



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.24.07.16.04

Aircraft Accident Investigation Report

PT Whitesky Aviation

Bell 505; PK-WSP

Near Sulubun Beach, Bali

Republic of Indonesia

19 July 2024

2024

This Preliminary Report is published by the *Komite Nasional Keselamatan Transportasi* (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Law (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report is published. This report will not include analysis and conclusion.

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Jakarta, 21 October 2024

**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN**



SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

AMSL	:	Above Mean Sea Level
ATS	:	Air Traffic Services
BMKG	:	Badan Meteorologi Klimatologi dan Geofisika (Bureau of Meteorology, Climatology, and Geophysics)
CPL	:	Comercial Pilot License
CVR	:	Cockpit Voice Recorder
GWK	:	<i>Garuda Wisnu Kencana</i>
KNKT	:	<i>Komite Nasional Keselamatan Transportasi</i>
LT	:	Local Time
MFD	:	Multi-Function Display
RTB	:	Return to Base
SD Card	:	Secure Digital Card
UTC	:	Universal Time Coordinated
VFR	:	Visual Flight Rules
VOR	:	Very high Omni Range

SYNOPSIS

On 19 July 2024, a helicopter Bell 505 registration PK-WSP, operated by PT Whitesky Aviation, conducted a non-scheduled tourism sight seeing flight from Garuda Wisnu Kencana (GWK) helipad. The flight was conducted under the Visual Flight Rule (VFR) and on board this flight were one pilot and four passengers.

At 1428 LT, the helicopter engine start was completed. And at 1443 LT, the helicopter conducted a broadcast message which was heard by the Ngurah Tower controller but the reply was not conducted by the helicopter.

The helicopter contacted with kite string and wrapped the main and tail rotor masts. The helicopter pilot unable to control the helicopter and decided to make emergency landing on an open area nearby.

The helicopter landed in between a man-made cliff near Uluwatu. The helicopter was substantially damaged and two of five occupants experienced serious injury.

Other than this accident, two occurrences of helicopter entangled by kite strings had occurred twice in July 2024.

The KNKT acknowledged the safety actions had been taken by Aiport Authority Region IV (Bali Area) following the occurrence and considered relevant to improve safety.

The investigation is continuing, should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 19 July 2024, a helicopter Bell 505 registration PK-WSP operated by PT Whitesky Aviation, conducted a non-scheduled flight from Garuda Wisnu Kencana (GWK) helipad, Bali. The GWK helipad was located at coordinate 8° 48' 35.6" S; 115° 10' 5.7" E, about 3.4 Nm on radial about 180° from Ngurah Rai International Airport at Bali. The flight was intended for tourist sightseeing in Bali which was provided by Bali Helitour services with the flight plan of GWK – Uluwatu¹ – Nyang Nyang² – Melasti³ – GWK. The flight was conducted under the Visual Flight Rule (VFR) and on board this flight were one pilot and four passengers.

At 0628 UTC⁴ (1428 LT), the helicopter engine start was completed.

At 1433 LT, the pilot contacted the Ngurah Tower controller for clearance. After the helicopter airborne and the Ngurah Tower controller advised the pilot to report over point Pecatu⁵.

At 1443 LT, the helicopter pilot conducted a broadcast message which was replied by the Ngurah Tower controller but the reply was not received by the helicopter pilot.

The helicopter contacted with kite string and wrapped the main and tail rotor masts. The helicopter pilot unable to control the helicopter and decided to make emergency landing on an open area nearby.

The helicopter was found in between a man-made cliff with a coordinate of 8° 49' 13.62" S; 115° 5' 36.89" E, about 5.8 Nm on radial 224° from Ngurah Rai Airport. The helicopter was substantially damaged and two of five occupants experienced serious injury.

¹ The point Uluwatu was located at coordinate of 8° 47' 59" S; 115° 7' 4.4" E or about 4.7 Nm on radial 214° from Ngurah Rai Airport.

² The point Nyang Nyang was located at coordinate of 8° 50' 25" S; 115° 5' 45.9" E or about 6.7 Nm on radial 216° from Ngurah Rai Airport.

³ The point Melasti was located at coordinate of 8° 50' 56" S; 115° 9' 41.4" E or about 5.8 Nm on radial 180° from Ngurah Rai Airport.

