

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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AIR TRAFFIC CONTROL

Group Chair's Factual Report

October 17, 2025

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A. ACCIDENT

Location: Nome, Alaska
Date: Thursday, February 6, 2025
Time: 1520 Alaska standard time (AKST)¹
0020 coordinated universal time (UTC)², February 7, 2025
Airplane: N321BA, Bering Air flight 445 (BRG445), Cessna 208B

B. AIR TRAFFIC CONTROL GROUP

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National Transportation Safety Board
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C. SUMMARY

On February 6, 2025, about 1520 Alaska standard time, a Textron Aviation (Cessna) 208B airplane, N321BA, operated as Bering Air flight 445, was destroyed when it was involved in an accident near Nome, Alaska. The pilot and nine

¹ All times are in Alaska standard time (AKST) unless otherwise noted.

² UTC - coordinated universal time is the international time standard (formerly Greenwich Mean Time, or GMT). Zero hours UTC is midnight in Greenwich, England, which is located at 0 degrees longitude. Everything east of Greenwich (up to 180 degrees) is later in time; everything west is earlier. For example, the AKST zone in the U.S. is UTC minus (-) 9. Therefore, the accident time in Nome, Alaska was 1520 AKST, making the UTC time 0020 UTC the following day.

passengers were fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations (CFR) Part 135 scheduled commuter flight.

D. DETAILS OF THE INVESTIGATION

ATC Onsite Investigation Summary - Anchorage Air Route Traffic Control Center (ARTCC) (ZAN) and Nome Flight Service Station (FSS) (OME).

On Friday, February 14, 2025, the investigator in charge (IIC), AS-30 management, and air traffic control (ATC) team lead made the decision to conduct an onsite investigation at ZAN. The ATC team lead notified AJI-1330, safety intelligence and response group (SIRG) that the NTSB's intent was to conduct the onsite investigation at ZAN during the week of February 17, 2025. The IIC granted National Air Traffic Controllers Association (NATCA) party status, and the ATC group chairman began organizing the group.

The SIRG event investigation manager (EIM) contacted the ATC group chairman to inform them that the controller who communicated with the accident flight (sector 13R) would be unavailable during the week of February 17, 2025. The EIM requested rescheduling the investigation to the following week, starting February 24, 2025, to ensure all controllers could participate in in-person interviews and to allow the SIRG sufficient time to prepare for the investigation. The ATC group chairman agreed to this change, approving the new onsite investigation dates for the week of February 24, 2025.

On Tuesday, February 18, 2025, the IIC and ATC group chairman agreed to extend the investigation to include an onsite visit to OME³, located at Nome Airport (PAOM)⁴, Nome, Alaska. Interviews with OME controllers were scheduled for Friday, February 28, 2025. The group chairman communicated this additional requirement and date to the EIM.

On the evening of Friday, February 21, 2025, the EIM informed the ATC group chairman that the sector 13R controller would be off on their regular days off, February 26 and 27, and had been granted unscheduled leave for February 28. As a result, the controller would be unavailable for an in-person interview during that week. The ATC group chairman reminded the EIM that the onsite investigation dates had been rescheduled at the FAA SIRG's request specifically to ensure all controllers could be interviewed in person. The chairman emphasized that the original request to delay was based on controller availability during the week of February 14, 2025.

³ The official 3-letter ID for the Nome flight service station (FSS) is OME. This code identifies a specific facility for aviation purposes, such as an air traffic control facility, like a flight service station.

⁴ Nome Airport is a mid-sized airport in Alaska, United States. The airport is located at latitude 64.51260 and longitude -165.44440. The airport has 2 runways: 3/21 and 10/28. The ICAO airport code of this field is PAOM. The airport is in the Anchorage Arctic FIR.

Being notified the Friday before the investigation was set to begin on Monday that the controller would now be unavailable due to days off and leave was problematic. The group chairman would be available at any time during the four days of the onsite investigation to accommodate in-person interviews.

On Monday, February 24, 2025, the ATC group traveled to Anchorage, Alaska.

On Tuesday, February 25, 2025, the ATC group convened at ZAN. The group attended a facility briefing provided by the EIM. Attending the in brief were representatives from the Western Service area quality control (WSA QCG), ZAN air traffic manager (ATM), ZAN executive officer (XO), ZAN QCG, ZAN training administrator, ZAN support manager (SM), ZAN NATCA representative, Alaska District assistant general manager (AGM), Alaska District traffic management officer (TMO), Merrill Field Airport (MRI), Anchorage, Alaska ATM, and FAA attorney, Office of the Chief Counsel.

The briefing covered an overview of the FAA's accident investigation process and outlined what the facility could expect during the investigation. The ATC group chairman also provided an explanation of the NTSB's investigative procedures.

Following the brief, the group toured the ZAN operational areas and positions, including the pre-duty weather briefing area and the Center Weather Service Unit (CWSU). They then observed a radar replay of the accident aircraft's flight. Subsequently, the team reviewed relevant accident data and conducted interviews with the ZAN Training Administrator, the certified professional controller-in-training (CPC-IT) assigned to the sector 13D (combined 3D/13D/9D) position, and the CWSU meteorologist on duty during the accident. All interviews were audio recorded.

Later that evening, the EIM informed the group chairman that the sector 13R controller would not be available for an in-person interview, as they were no longer in the Anchorage area. However, the 13R controller agreed to participate in a telephone interview on Wednesday, February 26, 2025.

