



PRELIMINARY REPORT

TC&I 18-1001

AIR NIUGINI LIMITED

P2-PXE

Boeing 737-8BK

Chuuk Lagoon, 1,500 ft (460 m) before the runway 04 threshold

Chuuk State

FEDERATED STATES OF MICRONESIA

September 28, 2018

ABOUT THE FSM DTC&I

The Department of Transportation, Communications & Infrastructure's (DTC&I) Division of Civil Aviation, of the Government of the Federated States of Micronesia (FSM) was established by the *Title 20* of the *FSM Aeronautics Code in 1982*.

The objective of the FSM Department of TC&I is to undertake safety, security, and other functions in a way that contributes to the aim of achieving an integrated, safe, responsive and sustainable aviation transport system. It has a legal mandate that includes promoting civil aviation safety through the investigation and review of any accident or incident in accordance with the Act, and *ICAO Annex 13, Standards and Recommended Practices*, to determine the circumstances and causes of the accident or incident, with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

The object of a safety investigation is to identify and reduce safety-related risk. DTC&I investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of DTC&I to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times DTC&I endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why it happened, in a fair and unbiased manner.

About this report

DTC&I was notified of this occurrence on 28 September 2018, at 10:34 local time (00:24 UTC). DTC&I commenced an investigation and deployed investigators to Chuuk and invited the Papua New Guinea Accident Investigation Commission (AIC) to join the investigation in the capacity of the State of Registry and also a State providing experts and facilities for the investigation. The AIC team comprised of an Accredited Representative and Technical Advisers. The US National Transportation Safety Board (NTSB) as the State of Manufacture of the aircraft and in response to FSM National Government's request for assistance also sent a team comprised of an Accredited Representative and Technical Advisers from the Federal Aviation Administration (FAA) and Boeing. Technical Advisers from the US National Weather Service are assisting the US Accredited Representative.

The Transportation Safety Board of Canada (TSBC) as the State of Manufacture of specific components appointed an Accredited Representative and Technical Advisers to download the data from the AFIRS.

DTC&I has classified the occurrence as an accident. In accordance with *Title 20* of the *FSM Aeronautics Code in 1982*, DTC&I is responsible for the no-blame safety investigation. This *Preliminary Report* has been produced in accordance with the *FSM Aeronautics Code*, and *Annex 13* to the *Convention on International Civil Aviation*, and is based on the investigation carried out by DTC&I at the date of publication. It contains factual information, and safety actions taken and proposed.

Master Massy Halbert

Assistant Secretary, FSM DTC&I

October 28, 2018

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1 FACTUAL INFORMATION

1.1 History of the flight

On Friday 28 September 2018, a Boeing 737-8BK aircraft, registered P2-PXE, was being operated by Air Niugini Limited, on a scheduled passenger flight from Pohnpei to Chuuk, Federated States of Micronesia.

At 23:45 UTC¹ (09:45 local time) the aircraft impacted the water of Chuuk Lagoon about 1,500 ft (460 m) short of the runway 04 threshold, during its approach to runway 04 at Chuuk International Airport. As the aircraft settled in the water, it turned clockwise through 210 degrees and drifted 460 ft (140 m) south east of the runway 04 extended centreline, with the nose of the aircraft pointing about 265 deg.



Figure 1: Depiction of aircraft in relation to Chuuk International Airport runway 04 threshold.

There were 12 crew members and 35 passengers on board. Six passengers were seriously injured, and one passenger was fatally injured.

The 12 crew members and 34 passengers exited the aircraft and were promptly rescued and brought to shore by U.S. Navy divers (who were the first on scene), Chuuk State Government boats, Red Cross, Transco, and more than twenty privately-owned boats. Local divers located the fatally injured passenger in the aircraft 3 days after the accident.

¹ The 24-hour clock, in Coordinated Universal Time (UTC), is used in this report to describe the local time as specific events occurred. Local time in the area of the accident, Pacific/Chuuk Time is UTC + 10 hours.