⁴ The 24-hours clock in Universal Time Coordinated (UTC) is used in this report to describe the local time as specific events occurred. The Local Time (LT) is UTC+8 hours.

⁵ The Pecatu area was located about 1 Nm on radial 151° from Uluwatu point.



Figure 1: The wreckage situation

1.2 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	-	-	-	-
Serious	-	2	2	-
Minor	1	2	3	-
None	-	-	-	-
TOTAL	1	4	5	-

The pilot was Indonesian, the two passengers were Indonesian and the rest of the passengers were Australian.

1.3 Damage to Aircraft

The aircraft was destroyed by the impact force.

1.4 Other Damage

There was no other damage to property and/or the environment.

1.5 Pilot Information

Gender	: Male
Age	: 30 years
Nationality	: Indonesia
Date of joining company	: 25 August 2022
License	: Comercial Pilot License (CPL)
Date of issue	: 10 November 2017
Aircraft type rating	: Bell 505
Medical certificate	: First Class
Last of medical	: 8 Mei 2024
Validity	: 8 November 2024
Medical limitation	: None
Last line check	: 24 January 2023
Last proficiency check	: 26 June 2024

Flying experience

Total hours	: 837.11 hours
Total on type	: 210.54 hours
Last 90 days	: -
Last 30 days	: 10.31 hours
Last 7 days	: 1.07 hours
Last 24 hours	: -
This flight	: 7 minutes

1.6 Aircraft Information

1.6.1 General

Registration Mark	: PK-WSP
Manufacturer	: Bell Helicopter Textron
Country of Manufacturer	: United States of America
Type/Model	: Bell – 505
Serial Number	: 65044
Year of Manufacture	: 2018

Certificate of Airworthiness

Date of issue	: 24 June 2024
Validity	: 23 June 2025

Category	: Normal
Limitation	: None

Certificate of Registration

Number	: 4432
Date of issue	: 18 October 2022
Validity	: 17 October 2025
Time Since New	: 320 hours (as per 17 July 2024)
Cycles Since New	: 889 cycles (as per 17 July 2024)
Last Major Check	
Type of Inspection	: 6-Year Inspection
Date	: 15 June 2024
Hour	: 312.2 hours
Cycle	: 859 cycles
Last Minor Check	
Type of Inspection	: 25-Hour Inspection
Date	: 21 June 2024
Hour	: 313.3 hours
Cycle	: 862 cycles

1.6.2 Engines

Manufacturer	: Safran Helicopter Engine
Type/Model	: Arrius 2R
Serial Number engine	: 50035
Time Since New	: 320 hours (as per 17 July 2024)
Cycle Since New	: 662 cycles (as per 17 July 2024)

1.7 Meteorological Information

The GWK helipad did not have a weather observation station. The weather was obtained from the the *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology, and Geophysics) meteorology office of Ngurah Rai International Airport.

Based on the satellite image of the Bali area on 19 July 2024 between 1300 and 1400 LT, it was reported that the crash site was covered by stratocumulus and high-altitude clouds as shown in the figure below.

Based on the photo at the accident site, the weather around the accident site was clear and met the requirement for VFR flight.