On Wednesday, February 26, 2025, the ATC group convened at the hotel for a brief organizational meeting before reconvening at ZAN. The group attended the morning ZAN "Standup"⁵ meeting, which included the CWSU weather briefing. They reviewed accident-related data prior to conducting a telephone interview with the 13R controller (combined sectors 3R/13R/9R). In-person interviews were conducted with the Operations Manager (OM); the OME FSS controller assigned to the Inflight 2 (IF2) position, who was in Anchorage that day; the 13R on-the-job training instructor (OJTI) who had previously worked the position before the accident, an uninvolved

⁵ A facility stand-up meeting is a brief, daily gathering for facility management and operations teams to align on progress, address any impediments or challenges, and coordinate daily activities.

meteorologist from the CWSU who requested an interview, and the Operations Supervisor (OS). All interviews were audio recorded. Afterward, the group left the facility and returned to the hotel.

On Thursday, February 27, 2025, the ATC group met again at the hotel for a brief organizational meeting, then reconvened at ZAN. They reviewed additional accident-related data and conducted interviews with the quality control staff manager (QC-SM), the 13D OJTI (combined sectors 3D/13D/9D), the 13R trainee controller who had previously worked the position before the accident, and the ATM. All interviews were audio recorded. Following the interviews, the group departed the facility and returned to the hotel.

On Friday, February 28, 2025, the group gathered at Ted Stevens Anchorage International Airport (ANC) in Anchorage, Alaska, to travel to PAOM via commercial flight. Upon arrival at PAOM, they proceeded from the terminal to OME FSS, located on the airport grounds. The group held a brief organizational meeting, followed by a facility tour. They then reviewed accident-related data and conducted an audio-recorded interview with the Inflight 1 (IF1) controller.

After completing the interview, the group returned to the PAOM terminal and flew back to ANC. From there, they proceeded to the hotel to finalize and approve the ATC group field notes. Upon completion of the field notes, the IIC formally released the group, marking the conclusion of the onsite phase of the ATC investigation.

E. FACTUAL INFORMATION

1.0 History Of Flight

At the time of the accident, BRG445 was receiving ATC services from ZAN. The flight history was reconstructed using source data referenced in Attachments 1 through 6. The following timeline summarizes recorded communications between ATC and the pilot, along with other relevant information pertaining to the flight of BRG445.

1351: While BRG445 was on the ground at Unalakleet Airport (PAUN)⁶, Unalakleet, Alaska (a non-towered airport), the pilot contacted OME FSS and filed a visual flight rules (VFR), and an instrument flight rules (IFR) flight plan from PAUN to PAOM.

⁶ Unalakleet Airport is a midsized airport located in Unalakleet, Alaska. The airport is located at latitude 63.88850 and longitude -160.79910. The airport has 2 runways: 15/33 and 9/27. The ICAO airport code of this field is PAUN. The local airport ID (FAA LID) of this airport is UNK. The airport's IATA code is UNK. The airport is in the Anchorage Arctic FIR.

- 1435: The pilot of BRG445 contacted the OME FSS Inflight 2 (IF2) controller to request activation of their VFR flight plan. The IF2 controller confirmed to the pilot that the flight plan had been activated.
- 1436: The pilot of BRG445 contacted the ZAN 13R (radar) controller, reporting they were on the ground at Unalakleet and requested an IFR clearance to PAOM. The 13R controller cleared BRG445 from PAUN to PAOM via direct EMMMO⁷, instructed the pilot to maintain 8,000 feet, squawk 5210, and released them for departure. The pilot read back the clearance and instructions as issued.

Figure 1 is a screenshot of the sectional aeronautical chart showing the locations of PAUN (on the right side) and PAOM (on the left side) of the chart. An orange arrow is used to indicate the relative positions of the two airports and their approximate distance of 147 miles. This arrow does not represent the actual flight track of BRG445.