1.2 Injuries to persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	-	1	1	-
Serious	-	6	6	-
Minor	-	-	-	Not applicable
Nil Injuries	-	-	-	Not applicable
TOTAL	-	-	-	-

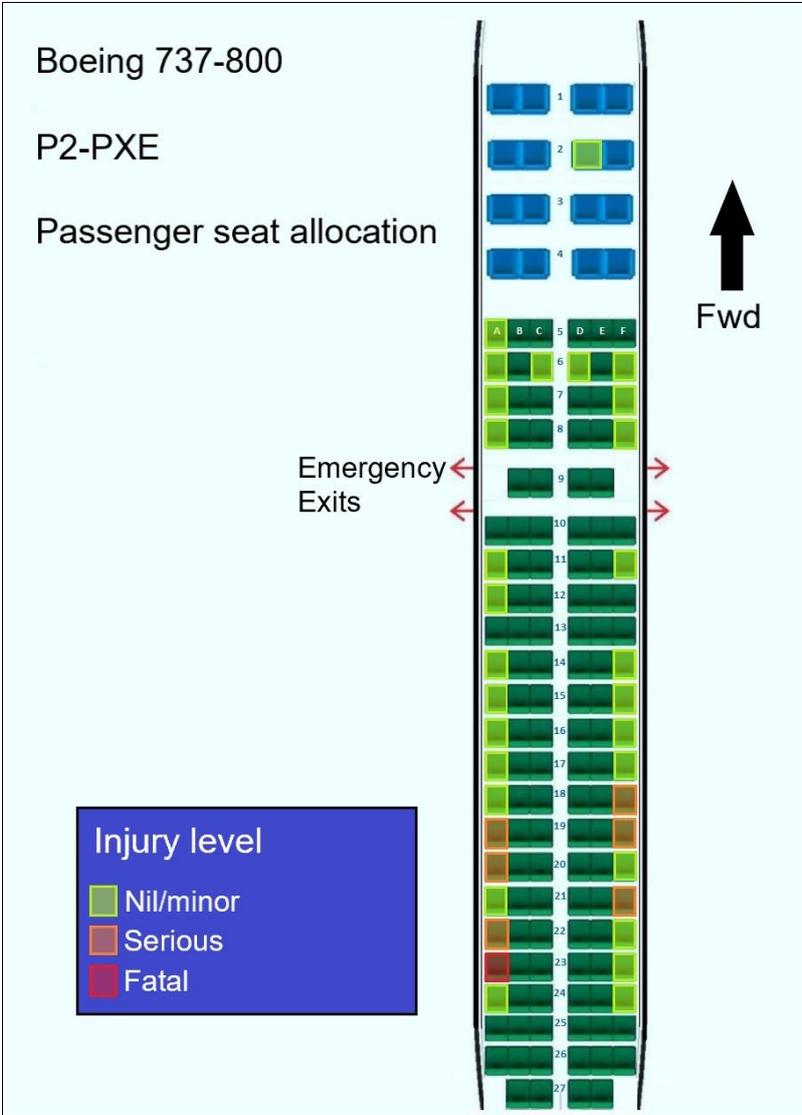


Figure 2: Passenger seating allocation showing injury status.

1.3 Damage to aircraft

The aircraft was substantially damaged by impact forces.

1.4 Other damage

Nil

1.5 Personnel information

1.5.1 Pilot in command

Age	: 52 years
Gender	: Male
Nationality	: Papua New Guinea
Type of licences	: PNG ATPL
Licence Number	: P20146
Type ratings	: Boeing 737-800 series
Total flying time	: 19,780.7 hours
Total time in command	: 4,987.0 hours
Total on Boeing 737	: 2,276.4 hours
Total time in command Boeing 737	: 2,276.4 hours
Total hours last 30 days	: 44.3 hours
Total hours last 7 days	: 18.5 hours
Last Competency Check (Simulator)	: 23 May 2018
Medical class	: One
Valid to	: 23 February 2019
Medical limitation	: Nil
Time off duty prior to the flight	: 10.3 hours
Time on duty prior to the flight	: 0.75 hour
Time awake prior to the flight	: 1.3 hours
Duration of sleep prior to duty period	: 5.5 hours approx

1.5.2 Copilot

Age	: 35 years
Gender	: Male
Nationality	: Australian
Type of licences	: PNG ATPL
Licence Number	: P20457
Type ratings	: Boeing 737-800 series
Total flying time	: 4,618.0 hours
Total time in command	: 1,820.0 hours

Total on Boeing 737 copilot	:	368.0 hours
Total hours last 30 days	:	43.3 hours
Total hours last 7 days	:	9.4 hours
Last Competency Check (Simulator)	:	25 May 2018
Medical class	:	One
Valid to	:	11 January 2019
Medical limitation	:	Nil
Time off duty prior to the flight	:	10.2 hours
Time on duty prior to the flight	:	1.0 hour
Time awake prior to the flight	:	3.0 hours
Duration of sleep prior to duty period	:	6.6 hours approx

