



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

January 10, 2022

Group Chairman's Factual Report

AIR TRAFFIC CONTROL

ANC21FA069

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A. ACCIDENT

Location: Ketchikan Alaska
Date: August 5, 2021
Time: 1050 Alaska daylight time (AKDT)
1850 Universal Coordinated Time (UTC)
Airplane: DEHAVILLAND DHC-2 MK.I, N1249K

B. AIR TRAFFIC CONTROL GROUP

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C. SUMMARY

On August 5, 2021, about 1050 Alaska daylight time, a DeHavilland DHC-2, N1249K, was destroyed when it was involved in an accident near Ketchikan, Alaska. The airline transport pilot and five passengers were fatally injured. The airplane was operated by Southeast Aviation, LLC, as a Title 14 Code of Federal Regulations Part 135 on-demand sightseeing flight.

D. DETAILS OF THE INVESTIGATION

On September 27, 2021, the ATC work group travelled to Ketchikan, Alaska to conduct onsite investigative activities in support of the accident investigation.

On September 28, 2021, the ATC work group formed and received an inbrief from the Air Traffic Manager. The group then began data collection of pertinent Letters of Agreement (LOA's), local standard operating procedures, training materials for Flight Service Station (FSS) specialist at Ketchikan (KTN) FSS, weather observations data, and equipment documentation. The work group then interviewed the National Air Traffic Controllers Association (NATCA) Alaska Flight Service Station National Representative for an understanding of FSS functions and responsibilities.

On September 29, 2021, the ATC work group reconvened and conducted a tour and received a briefing from the operations supervisor at KTN FSS. The group documented weather equipment and communications equipment. The group then interviewed the NATCA KTN FSS facility representative and the Juneau FSS Hub Air Traffic Manager. The group completed the field notes and on September 30, 2021, the work group departed the onsite portion of the ATC investigation.

E. FACTUAL INFORMATION

1.0 History of Flight

At about 0939¹, the pilot contacted KTN FSS filed and activated a VFR flight plan from the Ketchikan harbor to the Misty Fjords on frequency 122.2 MHz (See figure 1)

At about 0940, the pilot of the accident airplane reported in receipt of Automated Flight Information Service (AFIS) echo and departed Ketchikan harbor to the east.

At about 0944, the pilot of the accident airplane reported clearing the KTN Class E airspace at Mountain Point to the east.

There were no further communications with the accident pilot.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR		TIME STARTED		SPECIALIST INITIALS	
FLIGHT PLAN		☐ STOPOVER				BB	
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
☒ VFR ☐ IFR ☐ DVFR	N1249K	DHC2	KTS	5KE	PROPOSED (Z)	ACTUAL (Z)	
						1740	
8. ROUTE OF FLIGHT							
Misty Fjords							
1925							
9. DESTINATION (Name of airport and city)		10. EST. TIME ENROUTE		11. REMARKS			
5KE		HOURS: 1 MINUTES: 45					
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD	
HOURS: 2 MINUTES: 15							6/6
16. COLOR OF AIRCRAFT		17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)					
CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.							

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

Figure 1 - VFR Flight Plan opened on behalf of the pilot for N1249K.

¹ All times AKDT unless otherwise noted.

2.0 Radar and Surveillance Data

In general, two types of radar are used to provide position and track information for aircraft cruising at high altitudes between airport terminal airspaces, and for those operating at low altitude and speeds within terminal airspaces. Additionally, surveillance data may be obtained through Automatic Dependent Surveillance-Broadcast (ADS-B).

ADS-B data is aircraft global positioning system (GPS) derived position reports and other aircraft information transmitted by the airplane and received through a ground infrastructure and shared with other users within the national airspace system (NAS). Air traffic controllers across the nation can monitor aircraft using either ground-based radar or ADS-B.

Airport surveillance radars (ASRs) are short range (60 nm) radars used to provide air traffic control services in terminal areas. ASR antennas rotate at 13 to 14 rpm, resulting in a radar return every 4.6 to 5 seconds. Data for this report was obtained from the FAA Anchorage Air Route Traffic Control Center (ZAN ARTCC) and was of good quality and utilized by air traffic control.

To improve the consistency and reliability of ADS-B and radar returns, airplanes are equipped with transponders. For ADS-B equipped airplanes, the transponders are assigned a unique Mode-S address for each airplane. The N1249K assigned Mode S transponder address was A0662B and the accident airplane was squawking a transponder beacon code of 1200.