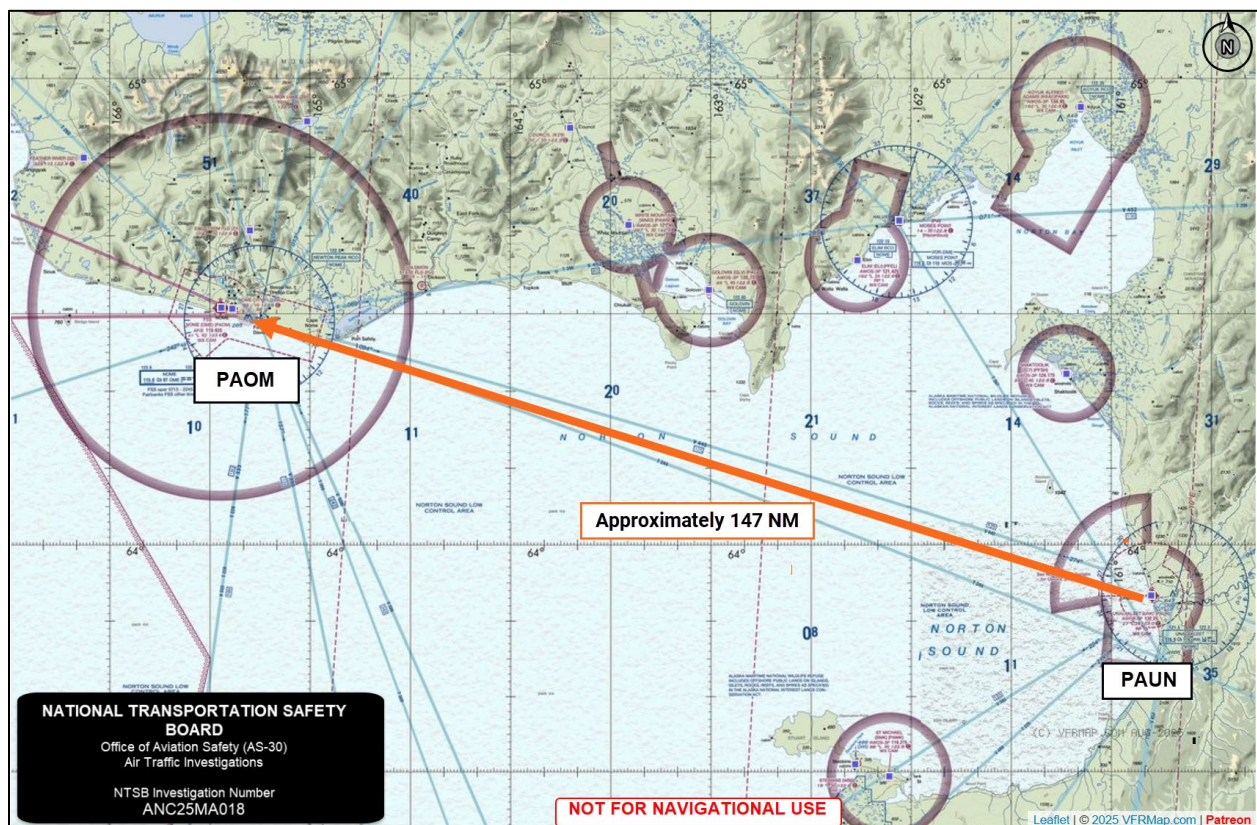


Figure 1. Intended flight route of BRG445 shown on sectional chart.

⁷ EMMMO - The initial approach fix on the RNAV (enroute area navigation) runway 28 approach to PAOM, located 11 miles southeast of the airport.

Figure 2 is the airport diagram for PAUN, depicting the layout of runways, taxiways, and ramp areas. Runway designations and dimensions are also provided on the diagram.

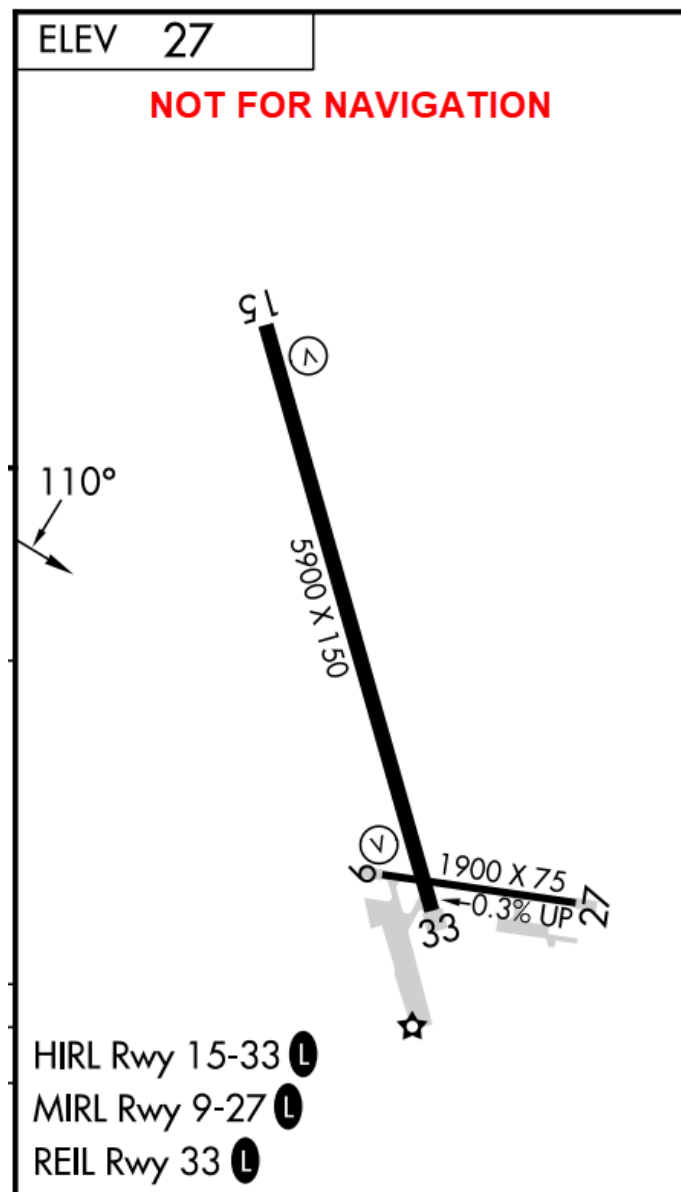


Figure 2. Airport diagram of PAUN.

1439: The pilot of BRG445 contacted ZAN 13R controller, reporting they were airborne from Unalakleet Airport at 1,600 feet and climbing to 8,000 feet. The 13R controller advised the pilot they were in radar contact, approximately 3 miles⁸ west of Unalakleet Airport. The pilot acknowledged the position report and stated their call sign.

⁸ All miles are nautical miles (nm) unless otherwise noted. Nautical mile is often used interchangeably with the term "mile" unless specified as a "statute mile" for visibility.

1440: The ZAN 13D (data) controller notified the OME Inflight 1 (IF1) controller that BRG445 was estimating arrival at PAOM at 1535 and would be conducting a Runway 28 RNAV⁹ approach.

Figure 3 shows the airport diagram for Nome Airport (PAOM), including the layout of runways, taxiways, ramps, buildings, and facilities. Runway designations and dimensions are also provided.

