- tower supervisors continued to make “accommodating adjustments" in the management of staff after the COVID-19 period, despite the publication of a memo indicating a return to nominal management of the duty cycle with full shifts.

Organisation of work and drawing up of duty roster

The management indicated that:

- the organisation is governed by an annual memorandum examined by the CSA[30], and every autumn, the feedback is used to organise the following year's activities;
- each year, a management meeting is held with the trade unions to decide on the number of controllers for each type of shift;
- staffing forecasts are updated very frequently and the control subdivision manages the duty roster on a daily basis, which is published on the Thursday of week N-1;

[30] *Comité social d'administration*, the new name for the social dialogue body.

- the minimum target for the "D2 Weekend" shift in the off-peak season is normally six controllers, and in 2021 it was five. As traffic had picked up, the target was raised to six again in 2022;
- on the day of the event, the actual presence of six controllers was programmed on the duty roster.

Local safety commission review following serious incident

The management indicated that:

- in the CLS review at the end of January 2023, the head of the operations department, her deputy, the QS subdivision head and assistant, the control subdivision assistant, the instruction subdivision assistant, the tower supervisor, the TWR controller and a controller appointed as control team representative in the CLS review were present;
- the tower supervisor and the controller considered that the traffic did not require the positions to be split.

Role of tower supervisor

The management indicated that:

- acceding to the post of tower supervisor is a significant career advancement and corresponds to real responsibilities;
- there are practically no failures in training and access to the post of tower supervisor is almost automatic when requested by a controller, provided that a tower supervisor post is available in the centre;
- the tower supervisor is authorised to hold a control position during shifts, but this must remain exceptional;
- the order of 28 October 2009[31] does not specify that the tower supervisor can reduce, on his own initiative, the number of controllers present in relation to that programmed on the duty roster, nor the duration of the controllers' shifts;
- the tower supervisors modify the organisation of the duty cycle by means of a "parallel" roster which is not accessible to management.

Checking for the presence of staff

The management indicated that:

- the tower supervisor alone decides on the organisation of his team and does not have to report it, except for filling in a position register which is only used when the IFR room is open. This register is in the form of loose-leaf paper which is not archived and is only used on the day of the event. There is not traceability of staff presence;
- management has no visibility and no means of effectively and therefore systematically checking staff presence times.

Organisation of work

The management indicated that:

- there is no criterion for combining/splitting approach positions whereas this is the case in ACCs;
- in their opinion, the logical combination is "APP + INFO" or "TWR + GND", because the screen setting is different for each of these two groups, and the use of an appropriate scale is important.

[31] See paragraph 1.17.2.1.

DSNA Operations Department (DO) statements

The following topics were discussed: the organisation of the controllers' work, the procedures for checking the time spent on site and in the control position, and the role of the safety event processing body (ITES).

Organisation of work

With regard to the existence of a parallel organisation of the work, the operations division:

- confirmed that the internal organisation of teams can lead to staggered starting times, early departures or certain absences that are not under the control of management. The introduction of a shift requirement and the operational standby status[32] has already made it possible to manage the "non-presence" of staff exceeding the shift requirement; but there are still adjustments that generate absences below the shift requirement;
- confirmed the existence of such an organisation, as well as that of a "parallel roster" which makes it possible to organise "additional absences", staggered arrivals or early departures, etc., beyond the control of management;
- indicated that in the absence of a generalised system of automated monitoring of working hours, the number of hours actually worked cannot be reliably and objectively measured, time off in lieu cannot be verified and compliance with minimum daily and weekly rest periods cannot be guaranteed.

Checking hours

The operations division indicated that:

- relations with the trade unions are difficult, particularly on any subject concerning the systematic monitoring of the hours present;
- the DO memo of 2010[33] on checking for the presence of staff on site by means of badges was difficult to apply due to strong social opposition and the fact that an alternative, declaration system was implemented and approved by the oversight authority as complying with European regulations. This memo did not deal with the fundamental problem as it only took into consideration whether or not a badge had been presented on the site, and not that the manning of the control positions was compliant;
- the implementation of a declaration system for the control hours performed does not allow for detailed verification because the consistency check has a margin of error of +/- 20% and the non-radar control positions are counted on a flat-rate basis because there is no automatic verification of the status of these "coordination" positions in the approach unit. This process was nevertheless validated and is regularly audited by the oversight authority (DSAC);
- following this memo, the controllers were also asked to substantiate their presence on site (by means of the car park or building access badge records);
- the introduction of the OLAF ATCO electronic system slightly improves traceability and has made the system more durable and consistent, but it is still based on a declaration principle;
- in the event of no declaration, late declaration or inconsistency, recent reminder and penalty procedures until the hours are declared have been implemented.