1.5.3 Cabin crew (Purser)

Age	:	49 years
Gender	:	Female
Nationality	:	Papua New Guinean
Type of Certificate	:	B767/B737 SEP
Valid to	:	26 April 2019
Total flying time	:	14,495.0 hours
Total time last 30 days	:	51.7 hours
Total time last 7 days	:	12.1 hours
Total on B737 last 7 days	:	5.5 hours
Total time last 24 hours	:	4.2 hours
Total time on B737 last 24 hours	:	4.2 hours
Time off duty prior to the flight	:	11.3 hours
Time on duty prior to the flight	:	1.0 hour
Time awake prior to the flight	:	1.5 hours
Duration of sleep prior to duty period	:	7.0 hours approx

1.6 Aircraft information

1.6.1 Aircraft data

Aircraft manufacturer	:	The Boeing Company
Model	:	737-8BK
Serial number	:	33024
Date of manufacture	:	April 19, 2005
Nationality	:	Papua New Guinea
Registration	:	P2-PXE
Name of the owner	:	Loftlieder / Icelander
Name of the operator	:	Air Niugini Limited

Certificate of Airworthiness number : 313
Certificate of Airworthiness issued : 24 September 2013
Valid to : non-terminating
Certificate of Registration number : 313
Certificate of Registration issued : 13 September 2103
Valid to : non-terminating
Total airframe hours : 37,160.36
Total airframe cycles : 14,788

Engine data

Engine type : Turbo-fan
Manufacturer : CFM
Model : CFM 56-7B26

Engine number one (Left)

Serial number : 8923
Total Time since new : 32,336.36 hours
Cycles since new : 12,922

Engine number two (Right)

Serial Number : 894605
Total Time since new : 11,782.20 hours
Cycles since new : 9,764

1.7 Meteorological information

1.7.1 Chuuk Terminal Aerodrome Forecast

The Chuuk Terminal Aerodrome Forecast that was in effect at 22:00 on 27 September was as follows:

Wind 100 deg at 14 kts with gusts up to 25 kts. The visibility was 5 statute miles. Showers of rain to be expected with cloud Scattered at 800 ft and Overcast at 5000 ft

1.7.2 Chuuk Airport Radio broadcast weather information

The Chuuk radio operator provided the following weather information to the aircraft as it approached to Chuuk.

Chuuk Radio	ANG073	Okay, Chuuk weather report, wind variable at 5, visibility 14 scattered 012 charlie bravo, broken 120 overcast 280, temperature 26 dew point 25, altimeter 2973.
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The meaning of the report issued in aviation terminology was:

Wind direction variable at 5 kts, visibility 14 statute miles, Scattered Cumulonimbus cloud at 1,200 ft, Broken cloud at 12,000 ft, Overcast at 28,000 ft, temperature 26 deg C, Dewpoint 25, altimeter setting for QNH² 2973.

1.8 Aids to navigation

The investigation is reviewing the ground-based navigation aids, on-board navigation aids, and aerodrome visual ground aids and their serviceability at the time of the accident.

1.9 Communications

All communications between air traffic services (ATS) and the aircraft were normal.

1.10 Aerodrome information

The Chuuk runway is aligned 041 deg M / 221 deg M at an elevation of 11 feet (3 metres). The runway surface is asphalt grooved. Both runways have a visual slope indicator; 4-light PAPI on the left providing a 3-degree glide slope indicator.

1.11 Flight recorders

The aircraft was fitted with a solid-state cockpit voice recorder (SSCVR) and a separate solid-state flight data recorder (SSFDR). The SSCVR (P/N: 980-6022-001 & S/N:04448) and SSFDR (P/N: 980-4700-043 & S/N: 17869) were manufactured by Honeywell Aerospace. The CVR was installed at the rear fuselage of the aircraft. The SSFDR was installed in the ceiling at the rear of the passenger cabin.

The FDR system was compromised of:

- the SSFDR itself;
- a flight data acquisition unit (FDAU); and
- aircraft sensors

The aircraft was equipped with a Honeywell Aerospace FDAU (P/N: 9670212-002 & S/N:1477). It was programmed at the data rate of 256 words per second and had a recording duration of about 26 hours.