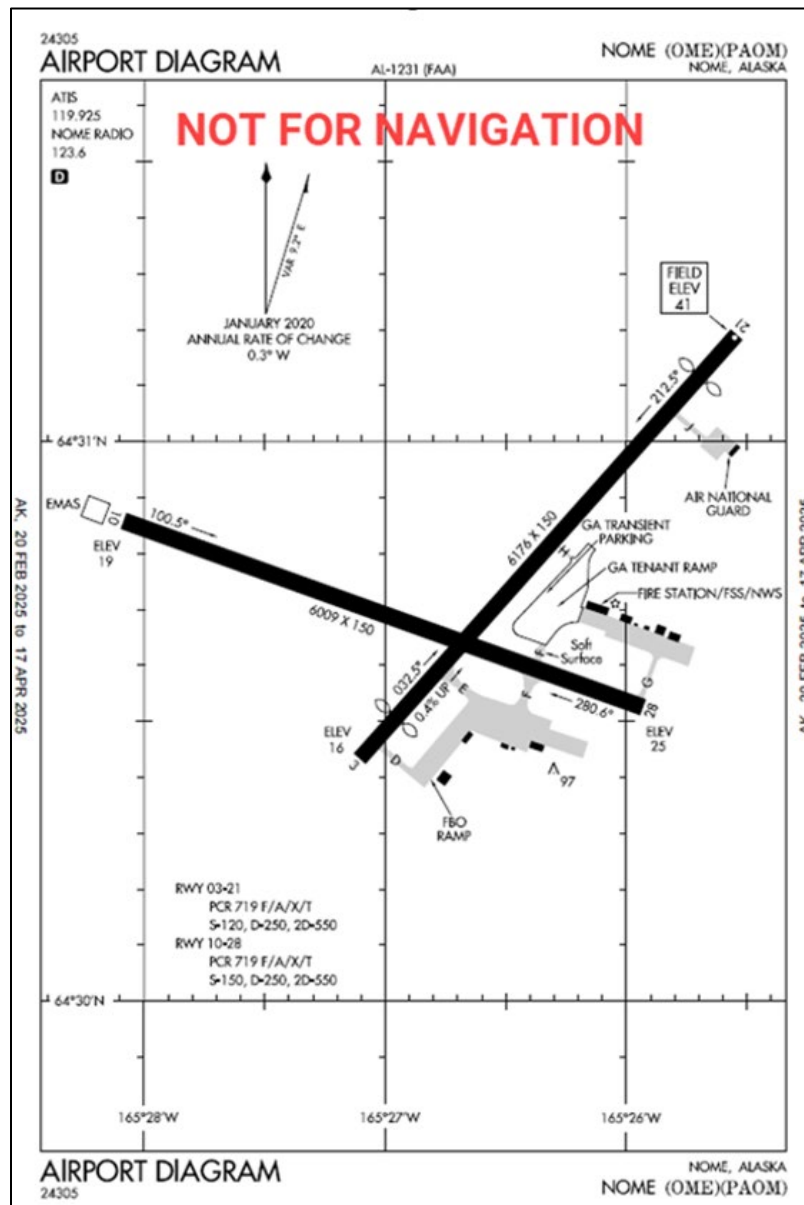


Figure 3. Airport diagram of PAOM.

⁹ Area navigation (RNAV) is a method of navigation that permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids, or within the limits of the capability of self-contained aids, or a combination of these.

- 1456: The 13R controller instructed the pilot of BRG445 to descend at pilot's discretion and maintain 6,000 feet and issued the PAOM altimeter. Subsequently, the 13R controller instructed the pilot to report when they began their descent and to advise when they had automatic flight information service (AFIS) ¹⁰ information kilo (K). The pilot read back the instructions as issued.
- 1503 to
- 1508: A position relief briefing (PRB)¹¹ was conducted at the 13R control position.
- 1511: The pilot of BRG445 contacted the 13R controller, reporting that they were descending and had received Nome AFIS information Kilo.
- 1512: The OME IF1 controller informed the 13D controller that both runways at PAOM were temporarily closed for de-icing. However, Runway 10/28 was expected to be closed for only 10 to 15 minutes, and they would notify them once the runway was reopened.
- 1513: The 13R controller advised the pilot of BRG445 that OME had reported that runway 10/28 was currently closed and they expected it to reopen in 10 to 15 minutes. The controller informed the pilot that they could slow their speed if they wanted, to avoid arriving (at PAOM) before it reopened. The pilot acknowledged the information and stated they would slow down, then thanked the controller for the update.
- 1515: The 13R controller instructed the pilot to descend at pilot's discretion and maintain 4,000 feet. The pilot read back the instruction as issued. ADS-B data indicated BRG445's altitude was at 6,000 feet.
- 1520: The 13R controller instructed the pilot of BRG445 to climb and maintain 4,000 feet and requested their current altitude. There was no response heard from the pilot. ADS-B data showed BRG445 at an altitude of 1,800

¹⁰ Automatic flight information service (AFIS) - Alaska FSSs Only- The continuous broadcast of recorded non-control information at airports in Alaska where a FSS provides local airport advisory service. The AFIS broadcast automates the repetitive transmission of essential but routine information such as weather, wind, altimeter, favored runway, braking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a discrete VHF radio frequency (usually the ASOS/AWOS frequency).

¹¹ Position relief briefing (PRB) is a standard procedure for ATC specialists to transfer responsibility for a position from one controller to another controller by providing a complete and concise summary of critical operational information to the incoming specialist. Both the relieved and relieving specialists share responsibility for its completeness and accuracy, using a checklist and often conducting the briefing at the position being relieved.

feet. The 13R controller issued a low altitude (LA) alert¹² to BRG445, instructing the pilot to check their altitude immediately and advising them that their Mode C¹³ altitude indicated 1,600 feet and was descending. There was no response heard from the pilot. The 13R controller broadcasted a "radio check"¹⁴ to BRG445. There was no response heard from the pilot. The 13D controller contacted the OME IF1 controller to request assistance in attempting to reach BRG445, reporting that the aircraft's radar target had disappeared from their display.¹⁵

Figures 4 and 5 are visual representations of BRG445's flight path, created by overlaying ADS-B data onto Google Earth satellite imagery.