[32] Operational standby exercised outside the workplace is a period during which a controller remains at the disposal of his or her department, must be able to respond to requests and is able to return to a controller position within a maximum time of one hour and thirty minutes.

[33] See paragraph 1.18.3.

Safety event processing body (ITES)
The OD and DSEC indicated that at the date of the event:

- when events were reported, the number of staff actually present in relation to the number programmed on the duty roster was not requested;
- the ITES analysis was based on CLS reports;
- in this body, there was no systemic or organisational analysis of safety events in relation to issues of combining or splitting positions and staff actually present and available;
- as a result, ITES could not really analyse the impact of the reduction in the number of staff to that programmed on the duty roster and its connection with the combining of positions.

Since the event, the DO and DSEC have indicated that they are working on modifying the system so that, for each significant incident reported, the actual staffing levels are compared with those on the duty roster.

1.18.2 Similar events investigated by the BEA

September 2013, serious incident at Lyon
This serious incident occurred at Lyon to the Cessna 510 Mustang registered F-HDPN. At night, the controller, alone in the tower, cleared the Cessna to take off from a closed runway. The BEA identified the under-staffing in the tower as a contributing factor to the incident.

Following this serious incident, the BEA issued the following recommendation:

The DGAC ensure that the actual staffing of the control towers complies in all circumstances, with the position manning and combination configurations specified in the operations manual. [Recommendation 2015-069]

The DGAC replied as follows:
On 5 September 2013, OD directive No 0588/06 specific to the manning of control towers and large approach control centres states in particular, that the tower supervisor is responsible for ensuring that control positions are correctly manned according to the number of staff on duty. To this end, they draw up and adapt the workstation occupancy table, taking into account the staff present and training needs. The tower supervisor will have to justify their decisions after the fact, if requested to do so by their management.

In 2013 the BEA published a study regarding the loss of separation during a triple approach to Paris-Charles de Gaulle.

This study was carried out after twelve incidents of loss of separation on approach. The report states that there were eleven situations of combined positions for the twelve losses of separation studied, in seven cases, the two aeroplanes involved were managed by the same controller and that the combining of positions seems to be a contributing factor to these losses of separation.

For its part, the DSNA analysed the twelve losses of separation taken into account in the study and listed the resulting measures taken. The causes and contributing factors identified were consistent with and supplemented those retained by the BEA.

Neither of the two studies mentioned whether the combining of positions was the consequence of a reduction in the duty roster staff decided by the tower supervisors prior to the day of the events.

1.18.3 Audits and reports

The paragraph below provides a summary of various elements obtained by the BEA, in connection with the organisation of air traffic controllers' work, in particular the subject of checking for their presence.

The elements refer to various Court of Auditors reports, EASA audits and DSAC reports. Where available, the responses provided by the DSAC and DSNA to these findings are indicated.

In 2002, the Court of Auditors identified in its report "Air traffic control", the problem of a work organisation uncorrelated with traffic imperatives and in favour of an increase in controller rest periods.

In 2010, a new report by the Court of Auditors, entitled "Managing air traffic control staff: opaque work organisation and unbalanced social negotiations" indicated that the opacity with respect to the checking for the presence of staff persisted, contrary to what was observed in other countries, and that the unions' desire to maintain it had led to systems that did not meet the safety requirements that must prevail in air traffic control.

In March 2010, in a letter in response to the Court of Auditors' report on human resources management in the DSNA, the director of the air navigation services reiterated the general principle that the working hours of DSNA operational staff are governed by the unit duty cycles, and asked that compliance with this principle be ensured in all units by using information from access badges to the premises or a sign-in system if the badge system does not yet allow this. The widespread introduction of these provisions does not seem to have lasted beyond a few months.

In 2014, an EASA audit indicated that the French system for recording the actual hours in position did not meet the reliability criteria required for licence renewal.

Following the EASA audit, the DSNA set up consistency checks between the declared cumulative time in control positions and the actual length of time that the positions were open[34]. The counting of hours continued to be based on a declaration system. Presence was recorded in a paper format. The possibility of badging in at a position was no longer mentioned.