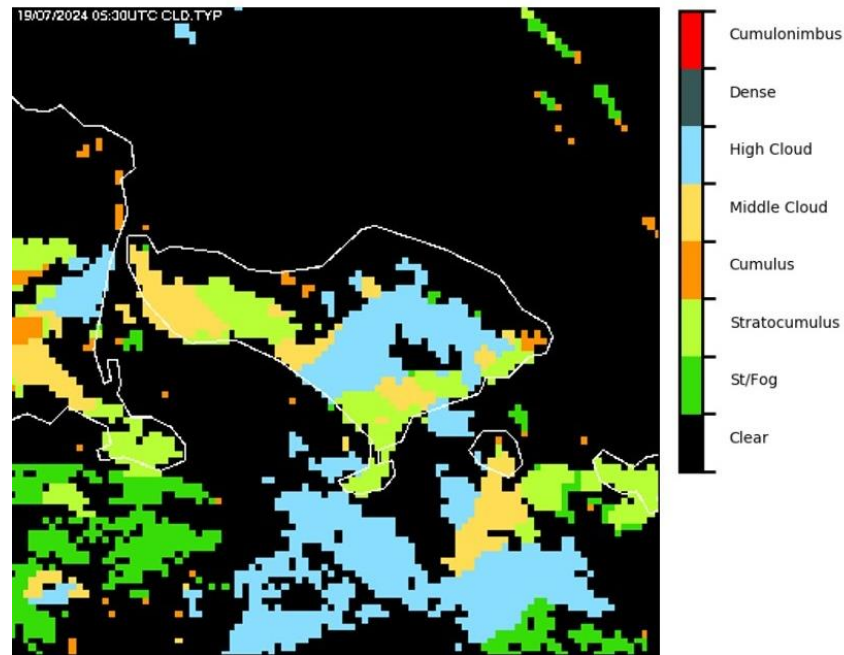


Figure 2: The satellite image of the Bali area at 1330 LT.

1.8 Aids to Navigation

The GWK helipad was not equipped with ground navigation aid. The helicopter conducted the flight in this area under Visual Flight Rule (VFR) . The visualization of the flight plan on the day is shown in the figure below.



Figure 3: The PK-WSP flight plan

1.9 Communications

The communication between the helicopter and the Air Traffic Services (ATS) of the Ngurah Rai International Airport were recorded by ground-based automatic voice recording equipment. The detailed excerpt of the communication will be described in the Final Report.

1.10 Aerodrome Information

The Garuda Wisnu Kencana (GWK) Helipad was operated by PT Indo Aviastika Perkasa. The GWK Helipad was located at coordinate 8° 48' 35.6" S; 115° 10' 5.7" E, about 3.4 Nm on radial about 180° from Ngurah Rai International Airport at Bali.

1.11 Flight Recorders

The aircraft was not fitted with a flight data recorder nor cockpit voice recorder. Neither recorder was required by current Indonesian aviation regulations for the type of aircraft.

The helicopter was equipped with the Garmin G1000 system which has the capability to record the flight data logging of the aircraft and secured in the Secure Digital Card (SD Card). The SD Card was installed in one of the slots in the Multi Function Display (MFD) and the investigation successfully retrieved the flight data logging from the SD Card.

The flight data logging which was retrieved from the SD Card will be discussed in the Final Report.

1.12 Wreckage and Impact Information

The helicopter was found at coordinate 8° 49' 13.62" S; 115° 5' 36.89" E at an elevation of about 175 feet Above Mean Sea Level (AMSL). The main wreckage was situated in between a man-made cliff with a wide of about 7.5 meters and a height of about 10 meters.



Figure 4: The helicopter location seen from the incoming direction

As seen in the figure 4 above, the main rotor cut several trees above the cliff before stop. The direction from the impact to the helicopter stop was about 030°.

Near the man-made cliff, there was an opening area (as shown in figure 4 above) that was the pilot target of the landing during the emergency situation.

The helicopter faced a heading of about 047°, with the windshield leaning about 45° on the ridge as shown in the figure below. The tail boom and tail rotor were separated and found about 5 meters from the helicopter.



Figure 5: The helicopter condition after impact

The main rotor mast exhibited damage in which the main rotors were detached. Part of the main rotors was found about 20 meters from the main wreckage above the man-made cliff.

The evidence of the kite string wrapped around the main rotor mast led to the flight control rod being deformed. The tail rotor also exhibited damage and the evidence of the kite string was wrapped around the tail rotor mast.



Figure 6: The evidence of kite string on the main rotor and tail rotor mast.

The investigation collected part of the kite string as shown in the figure below.

