Aviation Safety Council

Taipei, Taiwan

EMERALD PACIFIC AIRLINES B-31007 UH-12E HELICOPTER DITCHED DURING AIR AGROCHEMICAL SPRAYS

Executive Summary

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At 06:00 am on November 29, 1999, an Emerald Pacific Airlines helicopter registration no. B31007, aircraft type UH12E, departed from Qishan and flied south along Gaoping River to a banana field in Liukuaicuo, Fengshan City west side of Pintung Airport to conduct air agrochemical sprays (hereinafter called the air spray operation). Around 30 minutes later it arrived at the field and started the operation. The pilot conducted the air sprays operation alone while the accompanied mechanic was refueling and refilling chemical on the ground, and boarded again to return to Qishan after the air spray operation was done.

The aircraft conducted seven air spray operations and each lasted for around 15 minutes. It once landed in FengShan to refuel and refill agrochemical, and was landed to wait due to rain and restarted the operation when the rain abated. This was a routine duty, the 11th day of the 8th cycle, but the pilot started and took over another pilot’s duty from Nov. 26 who went for a physical examination in Taipei.

After the air spray duty was finished, the aircraft landed in the operation area in Fengshan to pick up the mechanic and returned to Qishan base together. Flying north along GaoPing River, after passing glide path the aircraft requested to Pintung Tower to climb 200 feet to fly over a pylon and then descended to around 50 feet to fly above the river for around 5 minutes. According to the testimony of the accompanied mechanic, it was raining but the visibility was ok and they could see buildings and trees alongboth sides of the

riverbanks from the cockpit, but the visibility was limited due to the rain on the front windshield.

At around 10:08 , two or three minutes after the aircraft reported to Pinnag tower when passing glide path west of Pintung Airport , it crashed in the water gathering area in GaoPing River dam . The aircraft ditched in a nearly level attitude with speed of approximately 60kts and altitude of 50 feet.

After the aircraft ditched, the water filled in the cockpit rapidly, the fuselage tilted to the right and the left hatch opened by it. The mechanic escaped first and the pilot followed to surface of the river. The pilot was not injured and the mechanic had scratches on the right forehead.

After escaped from the cockpit the pilot was drowned when intending to swim to the shore and later died in the hospital. The mechanic who suffered minor injuries was sent to the hospital for treatments and returned home the next day.

Findings

1. The flight crew possessed qualified licenses according to current Civil Aviation Act and company regulations.
2. The aircraft had completed all airworthiness directives and had an airworthiness certificate.
3. No abnormal items in the maintenance records, weight and balance was within limits.
4. The visibility in Pinnag Airport Traffic Area was 3,200 meters when B31007 returned from air spray duty, lower than VFR visibility standards -- 5 km.

5. When the aircraft returned, it flied north close to the surface of GaoPin River, which was not conforming to article 54 of VFR – the lowest altitude of VFR flights “must not be lower than 500 feet above ground or water”.

6. Due to lacking for dispatchers in the out station, the dispatch of the general aviation air spray flights returning from operation area to base was based on the pilot’s discretion with reference to the weather reports provided by the company’s ground staff in Fengshan operation area. It was drizzling when the accident happened and the visibility was lower than VFR standards and getting worse on the way back. The pilot did not inquire in advance and decided to takeoff even without adequate weather information.

7. The ceiling and flight visibility conformed to the special VFR standards during the accident , which was listed in article 56 in Visual Flight Rules : the ceiling shall not be lower than 500 feet , the visibility shall not be less than 1.5km , however , the pilot still requested ATC for special VFR flight even the weather condition was not in control effectively which was obviously against article 92 of “Helicopter ATMP” : “ PIC should familiarize with all obtainable weather information related to the scheduled flight before flight”.

8. The operation of the aircraft that day was conducted based on the approve letter from Civil Aeronautics Administration (CAA) (valid from Oct. 15th , 1999 till Jan. 15th , 2000) , and did not submit the flight plan which was against to the flight regulations of article 91 in “Helicopter ATMP” : “ 7. The flight operating can

be started after flight plan has completed.”

9. Although the ground mechanic was an accompanied crew, yet still considered as an extremely important cockpit resource and should have situation awareness. In a low visibility flight environment, the pilot did not perform duty briefing to use the resource well to provide obstacle approaching alert during flight, causing controlled flight into water.

10. The structural damage of the aircraft was totally caused by external overloading force; it should be a ditch without losing power.

11. The annual recurrent training in the training manual did not include “Cockpit Resource Management”; the cockpit resource was not effectively used.

12. The alcohol test shown that the alcohol content in the blood of the mechanic was over limits, but after interviewing and evidence gathering the person did not have a drinking hobby and did not drink alcohol contained drinks before the accident. The essences of the blood sample was not the same when the accident happened, the result of the test was not convincible. 56mg/dl of alcohol in the blood usually would not affect thinking and behaviors.

13. The applicability of paragraph 3, article 35 of “Helicopter ATMP” is controversial.

Findings related to probable causes

Flight in poor visibility and safe flight altitude was not maintained, lacked for dangerous situation awareness near

obstacles (water surface), too late to correct and ditched in the water due to flight altitude too low.

1. Insufficient preflight dispatch operation standards, flight plan was not filled in according to regulations.
2. The flight was not conducted according to the VFR restrictions such as flight visibility limitations and actual lowest flight altitude.
3. Relevant safety courses of VFR flights were not included in the training manual, causing crewmembers insufficient flight safety situation awareness.

Safety Recommendations

To Emerald Pacific Airlines

1. Whenever a flight across water is needed on land operations , the aircraft should be equipped with water crossing equipments to secure crewmembers.(ASC-ASR-00-10-001)
2. Strengthen all VFR related safety courses in the training manual, to enhance the situation awareness of flight safety for crewmembers. (ASC-ASR-00-10-002)
3. List "Crew Resource Management" course into annual recurrent course. (ASC-ASR-00-10-003)
4. Execute and implement trainings and examinations of flight crew. (ASC-ASR-00-10-004)

To Civil Aeronautics Administration, CAA

1. Demand general aviation enterprises to conduct flight

operations according article 91 of “Helicopter ATMP”, and evaluate the applicability of article 35 of the procedure. (ASC-ASR-00-10-005)

2. Strengthen the inspection of enterprises to see if they follow regulations of VFR weather standard and lowest flight altitude etc. in VFR rules. (ASC-ASR-00-10-0006)
3. Strengthen the inspection of enterprises to see if the contents of “Crew Resource Management “plan is actually needed and implemented. Demand enterprises to actually list “Crew Resource Management” as “Annual Recurrent Training” course and list in the training manual. (ASC-ASR-00-10-007)

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