In 2021, a new report by the Court of Auditors[35] noted that no system for clocking in or checking the working hours of air traffic controllers had been put in place since the previous report, and that checks on staff presence were still based solely on shift registers or registers of control hours kept locally - and often empirically - by team managers, and that since 1988, the Government and the DGAC had negotiated social protocols with the representative trade unions. Their primary motivation had been the search for social peace and the desire to channel the demands of staff, particularly air traffic controllers, into multi-year agreements rather than dealing with them in successive industrial disputes.

The report made the following recommendation (No 7): By 2023 at the latest, implement an automated tool for monitoring the working hours of all DGAC staff.

[34] Determined by the times when the PTT was pressed in the positions that required the use of a microphone.
[35] Court of Auditors report 2021, “The DGAC’s human resources policy — years 2013-2020”.

On 22 June 2021, the chairman of the TC-OD reported that a recent staff presence audit had revealed an unjustified absence rate of 25 to 30% in many control rooms.

In 2021, a new EASA audit indicated that the DSNA was unable to demonstrate the reliability of the system for declaring the position hours worked.

Following this EASA audit, the DSAC audited the DSNA in 2021 and indicated in an official letter that, the DSNA was not able to demonstrate that the control hours declared by air traffic controllers and transmitted to the DSNA's centralised management for monitoring and revalidating licences had actually been carried out.

In response to the DSAC, on 14 April 2022, the DSNA issued memorandum No 07-30/22 detailing the procedures for verifying the consistency and correlation of control hours on the basis of a system that continued to be declaration-based.

On 11 July 2022, the DSNA issued memorandum DO 13-59/22 relating to the implementation of a register of control hours and modification of unit refresher training programmes, which makes it compulsory to use the OLAF ATCO tool to declare hours and indicates that this must be done no later than one month after the shift. The OLAF ATCO system remains a declaration-based system.

On 6 March 2023, the DSNA indicated in its memorandum 2023/016 on the organisation of the monitoring of hours and occurrences as well as consistency and correlation checks, that units must monitor the control hours declared by their agents on a monthly basis and, where necessary, send reminders to ensure that the OLAF ATCO tool is filled in.

Lastly, on 21 February 2023 and 4 April 2023, the DSNA carried out new presence checks in the main French centres. Over the two days checked, it was noted that:

- 69% of the staff worked half or more of the programmed working hours, although it was not possible to determine with certainty how many agents worked the entire shift;
- 12% of the staff did not turn up at all;
- 13% of the staff worked half or less of the programmed time, some of them for less than two hours.

These figures should be treated with caution, as the tool used, as mentioned earlier in the report, is not designed for this purpose and varies widely from one unit to another.

It is not currently possible to determine, structurally, systematically and accurately, the proportion of staff who strictly observe the duty cycle. Samples are taken on a case-by-case basis in the form of presence checks, and a sometimes significant discrepancy between the published duty cycle and the one carried out by agents has been observed in all the centres where presence checks have been carried out, particularly during periods of low traffic.

1.19 Useful or effective investigation techniques

Not applicable.

BEA

2. ANALYSIS

2.1. Introduction

The day of the serious incident, the duty roster programmed the presence of six controllers. Before the shift, the tower supervisor had, in agreement with his team, reduced the programmed staff to three controllers at the time of the serious incident.

The tower supervisor and a controller (controller B) had come on duty at 07:30, followed by a third controller (controller A) at around 10:00. At the time of the event, controller A was responsible for the combined positions GND, TWR, APP and INFO. The tower supervisor was acting as the TWR assistant and controller B was taking a break in the control tower cab.

After an Air France A321 had taken off, controller A cleared the DR400 registered F-GTZY to line up at threshold 23, asking him to hold his position due to the wake vortex. The pilot of the DR400 started a two-minute wait. Flight EJU 49 QH, performed by an easyJet Europe A320 was established on ILS 23, and waiting for a clearance to land.

The VFR traffic become very dense at this point. Controller A, obliged to interrupt the exchanges with the VFR flights, belatedly cleared the A320 to land, having forgotten that the DR400 was holding at the threshold. The pilot of the DR400, understanding that the A320 had been cleared to land although he was still at threshold 23, reported his presence to controller A, who immediately ordered the A320 to go around.