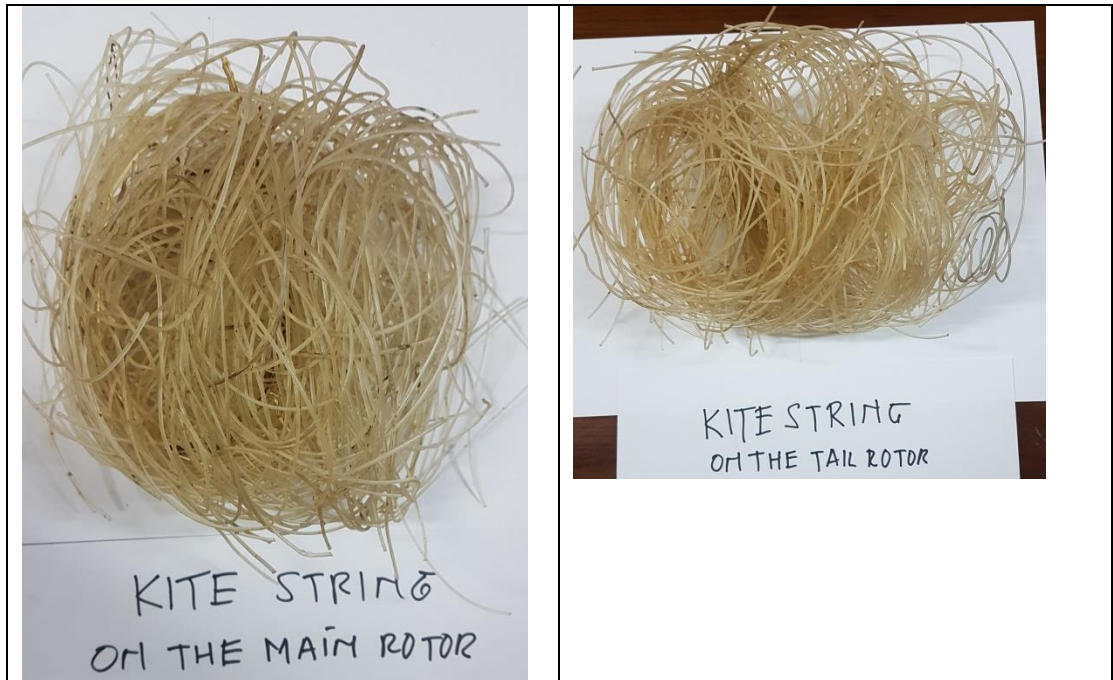


Figure 7: The kite string on the main rotor and tail rotor

The observation of the number of kite string turns in the main rotor was estimated more than 200 coils and in the tail rotor was estimated more than 120 coils.

The diameter of the kite string was about 2 millimeters as shown in the figure below.

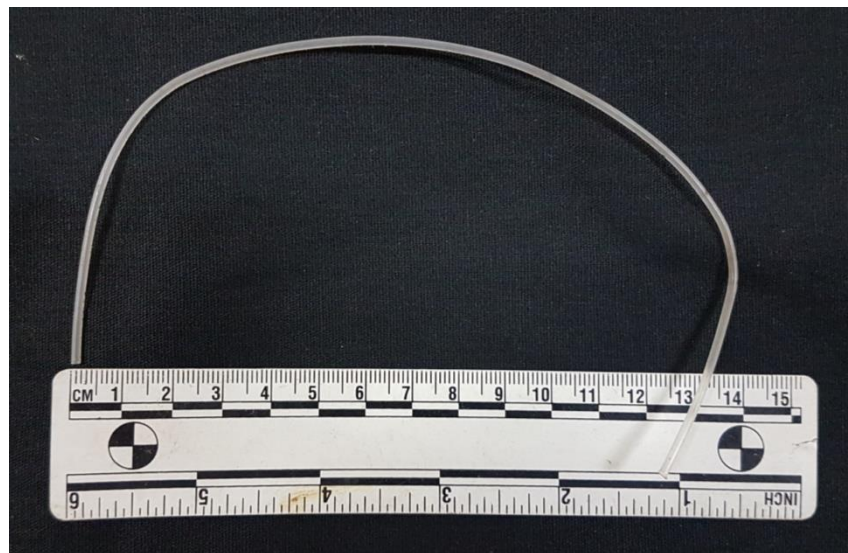


Figure 8: The diameter of the kite string

1.13 Medical and Pathological Information

The detailed injury information will be included in the Final Report

1.14 Fire

There was no evidence of in-flight or post-impact fire.

1.15 Survival Aspects

After the helicopter stopped, the pilot asked the condition of all passengers. The pilot noticed that one of the passengers (which was known as the cameraman) was not moving. The helicopter engine was still running and then the pilot shut down the engine.

Several minutes after the occurrence some local people arrived and helped the occupants to evacuate the helicopter. One of the local people kicked the windscreen to rescue the passengers.

About 40 minutes after the occurrence an ambulance arrived and rescued all the occupants to the nearest hospital.

1.16 Tests and Research

Any test and research conducted for this investigation will be included in the Final Report.