Figure 4 provides a side view of the final portion of the flight. Numbered blue dots represent individual ADS-B data points, with corresponding details displayed in the dark gray box located in the bottom left corner of the graphic. Each data point includes local time, altitude, groundspeed (in knots), and heading, illustrating the aircraft's trajectory during the final two minutes of flight.¹⁶

¹² Low Altitude Alert – An automated function of the installed radar system that alerts the controller when a Mode C transponder equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. Both aural and visual alerts are provided to the controller.

¹³ Mode C refers to a type of aircraft transponder that reports both the aircraft's identification code (squawk code) and its pressure altitude to ATC.

¹⁴ Radio check is a plain language term used to perform a two-way communication check on the assigned frequency.

¹⁵ No primary or secondary radar targets were being displayed on the radar scope.

¹⁶ Detailed information on flight track information is included in Attachment 5: ADS-B Data, and the Performance Group Factual Report located in the docket.

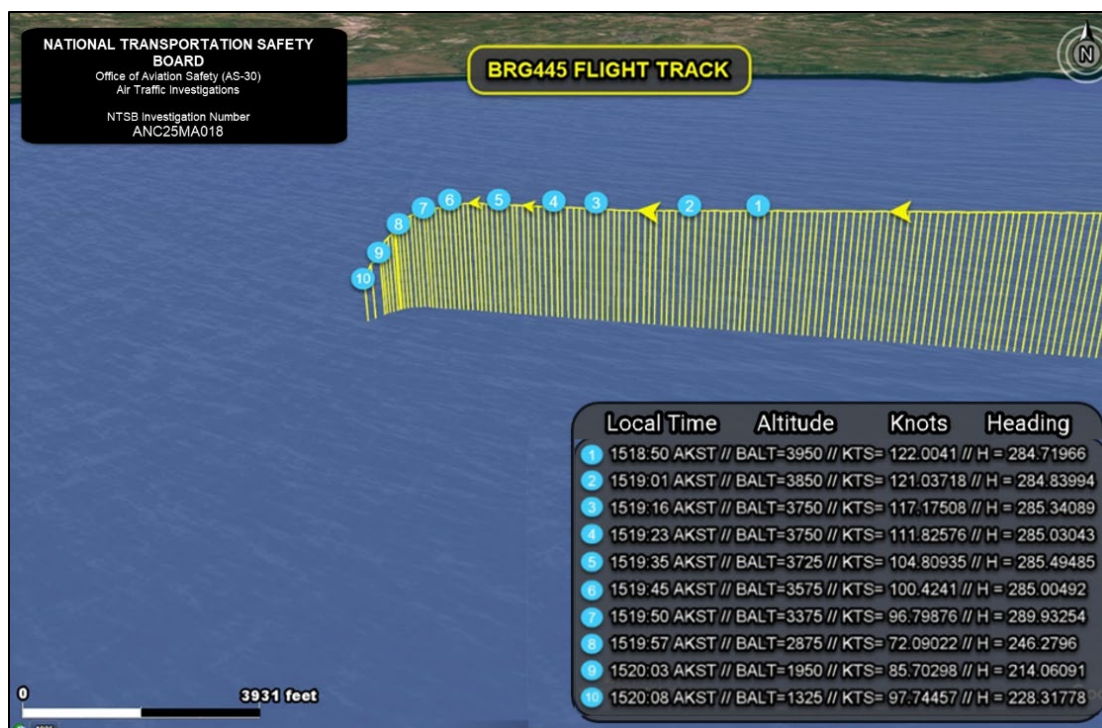


Figure 4. Side view of Flight track of BRG445; detailed information.

Figure 5 provides an overhead view of the final segment of BRG445's flight. Yellow arrows indicate the direction of travel, while the last recorded ADS-B target is marked with its corresponding time, latitude, and longitude below the depicted circle. An orange dotted line represents the approximate distance between the final target location and PAOM Airport.



Figure 5. Google Earth graphic depicts the position of BRG445's last target.

- 1521: The OME IF1 controller tried to contact BRG445 on the assigned frequency. There was no response heard from the pilot. The 13R controller contacted an uninvolved aircraft operating in the PAOM area and requested that they attempt to reach BRG445. The controller advised that radar contact had been lost and asked the pilot, if successful in making contact, to request BRG445's altitude and confirm they were okay. The uninvolved aircraft attempted to establish communication but received no response. The OME IF1 controller made two additional attempts to contact BRG445. There was no response heard from the pilot.
- 1522: The 13R controller transmitted in the blind¹⁷ advising BRG445 that they were radar contact lost 25 miles east of the PAOM VOR¹⁸ and instructed the pilot to respond if they could hear the transmission. The OME IF1 controller attempted to contact BRG445 on guard frequency¹⁹. There was no response heard from the pilot. A vehicle driver at PAOM attempted to contact BRG445. There was no response heard from the pilot.
- 1523: The 13R controller again transmitted a radio check to BRG445. There was no response heard from the pilot. The 13D controller contacted the OME IF1 controller to ask if they had established contact with BRG445. The IF1 controller replied that they had not, but a maintenance vehicle driver (identified later as a snow blower operator) reported hearing BRG445. The IF1 controller stated they would notify ZAN if any further transmissions were received.

According to the written statement made by the snow blower operator at PAOM²⁰, he heard BRG445 make two or three routine transmissions to OME FSS, spaced approximately five seconds apart. He reported that the transmissions did not convey any sense of urgency or distress. The operator also stated that he asked OME if they had received the transmissions, and they indicated that they had not.