The tower supervisor and controller B, surprised, then became aware of the situation. The crew of the A320, principally concentrated on the aiming point during the final approach, never identified the presence of an aeroplane at the runway threshold.

The easyJet crew carried out a nominal missed approach. The lowest point of the fight path was at a height of 103 ft, at a distance of around 290 m from the runway threshold. The A320 flew over the DR400 at a height of 178 ft and then continued on the standard flight path.

The position controller quickly stepped back. The tower supervisor took the GND, TWR and APP positions without a TWR assistant and the second controller who had been taking a break, took the INFO position.

In the absence of instructions from the control, the crew of the A320 asked to be vectored to shorten the standard missed approach path and return to land on runway 23. The aeroplane landed without further incident.

The analysis covers the following points:

- controller activity in a combined frequency situation;
- reduction in duty roster staffing before the shift;
- management of staffing after the incident;
- taking into account the problems of combined positions and the actual presence of controllers in the processing of safety events.

2.2. Controller activity in a combined frequency situation

When controller B returned to the control tower cab, the team envisaged splitting the INFO[36] from the other frequencies but finally decided to keep all the frequencies (GND, TWR, APP and INFO) combined. In this context, the consequences of the combined frequencies, in the conditions of the day of the serious incident, had an impact on the use of the radar screen, the working methods and cross-monitoring.

2.2.1 Radar screen setting

The combined positions, as decided on, meant that the controller had to manage airspaces of a different character on the same radar screen scale. In fact, the radar image for the INFO and APP positions needs to be set to a large scale in order to be able to view the entire INFO and approach airspaces (TMA). For the TWR position, the scale needs to be zoomed in to give a better view of the traffic near the aerodrome, whether VFR or IFR.

Thus, the combination of the four positions as implemented on the morning of 31 December 2022 meant that the controller did not have an optimal view of all the traffic.

2.2.2 Working methods

Combining positions as diverse as GND, TWR, APP and INFO means that different types of flight have to be managed, sometimes simultaneously, requiring technical skills and "mental gymnastics" different from those required for each position individually.

In the GND and TWR positions, most of the work is done visually (controlling aircraft on the ground and in aerodrome traffic). The nature of the work in the INFO position is very different from that of the other control positions (GND, TWR and APP). The work is less predictable and less standardised. In good weather, the number of VFR flights, the timing of the calls and the length of the messages are unpredictable.

In the case of combined positions, as on the day of the serious incident, the controller's attention and surveillance had to be divided alternately between the runway and the radar screen. This workload and complexity probably contributed to the omission to position the strip on the "runway" band of the strip board, as well as to the ineffectiveness of the visual check of the runway threshold before issuing the landing clearance to the A320 and, ultimately, to the DR400 being forgotten at the runway threshold.

2.2.3 Phraseology

As indicated in paragraph 1.17.5, the phraseology manual states that when a controller defers a landing clearance, they must inform the crew of the reason.

In this serious incident, the controller, probably pressed for time, failed to do so. Although the co-pilot of the A320 indicated in his statement that he had guessed the reason for the delay in obtaining clearance, he did not continue his visual search beyond a few seconds. It is probable that if the controller had indicated to the crew that a DR400 was at the threshold of runway 23, the crew would have continued their visual search, and if they had not managed to identify the DR400, would have questioned the controller on the subject, thus removing the ambiguity.

[36] A single controller continuing to hold the GND, TWR and APP positions.

It is therefore likely that the use of more rigorous phraseology by the controller would have led to a better shared-awareness of the situation.

2.2.4 Cross-monitoring

Although it may sometimes seem redundant in low-traffic situations, manning the various control positions ensures that the controllers are mentally available, makes their work more comfortable, improves the quality of service and enhances safety. A sufficient number of staff means that controllers can cross-monitor each other and the tower supervisor, who is not directly involved in a control activity, can manage the various tower activities. In the case of this serious incident, none of the controllers present saw the incident develop, particularly the tower supervisor, who was absorbed in his duties as TWR assistant.

2.3. Reduction in duty roster staffing before shift

The duty roster defines, for each shift, on the basis of the history of previous years, the minimum number of controllers that management considers necessary to ensure air traffic control in good safety and traffic volume conditions.