1.17 Organizational and Management Information

1.17.1 Aircraft Operator

Aircraft owner and operator : PT Whitesky Aviation
Secure Building – Tower A1.1 Floor
Jalan Raya Protokol Halim Perdanakusuma
Jakarta 13610

Air operator certificate : 135-016 vut 26 April 2026

The operator had an operation base in Jakarta. At the time of the occurrence, the operator operated 4 (four) helicopters Bell 505 (including one helicopter in the occurrence), 2 (two) Airbus helicopters EC135, 1 (one) Airbus helicopter EC145, and 1 Cessna 208.

1.17.2 Local Government Regulation

According to the Governor of Bali's Décreé No. 2 Year 2004 about flying kite hazards and restrictions, the kite operation was regulated into three zones with permitted maximum height as follows:

- Zone 1 with radius of 5 Nm / 9 km from Ngurah Rai International Airport: No kite operation was allowed.
- Zone 2 with radius of 5 – 10 Nm / 9 – 18 km from Ngurah Rai International Airport: Maximum height allowed was 100 m / 300 ft.
- Zone 3 with radius of 10 – 30 Nm / 18 – 54 km from Ngurah Rai International Airport: Maximum height allowed was 300 m / 1,000 ft.

1.18 Additional Information

1.18.1 Flying Kite Activities in Bali

According to the tourist information in Bali⁶, the kite festivals were performed annually between July and August (sometimes up until October). Flying kite is also part of the culture which provided the local wisdom as a tourist attraction.

At the time of the publication of the Preliminary Report, the investigation noticed two other occurrences involving kite strike to the helicopter in the Bali area.

1.18.2 Similar Occurrences

1.18.2.1 The Kite Strike Occurrence PK-VPJ

On 2 July 2024, a helicopter Robinson R66 registration PK-VPJ operated by PT Volta Pasifik Aviasi conducted a tourist attraction tour from Fly Bali Helipad⁷ to the point Nusa Lembongan⁸ and point Nusa Penida⁹ via points Tanjung¹⁰ and Sanur¹¹. There was no information about the total on board during the occurrence.

At 0100 UTC (0900 LT), the helicopter took off from the Fly Bali Helipad. About 27 minutes after taking off, while approaching point Tanjung, when the helicopter altitude was about 900 feet AMSL, the pilot heard the engine sound was abnormal. The pilot decided to Return to Base (RTB) and landed safely at Fly Bali Helipad.

After landing, it was found that the main and tail rotor masts entangled by kite strings as shown in the figure below.

⁶ This article can be found at [Bali Kites Festival - Annual Festival of Traditional Kites in Bali - Go Guides \(hotels.com\)](https://www.hotels.com/go/bali/kites-festival)

⁷ Fly Bali Helipad was located at coordinate of 8°50'24.01" S; 115° 9'42.58" E about 5.3 Nm at radial of 180° from Ngurah Rai Airport.

⁸ The point Nusa Lembongan was located at coordinate of 8°41'57.00" S; 115°27'7.00" E about 18 Nm at radial of 80° from Ngurah Rai Airport.

⁹ The point Nusa Penida was located at coordinate of 8°43'40.00" S; 115°32'40.00" E about 18 Nm at radial of 80° from Ngurah Rai Airport.

¹⁰ The point Tanjung was located at coordinate of 8°46'45.56" S; 115°12'33.43" E about 3 Nm at radial of 120° from Ngurah Rai Airport.

¹¹ The point Sanur was located at coordinate of 8°41'41.00" S; 115°15'47.00" E about 7 Nm at radial of 60° from Ngurah Rai Airport.



The kite string and plastic rope on the main rotor mast



The kite string on the tail rotor mast

Figure 9: The kite strings found on the main and tail rotor mast of the PK-VPJ

No one was injured in this occurrence and no damage found on the helicopter .

The evidence of the kite string and plastic rope are shown in the figure below.



Figure 10: The kite string and plastic rope that were removed from main rotor and tail rotor masts

The diameter of the kite string was similar to the PK-WSP occurrence. The dimension of the plastic rope was estimated about twice compared with the kite string.

1.18.2.2 The Kite Strike Occurrence PK-VPN

On 29 July 2024, a helicopter Robinson R66 registration PK-VPN operated by PT Volta Pasifik Aviasi conducted a tourist attraction tour from JAG¹² Helipad. On board the helicopter was one pilot and two passengers

At about 0130 UTC (0930 LT), the helicopter took off from the JAG Helipad. The pilot felt no abnormality since took off until the helicopter landed safely at JAG Helipad. The weather during the occurrence was cloudy.