ADS-B and radar data for this report was obtained from the FAA, however, due to the low altitude of the accident airplane and lack of ADS-B receivers in the Misty Fjords area, there was no ADS-B or radar data available that captured the accident leg of the flight.

3.0 Weather Data

3.1 Surface Observations

The PAKT (KTN) weather at 1153, wind 130° at nine knots, visibility 8 statute miles, light rain, few clouds 700 feet, ceiling broken 1,800 feet, overcast at 2,500 feet, temperature of 14° Celsius (C), dew point temperature of 13°C, and an altimeter setting of 29.91 inches of mercury (inHg). Additional remarks included: automated weather observing station with precipitation discriminator, sea level pressure 1012.8 hPa, harbor wind sensor reporting wind 150° at ten knots, precipitation last hour 0.04 in.

MVFR METAR PAKT 051953Z 13009KT 8SM -RA FEW007 BKN018 OVC025 14/13 A2991 RMK AO2 SLP128 HARBOR WIND 15010KT P0004 T01390128=

4.0 Air Traffic Personnel

4.1 National Air Traffic Controllers Association (NATCA) National Flight Service Station Lead

As part of the investigation, NTSB investigators interviewed the NATCA National Flight Service Station Lead to gather historical information on service station equipment, policies, airspace, and FSS provided pilot services. The NATCA National Flight Service Station Lead was not involved in the airplane accident.

The NATCA FSS Lead started working for the FAA in February 2002 when he reported to the FAA Academy in Oklahoma City. His training at the academy included the FAA Meteorological Course and FAA Flight Service course. Around May of 2002, he graduated the FAA academy and reported to Kankakee, IL (IKK) Flight Service Station (FSS), and then transferred to Fairbanks AK (FAI) in September 2003. In 2008 He was transferred to Palmer AK, when the FAA created a centralized rotation for FSS specialists.

After moving to Palmer, The NATCA FSS Lead was certified at multiple Alaskan FSSs to include Kotzebue FSS, Talkeetna FSS, Palmer FSS, and others. He stated that if he kept currency in one FSS, all the other FSSs he was previously certified in were current as well. He stated that he spent around 95% of his time at the Nome, AK FSS and will work other FSSs as needed. His Schedule consisted of 8 days on and then 6 days off.

4.2 KTN Flight Service Specialist

As part of the investigation, NTSB investigators interviewed a flight station specialist to gather information on the duties and responsibilities of FSS personnel providing services to aircraft in the KTN operating area. The flight station specialist was not involved in the airplane accident.

The KTN flight service specialist entered on duty with the FAA in March 2002 and attended the FAA training facility in Oklahoma City, Oklahoma. He attended the basic flight service training course and graduated in July of 2002. He then transferred to KTN FSS for duty. In September 2006, the KTN flight service specialist resigned from the FAA and did non-aviation activities. In February 2009, the KTN flight service specialist was hired back into the FAA and attended the Air Route Traffic Control Center (ARTCC) course at the FAA training facility. He graduated in June 2009 and reported to Guam ARTCC (ZUA). In September 2014, the KTN flight service specialist left ZUA and reported to KTN FSS for duty as a flight service specialist.

The KTN flight service specialist was fully qualified on all operating positions at KTN and was designated a controller in charge (CIC). He maintained a current FAA medical certificate with no restrictions and did not hold any other aeronautical licenses. The KTN flight service specialist did not have any prior military experience.

4.3 KTN Air Traffic Manager (ATM)

The ATM entered on duty (EOD) with the FAA in May 1991 as a GS 2154 flight data specialist in Anchorage Center (ZAN). In April 1995 he reported to the FAA training facility in Oklahoma City, Oklahoma to attend training for the FSS. He graduated in September 1995 and reported to Kenai FSS, Kenai AK (ENA) for duty as an FSS specialist. He became fully certified and was designated as a controller in charge (CIC). He was later promoted to operations manager (OM) and departed ENA in May 2014 to assume the duties as Air Traffic Manager (ATM) in Juneau FSS (JNU) in Juneau AK.

The ATM was not certified on any operating positions nor was he required to be. JNU is the hub FSS facility that included the satellite FSSs in Sitka AK (SIT) and KTN.