The day before the incident, the tower supervisor chose to reduce the number of controllers compared with the number programmed on the duty roster. Thus, at the time of the serious incident, three controllers were present, including the tower supervisor, instead of the six programmed on the duty roster. It was therefore planned, back on the previous day, to combine positions in order to allow this reduction in manpower.

The principle of combining positions, normally a tactical tool allowing a degree of flexibility in matching human resources to actual traffic, becomes in this case a strategic tool, decided before the start of the shift, with the aim of reducing the time spent at work.

To make his decision on the number of controllers in his team and their working hours before the start of the shift, the tower supervisor relies essentially on his personal experience, the forecast IFR traffic and weather conditions, as well as on the knowledge of the members of his team. The control centre management has no information on the decisions to reduce the number of controllers taken by the tower supervisors prior to the shifts.

In this operating mode, the match between the number of controllers actually present and the actual traffic is no longer based on the duty roster, but mainly on the personal assessment of the tower supervisor, even though this match is an essential component in the level of safety of the service provided.

The investigation found that at various levels, these practices went beyond the team involved in the serious incident:

- in order to reduce the work period, the tower supervisor had to coordinate with the night team (three of whom came before their shift started) in order to be able to release three controllers from his team in advance at 18:00;
- in the Bordeaux-Mérignac approach control centre, tower supervisors generally decide themselves, in consultation with their teams, how many controllers are actually asked to come to work and at what times, without informing their superiors. Management has no way of knowing what adjustments are made within the team before the shift begins, but acknowledges that these practices do exist;

- lastly, audits and reports carried out at national level have established that these flawed practices are widespread and long-standing.

This issue has been raised on several occasions since 2002 by various bodies, with different aims (EASA, DSAC, Court of Auditors) without any significant progress to date (see paragraph 1.18.3). As the Court of Auditors' report[37] points out, in the absence of an automated control system, it is still not possible to ascertain how long air traffic controllers are actually present.

This situation, which the DSNA is aware of, is probably the result of management's desire to maintain relative social peace.

2.4. Management of staffing after the incident

The decision to relieve controller A was taken in a hurry and the options were restricted by the fact that only two controllers were available. The tower supervisor thus took the GND, TWR, APP and TWR assistant positions while controller B took the INFO position.

The small number of controllers present deprived the team of the means necessary to directly take charge of the controller involved in the serious incident and to ensure the relief in a safe manner, thus maintaining a certain level of risk after the serious incident.

It also appears that the serious incident did not call into question the organisation planned by the tower supervisor as the team carried out the rest of the shift with the staff numbers and at the times initially planned by the tower supervisor. The decision to combine the four GND, TWR, APP and INFO positions was taken again shortly after the serious incident.

In the conciliation between safety and maintaining the planned organisation for 31 December, the latter took precedence, to the detriment of safe relief. This conciliation is a sign that the tower supervisor and his team were insufficiently aware of the risk associated with the decision to reduce the number of staff programmed on the duty roster.

2.5. Taking into account the problems of combined positions and the actual presence of controllers in the processing of safety events

When a safety event occurs, information about the event and its context is entered into the DSNA's INCA database[38]. The investigation found that based on the fields in this database, it is not possible to know how the control positions were manned or the number of controllers actually present at the workplace[39] at the time of the safety event, and that the methodology for filling in the fields does not include the retrieval of this latter information.

Furthermore, while the QS/S subdivision responsible for analysing safety events at local level can generally obtain information about combined positions at the time of the incidents[40], it does not have the means to check whether the staffing level at the time of an event was consistent with that programmed on the duty roster.

[37] The DGAC's human resources policy (2021), para. 4.1.2.1, p. 59.
[38] SafetyCube since 12 October 2023.
[39] "Manning compliant" field mostly completed by "undetermined".
[40] Through interviews with controllers and possible playback of ATC tapes, and in en-route control centres, the recording of the configuration of the room.

In fact, the subject of a reduced effective staffing level compared with that programmed on the duty roster and its possible impact in terms of combining positions and safety decisions is never addressed during the analysis of a safety event by the DSNA, either at local or national level.

Access to reliable information about the presence of controllers in position and at their place of work is an essential element in air traffic safety as it would allow:

- a more relevant analysis of safety events and therefore better operation of the DSNA's safety management system (SMS);
- the DSNA to use this feedback to provide better training for tower supervisors in deciding on the combining or splitting of positions;
- a verification of the match between the staffing level programmed on the duty rosters and the traffic actually encountered, for better tactical and strategic planning of staff numbers, in a context of increasingly complex and rapidly changing traffic;
- reliable professional monitoring of air traffic controllers, as part of the minimum hours in position requirement for renewing their licences.