The CVR system was comprised of four audio input channels; PIC headset, copilot headset, first observer headset, and cockpit area microphone. The SSCVR had a recording duration of about 2 hours.

² QNH is the term used when requesting the atmospheric pressure at sea level.

The SSFDR was located on its rack within the aircraft and was recovered by local divers.

The SSCVR was recovered from the seabed by US Navy divers about 440 feet (135 metres) back along the flight path from the 04 threshold, in the area ahead of the first point of water impact.

In accordance with PNG AIC salt water recovery procedures, both recorders were washed and transported to the PNG AIC Flight Recorder Laboratory in Port Moresby for data recovery and readout. They were disassembled in the presence of an investigator from the FSM TC&I team, and the chip memory boards were thoroughly cleaned and dried before being connected to the Memory Access Retrieval System (MARS) download equipment.

An examination of the data showed that the SSFDR data and the SSCVR audio from the accident flight had been successfully recorded. The data was good quality.

Other electronics components of the aircraft were recovered by the local divers. They included were the Automatic Flight Information Recording System (AFIRS), Flight Management Computer (FMC), and the Enhanced Ground Proximity Warning System (EGPWS).

The EGPWS and the FMC were sent to the Manufacturer's facilities in the US where specialized equipment will be used to recover the data under the supervision of Technical Advisers from the US NTSB.

The AFIRS unit was sent to the Transportation Safety Board of Canada to supervise the retrieval of the data at the Manufacturer's facility in Canada and the TSBC Recorder Laboratory.

1.12 Wreckage and impact information

The initial examination of video taken by the divers showed that the main landing gear separated from the aircraft during the water impact. The rear fuselage behind the wing had fractured during the impact sequence.

The aircraft sank in 90 ft of water to the Chuuk Lagoon seabed.

1.13 Medical and pathological information

A post mortem was conducted on the deceased passenger by the FSM State Pathologist, and at the request of the FSM Investigator-in-Charge, a confirmation Post Mortem was conducted by the PNG State Pathologist in Chuuk.

The Pathologists' report will be examined by the investigation.

1.14 Fire

There was no evidence of pre- or post-impact fire.

1.15 Survival aspects

1.15.1 The occupants

All surviving occupants egressed the aircraft and were rescued by local boaters and US Navy divers using small boats.

One passenger who was initially unaccounted for was found deceased in the wreckage 3 days after the accident.

1.15.2 Rescue coordination centre (RCC)

The Chuuk Airport Emergency Operation Committee facilitated the transport of all surviving passengers and crew to the Chuuk Hospital for medical assessment and treatment.

1.16 Tests and research

No tests or research were being conducted at the time of the release of the Preliminary Report.

1.17 Organizational and management information

The areas of organizational and management information which may have *directly* or *indirectly* influenced the operation of the aircraft is the subject of the ongoing investigation. The organizational and management investigation may include, but not be limited to, the aircraft operator; the air traffic services; aerodrome and weather service agencies.

1.18 ADDITIONAL INFORMATION

The investigation is continuing and will include, but will not be limited to, further examination and analysis of aircraft, crew, recorded data, aircraft operator, management and organization data, weather and airport facilities.

1.18 Useful or effective investigation technique

The investigation is being conducted in accordance with Federated States of Micronesia Legislation and in accordance with the Standards and Recommended Practices of Annex 13 to the Convention on International Civil Aviation.

2 ANALYSIS

2.1 Reserved for Final report

3 CONCLUSIONS

3.1 FINDINGS

3.1.1 Reserved for the Final Report

3.2 CAUSES AND CONTRIBUTING FACTORS

3.2.1 Reserved for the Final Report

4 SAFETY ACTIONS AND RECOMMENDATIONS

4.1 SAFETY ACTION

On October 23, 2018, Air Niugini Limited informed the investigation of the following Safety Actions taken and proposed following the accident and stated:

Following the recent landing accident involving Air Niugini's B737-800, P2-PXE at Chuuk, Weno Airport, FSM, the following Safety Actions have been taken or are proposed:

Organizational

Safety Action taken:

Chuuk (TKK) and Pohnpei (PNI) Airport categories have been changed from CAT B to CAT X (CAT X being more restrictive) operations by Air Niugini Limited.

Safety Action proposed:

Other similar airports in the Air Niugini Boeing network are being reviewed and may be re-categorized accordingly.

Additional training and qualifications required.

Safety Action proposed:

Category X training requirements for Flight Crew to be initiated.