Note: The last recorded transmission from BRG445 occurred at 15:15:36, when the pilot read back an ATC instruction to descend to 4,000 feet. No subsequent transmissions from the pilot were

¹⁷ "Transmitting in the blind" describes sending a communication without being able to establish two-way communication or confirm receipt, with the understanding that the recipient may be able to hear the message.

¹⁸ Very High Frequency Omni-Directional Range (VOR) are transmitters that support non-precision (lateral guidance only) approach and en-route procedures. VORs support the low-altitude Victor Airways, high- altitude Jet Routes, conventional-STARs, and Departure Procedures (DPs), and Instrument Approach Procedures (IAPs).

¹⁹ The "guard frequency" refers to the primary international emergency frequency, 121.5 MHz, which is used for distress and urgent communications when standard frequencies fail.

²⁰ Detailed information included in Attachment 6 - Record of Conversation - Vehicle Drivers.

recorded on either OME or ZAN frequencies. A review of all relevant recorded frequencies confirmed that no additional communications from BRG445 were identified.²¹

The 13R controller contacted an uninvolved Bering Air flight and requested that they attempt to reach BRG445. The pilot acknowledged and said they would try.

1523 to

1525: The OME IF1 controller made five additional attempts to contact BRG445 on multiple frequencies, including the guard frequency. No response was received.

1526: The OME IF1 controller informed the 13D controller that they were still unable to reach BRG445. They also reported no follow-up communication from the maintenance vehicle regarding any new transmissions, but confirmed they were continuing efforts to reach the aircraft on all available frequencies. The 13R controller asked the uninvolved Bering Air pilot if they had successfully established contact with BRG445. The pilot replied in the negative. The 13R controller transmitted a radio check to BRG445. No response was received.

1528: The OME IF1 controller informed the 13D controller that they had spoken with a representative from Bering Air, who reported that their company was tracking BRG445 in the air at 4,000 feet. Bering Air was also attempting to contact the pilot.

1532: The state maintenance vehicle driver at PAOM reported that runway 10/28 had been de-iced to a width of 75 feet and was ready to be reopened. The OME IF1 controller notified the 13R controller that runway 10/28 at PAOM was now open.

1533 to

1535: A position relief briefing was conducted at the 13R control position.

1537: The 13D controller informed the OME IF1 controller that ZAN would suspend approaches to PAOM until BRG445's status could be determined.

1540: The OME IF1 controller attempted to contact BRG445 two additional times, including on the guard frequency, but received no response.

²¹ Detailed information included in Attachment 3: ZAN ATC Audio Recordings and Attachment 4: OME ATC Audio Recordings.

- 1542: The 13R controller asked the uninvolved Bering Air pilot to continue attempts to contact BRG445, noting uncertainty regarding the aircraft's location and altitude. The pilot confirmed they had been trying to reach BRG445.
- 1543: The 13D controller contacted the OME IF1 controller to report that ZAN was issuing an alert notice (ALNOT)²² on BRG445.

2.0 Automatic Dependent Surveillance - Broadcast (ADS-B)²³

The FAA provided certified ADS-B data. These data were provided in comma separated value (.csv) and keyhole markup language (.kml) formats. The ADS-B data provided flight track surveillance information for BRG445.

3.0 Weather Information²⁴

3.1 Surface Observations

The area surrounding the accident site was documented using official Aviation Routine Weather Reports (METARs²⁵) and Aviation Selected Special Reports (SPECIs)²⁶. The following observations were taken from standard code and are provided in plain language. A magnetic variation²⁷ of 9° east was indicated over the area.

Figure 6 is a FAA sectional aeronautical chart of the accident area with the locations of the accident site and surface observation site noted near PAOM.

²² Alert Notice (ALNOT) - A request originated by a FSS or an ARTCC for an extensive communication search for overdue, unreported, or missing aircraft.

²³ ADS-B - Automatic Dependent Surveillance-Broadcast - A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.

²⁴ Detailed weather information can be obtained in the Meteorology Factual Report located in the docket.

²⁵ METAR - Aviation Routine Weather Report - The METAR has been adopted by the United States to provide surface observations of current weather conditions in support of aviation for the terminal. It is issued at fixed times hourly.

²⁶ SPECI - Special Weather Report - An unscheduled report taken when weather conditions meet specified criteria, are observed during the period between regular hourly reports. A SPECI is used as soon as possible after the relevant criteria is observed.

²⁷ Magnetic variation - The angle (at a particular location) between magnetic north and true north. Latest measurement taken from <https://skyvector.com/>.