BEA

3. CONCLUSIONS

3.1 Findings

- At the time of the serious incident, the team of controllers carrying out the D2 shift were on duty. The shift started at 07:30 and finished at 19:30.
- The duty roster for this shift indicated the presence of a tower supervisor and five controllers.
- The programmed staffing of the Bordeaux-Mérignac approach control centre consisted of the tower supervisor and two controllers arriving at 07:30 and finishing their service at 18:00, two other controllers arriving at 09:00 and the last controller arriving at 10:00. The last three controllers were programmed to finish the shift at 19:30.
- The day before the serious incident, the tower supervisor, in agreement with his team, decided to reduce the number of controllers asked to come to work compared with the number programmed on the duty roster.
- This was arranged without prior information being given to the control centre management. The management are aware of this operating mode but have no way of systematically knowing to what extent.
- The day of the serious incident, the tower supervisor and a controller (B) started their service at 07:30, a controller (A) started his service at 10:00 and two other controller started their service at midday. The back-up controller did not come in at any time that day.
- At the time of the serious incident, two controllers and a tower supervisor were present instead of the five controllers and a tower supervisor according to the duty roster.
- Controller A was managing the four positions GND, TWR, APP and INFO; the tower supervisor was acting as TWR assistant and controller B was taking a break in the control tower cab.
- The weather conditions on the day were good.
- The runway 23 threshold is light grey and the DR400 is predominantly white.
- Controller A chose to insert the departure of the DR400 between the take-off of an Air France A321 and the landing of an easyJet Europe A320. To avoid the wake vortex, this presupposed that the DR400 would wait two minutes on the runway before taking off.
- The pilot of the DR400 was cleared to line up on runway 23 and to hold his position.
- Controller A did not inform the crew of the A320 that the presence of the DR400 ready for take-off would delay the landing clearance.
- There were then a succession of VFR flight calls on the frequency.
- The strip for the DR400 was not in the “runway area” of the strip board.
- Controller A cleared the easyJet Europe A320 to land when it was at 1.7 NM from the runway threshold. To do his, he had interrupted a message from a VFR traffic.
- At this point, the DR400 had been lined up on the runway threshold for more than three minutes.
- The crew of the A320 who were aiming at the touchdown point, did not notice the presence of the DR400 on the threshold of runway 23.
- The pilot of the DR400 spontaneously reported his presence on the frequency.
- Controller A immediately ordered the A320 to go around; at this point it was 1,000 m from the runway 23 threshold and at a height of 232 ft.
- The crew of the A320 carried out the go-around immediately after the end of the message at which point the aeroplane was at a height of 133 ft and 530 m from the runway 23 threshold.

- The lowest point of the flight path (height of approximately 103 ft) was reached at 290 m from the runway threshold.
- The A320 flew over the DR400 at a height of around 180 ft.
- After the serious incident, the position controller stepped back for around 20 min. The INFO frequency was split from the other frequencies. The tower supervisor took the GND, TWR and APP frequencies and the TWR assistant position. Controller B who had been taking a break, took the INFO position.
- Twenty minutes after the serious incident, controller A resumed his duties and became TWR assistant. He finished his shift at 18:00.
- The GND, LOC, APP and INFO frequencies were combined again a little more than an hour after the serious incident, between 12:46 and 13:57, and in total were combined for around five hours between 07:30 and 18:00.
- The occurrence of the serious incident did not give rise to a modification to the organisation agreed upon the day before by the tower supervisor and his team.
- After the serious incident, the tower supervisor did not immediately notify the specified addressees, which include the BEA.
- The CLS identified the combined positions as a contributing factor to the serious incident. However, it mentioned neither the number of staff programmed on the duty roster nor the number of staff actually present on the day of the serious incident.
- On the INCA serious incident form, the “Manning compliant” field was completed as “undetermined”.
- The majority of the INCA forms completed after a safety event indicate manning as “undetermined” and this field is never used for subsequent analysis.
- The methodology for filling in the INCA database does not require information to be retrieved regarding the number of controllers actually present at the workplace at the time of the incident and compliance with the duty roster.
- The subject of the number of controllers present and its possible impact in terms of safety is never addressed during the analysis of a safety event by the DSNA, either at local or national level.
- The Bordeaux-Mérignac approach control centre, like the other French centres, is not equipped with an automatic real-time recording system for the individual presence of controllers in control positions or at work.
- There is no standardised way of checking for the presence of controllers at their place of work.
- The current system for recording hours (OLAF ATCO) is based on declarations.
- The hours declared by the controllers present on the day of the serious incident on the OLAF ATCO showed anomalies.
- The three controllers present at the time of the serious incident had declared just under 600 hours in position in 2022.
- The programmed number of hours in position, used as a basis for drawing up the duty rosters, is 984 h a year.
- Unannounced spot checks carried out by the DNSA in French air traffic control centres found that at least 15% of the controllers that should have been present on site according to the duty roster were absent for the entire duration of the shift.
- Two EASA audits indicated that the French system for recording the actual hours in position did not meet the reliability criteria required for licence renewal.