The ATM did not maintain a current medical nor was he required to and did not have any other aeronautical licenses. He did not have any prior military or civilian aviation experience.

5.0 Ketchikan Flight Service Station Equipment

5.1 Operational and Supportability Implementation System (OASIS)

The KTN FSS was equipped with the Operational and Supportability Implementation System (OASIS). OASIS is a system in the NAS which processes and displays weather products, tracks flight service functional daily activities and time on position, provides flight planning (departure, destination, route information), regulatory information (flight path restrictions, air traffic control system status, airport status information and operational Notices to Airmen), and OASIS equipment status information.

OASIS II consists of storage and processing equipment in the Anchorage Air Route Traffic Control Center (ZAN) and workstations at the 17 FSS's located throughout Alaska. OASIS II is used strictly by FAA Flight Service Specialists in Alaska to provide weather briefing and flight planning services to general aviation pilots. Flight Plans are required for every flight that uses Instrument Flight Rules (IFR) procedures and are strongly recommended for all other flights.

5.2 Aeronautical Information System Replacement (AISR)

KTN FSS also uses the Aeronautical Information System Replacement (AISR). The AISR is used mainly as a backup to OASIS and can be used to input and transmit weather and flight plan information into the NAS.

5.3 Integrated Communications Switching System (ICSS)

KTN FSS communications are conducted by the Integrated Communications Switching System (ICSS). The ICSS comprises a central switch, position equipment, an automatic call director (ACD), and the administration telephone subsystem. Additional communications equipment includes the DSP1000 Automatic Call Distributor (ACD). The ACD directs incoming calls to either a pilot weather briefer, recorded weather, or into the fast file system. This system is monitored at the Watch Desk.

5.4 Automated Surface Observing System (ASOS)

KTN FSS weather information is provided by an Automated Surface Observing System (ASOS). The ASOS program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). The ASOS systems serves as the nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities.

ASOS detects significant changes, disseminating hourly and special observations via networks. Additionally, ASOS routinely and automatically provides computer-generated voice observations directly to aircraft in the vicinity of airports, using FAA ground-to-air radio. These messages are also available via a telephone dial-in port. ASOS observes, formats, archives, and transmits observations automatically.

FAA JO 7110.10Z, *Flight Services*, prescribes air traffic control procedures and phraseology for use by flight service personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise judgment if they encounter situations not covered by it. The glossary identifies the use of automated weather systems and states [in part]:

AUTOMATED WEATHER SYSTEM– Any of the automated weather sensor platforms that collect weather data at airports and disseminate the weather information via radio and/or landline. The systems currently consist of the Automated Surface Observing System (ASOS), Automated Weather Sensor System (AWSS) and Automated Weather Observation System (AWOS)

KTN FSS personnel reported the ASOS was taking observations as scheduled, however, the system was inconsistent with landline dissemination of the observation to the NAS. The loss of data transmission was attributed to a landline cabling issue from the ASOS site to the facility and no repairs were scheduled.

As a result of the NTSB onsite investigation, the FAA instituted a new policy to ensure KTN ASOS data was transmitted into the NAS. The new policy requires Juneau Flight Service to monitor KTN's hourly automated weather. If long line dissemination into the NAS is not successful, Juneau will call KTN to manually enter the weather through available alternate systems (AISR). Additionally, the Juneau OM has the Quality Assurance (QA) office randomly checking the KTN METAR's and is checking for compliance with the policy.

5.5 Wind Sensors

Wind information is derived from the ASOS and transmitted to the FSS operation and displayed by a calibrated dial and via the Operation Information Display (OID). Additional wind information is derived from a roof top wind sensor and displayed by a calibrated dial adjacent to the ASOS display.

Harbor wind is derived from a wind sensor located in the harbor and can be included in the remarks section of augmented weather observations conducted by the controller.

5.6 FAA Weather Cameras

The FAA Weather Cameras are positioned to view sky conditions around airports and air routes as well as extreme mountain passes. A remote camera site is at Misty Fiords, in the tidal zone of the Behm Canal in the Misty Fiords National Monument. It is located approximately 52 water-miles from the nearest harbor at Ketchikan, Alaska, and normally is accessed only by boat. The site is powered by solar and wind generators and the images are sent back to Anchorage via satellite.

F. LIST OF ATTACHMENTS

Attachment 1 interview summaries.

Submitted by:

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