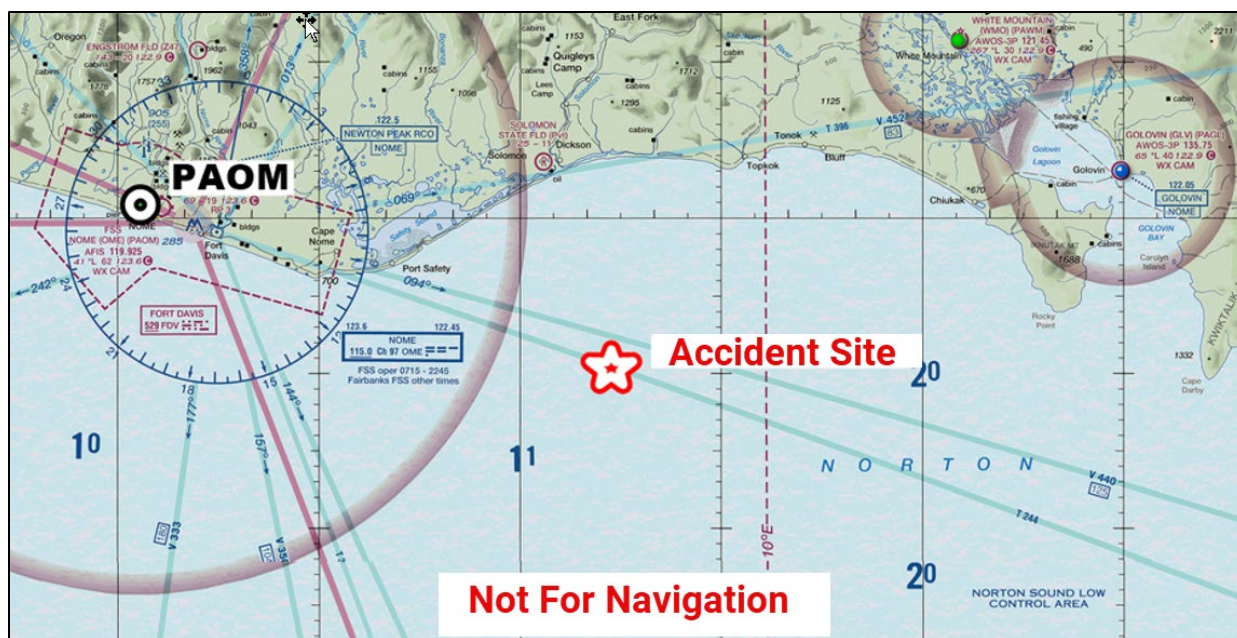


Figure 6. PAOM surface observation site noted on sectional chart.

PAOM was the intended destination airport and had official weather observations. PAOM had an automated surface observing system (ASOS²⁸) and its longline²⁹ reports were augmented by Alaska flight service. The PAOM ASOS was located 32 miles west northwest of the accident site at an elevation of 41 feet, and issued the following observations surrounding the accident time:³⁰

[1353 AKST] METAR PAOM 062253Z 00000KT 1SM R28/P6000FT -SN
BR BKN025 BKN030 OVC037 M09/M11 A3021 RMK AO2 SLP230 P0002
T10941106=

[1415 AKST] SPECI PAOM 062315Z 36005KT 2 1/2SM
R28/5500VP6000FT -SN BKN037 OVC055 M10/M13 A3021 RMK AO2
P0000 T11001128=

[1422 AKST] SPECI PAOM 062322Z 03003KT 9SM BKN044 OVC055
M09/M12 A3020 RMK AO2 SNE21 P0000 T10941117=

²⁸ ASOS – Automated Surface Observing System was equipped with meteorological instruments to observe and report wind, visibility, weather phenomena, ceiling, temperature, dewpoint, altimeter, and barometric pressure. ASOS are maintained by the NWS.

²⁹ Longline refers to the dissemination of weather observations with the intent that they are available in near-real time to national databases and accessible to the general global public from a large number of vendors. This does not include public accessibility to observations from a reporting station's Very High Frequency (VHF; line-of-site) or telephone broadcast, where applicable. Longline dissemination of weather observations was the primary vehicle through which the weather observations are distributed.

³⁰ The bold sections of products in this report are intended to highlight the text that directly reference the weather conditions that affected the accident region around the accident time. The local times in this section next to the METARs are provided for quick reference.

[1453 AKST] METAR PAOM 062353Z 34006KT 9SM FEW009 SCT026
OVC060 M11/M13 A3021 RMK AO2 SNE21 SLP229 P0001 60009
T11061128 11089 21111 56003=

**[1505 AKST] SPECI PAOM 070005Z 00000KT 10SM -SN BKN027
BKN035 OVC055 M10/M12 A3020 RMK AO2 SNB03 P0000
T11001122=**

ACCIDENT TIME 1520 AKST

**[1545 AKST] SPECI PAOM 070045Z 35006KT 4SM HZ FEW009
BKN025 OVC032 M10/M13 A3020 RMK AO2 SNB03E12 P0000
I1000 T11001133=**

[1553 AKST] METAR PAOM 070053Z 00000KT 3SM HZ OVC027
M10/M13 A3020 RMK AO2 SNB03E12 SLP228 P0000 I1000
T11001128=

The bold type observations, shown above, are decoded in plain language as follows:

PAOM weather at 1505 AKST, wind calm, visibility 10 statute miles or greater, light snow, broken ceiling at 2,700 feet above ground level (agl), broken ceiling at 3,500 feet agl, overcast ceiling at 5,500 feet agl, temperature of -10°C, dew point temperature of -12°C, and an altimeter setting of 30.20 inches of mercury (inHg). Remarks, station with a precipitation discriminator, snow began at 1503 AKST, a trace of precipitation since 1453 AKST, temperature -10.0°C, dew point temperature -12.2°C.

PAOM weather at 1545 AKST, wind from 350° at 6 knots, visibility 4 statute miles, haze, few clouds at 900 feet agl, broken ceiling at 2,500 feet agl, overcast ceiling at 3,200 feet agl, temperature of -10°C, dew point temperature of -13°C, and an altimeter setting of 30.20 inHg. Remarks, station with a precipitation discriminator, snow began at 1503 AKST and ended at 1512 AKST, a trace of precipitation since 1453 AKST, a trace of icing since 1453 AKST, temperature -10.0°C, dew point temperature -13.3°C.

The observations from the PAOM ASOS around the accident time identified MVFR³¹ conditions.