3.2 Contributing factors

The following factors may have contributed to the controller giving a clearance to land on an occupied runway:

- the reduction in the number of staff present, which was notably lower than the number programmed on the duty roster, leading to the combination of positions of a very different nature (GND and TWR compared to APP and INFO) not provided for in the OM and thus a high workload for the controller who was simultaneously in charge of these four positions; this situation may have contributed to the strip for the DR400 not being positioned on the "runway" band of the strip board;
- the poor contrast between the DR400 and the runway surface at the runway threshold, making it more difficult for both the controller in the tower and the A320 crew to see the DR400;
- the absence of supervision of the activities within the control tower by the tower supervisor, who was himself carrying out the TWR assistant duties;
- a probably insufficient awareness of the risk generated by an insufficient number of controllers present at their place of work, particularly in the case of an unforeseen increase in traffic or a controller having to be relieved in the case of a safety event.

The following factors may have contributed to the combination of positions of a very different nature not provided for in the OM, and to the insufficient manning of control positions:

- the practice of tower supervisors of reducing the number of staff actually present compared with the staff programmed on the duty roster, a practice which the management know of and implicitly tolerate;
- the absence of a tool to collect, reliably and automatically, and in real time, the manning of the control positions and the number of controllers present at the workplace, and to analyse the potential contribution of these two factors in the case of a safety event. These analyses would enable tower supervisors and management to assess on an objective basis, the real needs in terms of the number of staff to be present and the manning of control positions according to the levels and types of air traffic activity forecast or observed.

The following factors may have contributed to a high risk level being maintained after the serious incident:

- the tower supervisor planning for a lower number of staff than that programmed on the duty roster, which did not allow for relief or reinforcements in the short term;
- the failure to question the planned organisation, despite the serious incident which had occurred.

The situational awareness and proactivity of the pilot of the DR400, who reported his presence at the runway threshold when the A320 was on short final, prevented the serious incident from developing into an accident.

4. SAFETY MEASURES TAKEN SINCE THE OCCURRENCE

4.1 Measures taken by the Bordeaux-Mérignac approach control unit

On 5 January 2023, QS/S sent an e-mail about the event to the safety correspondents to promote the benefits of "preventive" splitting of positions.

A meeting of tower supervisors and team managers was held on 23 January 2023, with management reminding of the need to comply with the manning programmed for the duty cycle and raising awareness about splitting positions.

On 14 February 2023, a local directive was published to remind tower supervisors of the need to call the operational duty manager for events where there has been a significant safety risk requiring immediate notification.

A tower supervisor quick-reference sheet about immediate notification was produced.

On 12 September 2023, as a follow-up to the Local Safety Commission (CLS) review of 27 January 2023, a measure was proposed at local level concerning the provision of a timer at TWR positions. This will accurately measure the separation time required on the runway due to the wake vortex and/or will remind the controller in the TWR position when this time has elapsed.

An initial timer has been deployed in position TWR 23 (see Figure 17). Magnetic, it can be moved to position TWR 29.

Figure 17: timer in a TWR position

4.2 Safety measures taken by the DSNA

The DSNA indicated that the context information relating to the manning and configuration of control positions will be taken into account in 2024 in the upgrades to the SafetyCube database, which replaces the INCA database.