After landing, the radio operator advised the pilot that the main and tail rotor masts wrapped by kite strings as shown in the figure below.



Figure 11: The PK-VPN kite strike occurrence

No one was injured in this occurrence and no damage found on the helicopter.

¹² The JAG Helipad was located at coordinate 8° 49' 51.94" S; 115° 12' 29.25"E about 5.5 Nm at radial of 150° from Ngurah Rai Airport.

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS

The findings are statements of all significant conditions, events, or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

In this occurrence, the KNKT identified several findings as follows:

1. The pilot was licensed, qualified, and medically fit for the flight in accordance with existing regulations.
2. The helicopter had a valid Certificate of Airworthiness and Certificate of Registration.
3. There was no report of helicopter damage prior to the flight.
4. The helicopter contacted with kite string and wrapped the main rotor and tail rotor masts. The helicopter pilot unable to control the helicopter and decided to make emergency landing on an open area nearby.
5. According to the tourist information in Bali, the kite festivals were performed annually between May and September.
6. The kite string wrapped around the main rotor mast led to the flight control rod being deformed. The tail rotor also found damage and the evidence of the kite string wrapped around the tail rotor mast.
7. The local government of Bali already published the Governor Regulation (*Peraturan Gubernur*) number 2/2004 about the flying Kite hazard and restrictions in the Bali area to the flying kite community.
8. Two other occurrences of helicopter strike with kite had occurred twice in July 2024.

3 SAFETY ACTION

At the time of issuing this Preliminary Report, the KNKT had been informed of safety actions resulting from this occurrence taken by the related parties.

3.1 The Airport Authority Region IV (Bali Area)

Airport Authority Region IV (Otband IV) is a unit under the Directorate General of the Ministry of Transportation which has the responsibility for the oversight and control of operation and airworthiness in the Bali Area including the West and East Nusa Tenggara.

On 22 July 2024, Otband IV presented a topic of the flying kite hazard for aviation during a meeting and discussion of aviation stake holder with local government that was took place at the Jaya Shaba (the residence of the Bali Province Governor).

The meeting and discussion were attended by the acting of Bali Governor, the Head of Bali Provincial Transportation Agency (*Kepala Dinas Perhubungan Bali*), the Head of Bali Provincial Civil Service Unit (*Kepala Pamong Praja Povinsi Bali*), the Head of Bali Provincial Tourism Agency (*Kepala Dinas Pariwisata Provinsi Bali*), the Head of Bali Provincial Customary Community Development Agency (*Kepala Dinas Pemajuan Masyarakat Adat Provinsi Bali*), the Commander of I Gusti Ngurah Rai Air Force Base (*Komandan Lanuma Udara*), the General Mager of I Gusti Ngurah Rai Angkasa Pura, and the General Manager of Airnav Denpasar Branch.

The result of the meeting and discussion was to provide the dissemination of Governor Regulation (*Peraturan Gubernur*) number 2/2004 about the Flying Kite Hazard and restrictions in the Bali area to the flying kite community.

On 23 July 2024, Otband IV proposed to the meeting attendances of the 22 July 2024, to develop a special task force to monitor the flying kite and laser activity in the Bali area, and was agreed by the meeting attendances.

On 25 July 2024, the task force disseminated the flying kite, drone, and balloon activities by installing the warning sign at Kelan Beach area.

On 26 July 2024, Otband IV took a join helicopter flight in order to observe the flying kite activities.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledges the safety actions taken by Bali Airport Authority IV (the Otband IV) and considers that the safety actions were relevant to improve safety. At the time of issuing this Preliminary Report, KNKT had not issued any safety recommendation. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

KOMITE NASIONAL KESELAMATAN TRANSPORTASI REPUBLIK INDONESIA

Jl. Medan Merdeka Timur No.5 Jakarta 10110 INDONESIA

Phone : (021) 351 7606 / 384 7601 Fax : (021) 351 7606 Call Center : 0812 12 655 155

website 1 : <http://knkt.dephub.go.id/webknkt/> website 2 : <http://knkt.dephub.go.id/knkt/>

email : knkt@dephub.go.id