BEA

5. SAFETY RECOMMENDATION

Note: in accordance with the provisions of Article 17.3 of Regulation No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, a safety recommendation in no case creates a presumption of fault or liability in an accident, serious incident or incident. The recipients of safety recommendations shall report to the safety investigation authority which issued them, on the measures taken or being studied for their implementation, as provided for in Article 18 of the aforementioned regulation.

5.1 Automatic and nominative system for recording the presence of controllers at their place of work and in their control position

The investigation revealed that, on the day of the serious incident, an insufficient number of controllers present at their place of work, and consequently insufficient manning of the control positions, had led to a situation of combined positions which contributed to:

- the occurrence of the serious incident;
- the unsafe immediate relief of the controller;
- the maintaining of a latent risk in operations until the end of the shift.

This situation was made possible by the latitude implicitly given to tower supervisors to manage staffing levels without complying with the duty roster, and without there being any means of outside verification by management.

The number of controllers present at the workplace is not information collected following a safety event because:

- there is no reliable and standardised system for recording the presence of controllers at their place of work;
- the INCA/SafetyCube database is not designed for this;
- the methods for completing this base do not include retrieving this information.

A social consensus, which has been in place for many years at the DSNA, has allowed a situation to persist in which the teams of controllers organise, outside of any legal framework, for a number of staff to be present that is generally lower than the number theoretically determined as necessary. This situation, which is outside of any legal framework but known of and implicitly tolerated, is such as to bar any official collection of information that would lead to the identification of these differences, even in the context of the analysis of safety events. Indeed, the analysis being carried out within the scope of a fair culture, unintentional errors and deviations are tolerated, but repetitive and deliberate deviations are not.

As for the presence of controllers in position, QS/S, the entities primarily responsible for analysing safety events, only have access to this information via the team of controllers or the tower supervisor. The investigation found that in practice, it was difficult for the QS/S to obtain reliable information.

In fact, the subject of a reduced effective staffing level compared with that programmed on the duty roster and its possible impact in terms of safety is never addressed during the analysis of a safety event by the DSNA, either at local or national level.

However, access to reliable information about the presence of controllers in position and at their place of work is an essential element in air traffic safety as it would allow:

- a more relevant analysis of safety events and therefore better operation of the DSNA's safety management system (SMS);
- the DSNA to use this feedback to provide better training for tower supervisors in deciding on the combining or splitting of positions;
- a verification of the match between the staffing level programmed on the duty rosters and the traffic actually encountered, for better tactical and strategic planning of staff numbers, in a context of increasingly complex and rapidly changing traffic.

The adoption of an automatic and nominative system to check for the presence of controllers in position, in line with EASA reliability criteria, such as the personal badge adopted by certain European countries, is the only way of guaranteeing access to reliable and objective information on the presence of controllers in position and at their place of work.

Consequently, the BEA recommends that:

- ***whereas insufficient manning of the control positions and an insufficient number of controllers present at their place of work contributed to the occurrence of the serious incident;***
- ***whereas the latitude the control units implicitly give to the tower supervisors to reduce the number of controllers actually present during shifts compared with the number programmed on the duty roster, outside any legal framework;***
- ***whereas the lack of visibility for management as to the number of staff actually present;***
- ***whereas these practices are widespread at national level;***
- ***whereas these practices, which have been in place for many years and are implicitly tolerated in the quest for social peace, mean that it is not possible to rely on a declaration system to reliably determine the manning of the control positions and the controller's presence at work;***
- ***whereas the DSNA currently has no means of reliably and objectively knowing the control positions manned and the presence of controllers at their place of work;***
- ***whereas the manning of control positions and the number of controllers present are essential components in the level of safety of the service provided;***
- ***whereas this absence of reliable information prevents the DSNA from analysing the potential impact of these two factors in terms of safety, at both local and national level;***
- ***whereas access to reliable information on the number of staff present at the workplace and in position would enable a more relevant analysis of safety events;***
- ***whereas access to reliable information on the number of staff present at the workplace and in position would enable tower supervisors and their teams to be trained and made more aware of the risks involved in making position combining/splitting decisions;***
- ***whereas access to reliable information on the number of staff present at the workplace and in position is an essential element for checking that the number of staff programmed by the duty rosters matches the traffic actually encountered;***

the DSNA equip the control centres with an automatic and nominative system to record the presence of controllers in position and at the workplace, and ensure that this information can be used by the DSNA services, in particular to ensure the appropriateness of staffing levels and to enable the analysis of safety events. [FRAN-2023-023]