³¹ The NWS and the FAA Aeronautical Information Manual (AIM) section 7-1-7 defines the following general flight categories:

- Low Instrument Flight Rules (LIFR*) - ceiling below 500 ft above ground level (agl) and/or visibility less than 1 statute mile.
- Instrument Flight Rules (IFR) - ceiling between 500 to below 1,000 feet agl and/or visibility 1 to less

3.2 Pilot Reports (PIREPs)³²

The longline-disseminated PIREPs distributed into the national airspace system (NAS) within 3 hours of the accident time and within 100 miles of the accident site are shown below:

OME UA /OV OME/TM 0242/FL000/TP B737/WX FV02SM/RM /BA RWY 28 BA
MEDIUM

/AKFSS/

OME UA /OV OME/TM 0237/FL000/TP C208/TA M11/IC MOD RIME/RM MOD
RIME IC/ FZ

MIST AFTER BREAKING OUT DURD RWY 28 /AKFSS/

OME UA /OV OME/TM 0130/FL005/TP AS35/TA M10/IC LGT RIME/RM OVR
CAPE NOME

/AKFSS/

OME UA /OV OME/TM 2217/FL020/TP C208/SK OVC020/TB NEG/IC NEG/RM
DURC NORTH

ZAN

OME UA /OV OME360005/TM 2214/FL020/TP C208/SK OVC020/TB NEG/IC
NEG/RM ZAN

3.3 Significant Meteorological Information

There was no significant meteorological information (SIGMET)³³ advisories valid for the accident site at the accident time.

than 3 miles.

- Marginal Visual Flight Rules (MVFR**) – ceiling from 1,000 to 3,000 ft agl and/or visibility 3 to 5 miles.
- Visual Flight Rules (VFR) – ceiling greater 3,000 ft agl and visibility greater than 5 miles.

* By definition, IFR is a ceiling less than 1,000 ft agl and/or visibility less than 3 miles while LIFR is a sub-category of IFR.

**By definition, VFR is a ceiling greater than or equal to 3,000 ft agl and visibility greater than 5 miles while MVFR is a sub-category of VFR.

³² Only PIREPs with the World Meteorological Organization headers UBAK** were considered. These do not include pilot reports only broadcast via radio.

³³ Significant Meteorological Information is a weather advisory that contains meteorological information concerning the safety of all aircraft. There are two types of SIGMETs: convective and non-convective. A US SIGMET advises of weather, other than convective activity, which is potentially hazardous to all aircraft. SIGMETs are issued (for the lower 48 states and adjacent coastal waters) for the following weather-impacted reasons:

- Severe Icing
- Severe or Extreme Turbulence
- Dust Storms and/or Sandstorms lowering visibility to less than 3 miles.
- Volcanic Ash

3.4 Center Weather Service Advisories and Information

The ZAN CWSU was responsible for the accident region. There was no center weather advisory (CWA) valid for the accident site at the accident time. The ZAN CWSU completed several pre-duty weather briefings (PDWB)³⁴ on the day of the accident.

4.0 Air Traffic Control Facilities

4.1 ZAN ARTCC

ZAN was located in Anchorage, Alaska and was designated as a Level 10 air route traffic control center. The facility was responsible for approximately 2,500,000 square miles of airspace encompassing the entire state of Alaska, including the Aleutian Islands and oceanic airspace extending northward to the North Pole³⁵.

ZAN was organized into three areas of specialization: High, North, and South. and was comprised of 15 sectors.

The facility operated on two separate automation platforms: advanced technologies and oceanic procedures (ATOP)³⁶ for oceanic operations, and the micro en route automated radar tracking system (MEARTS)³⁷ for domestic airspace. Due to the vast and remote nature of the region, some sectors covered exceptionally large geographic areas and, on average, utilized more communications frequencies per sector than any other ARTCC in the U.S. National Airspace System. Radar coverage was available in approximately 55 to 60 percent of the controlled airspace³⁸.

If the total area affected during the forecast period is very large, only a small portion of this total area may be affected at any one time. SIGMETs are issued for 6-hour periods for conditions associated with hurricanes and 4 hours for all other events. If conditions persist beyond the forecast period, the SIGMET is updated and reissued. Convective SIGMETs are issued hourly for thunderstorm-related aviation hazards.

³⁴ The PDWB is designed to increase controller situational awareness. It is produced by the Center Weather Service Unit three times daily. After hours or during changing weather this briefing may not represent the latest information.

³⁵ Information retrieved from website: [Anchorage ARTCC - Home](#).

³⁶ ATOP is an air traffic control system deployed in designated en route and oceanic airspace. ATOP includes both surveillance and flight data processing, which provides the controllers with automated decision support tools to establish, monitor, and maintain separation between aircraft, and aircraft to airspace and terrain.

³⁷ Micro-en route automated radar tracking system (MEARTS)- An automated radar and radar beacon tracking system capable of employing both short-range (ASR) and long-range (ARSR) radars. This microcomputer driven system provides improved tracking, continuous data recording, and use of full digital radar displays.

³⁸Information retrieved from website: [Anchorage Air Route Traffic Control Center \(ZAN\) | Federal Aviation Administration](#)

Figure 7 is an overhead photo of the ZAN facility building.



Figure 7. ZAN facility building. Photo credit: FAA.

4.1.1 ZAN ATC Operational Areas

ZAN was organized into three primary areas of specialization: North, South, and High. Each area was defined by its assigned sectors as follows:

North Area - Sectors 3, 4, 9, 13, 15, and 16

South Area - Sectors 5, 6, 7, 8, and 14

High Area - Sectors 10, 11, 63, 64, 68, and 69

The High Area was further divided into two functional specialties based on automation platforms. Certified Professional Controllers (CPCs) assigned to this area were typically required to achieve and maintain operational currency in both specialties:

ATOP (Oceanic Operations) - Sectors 10, 11, and 64

Domestic Operations - Sectors 63, 68, and 69

Figure 8 shows the facility layout of ATC operational and support areas. The sectors comprising the North area are highlighted in yellow. The breakout illustrates the three sectors, 9, 13, and 3, which were combined into a single position, designated as either 13R or 13D, as appropriate.

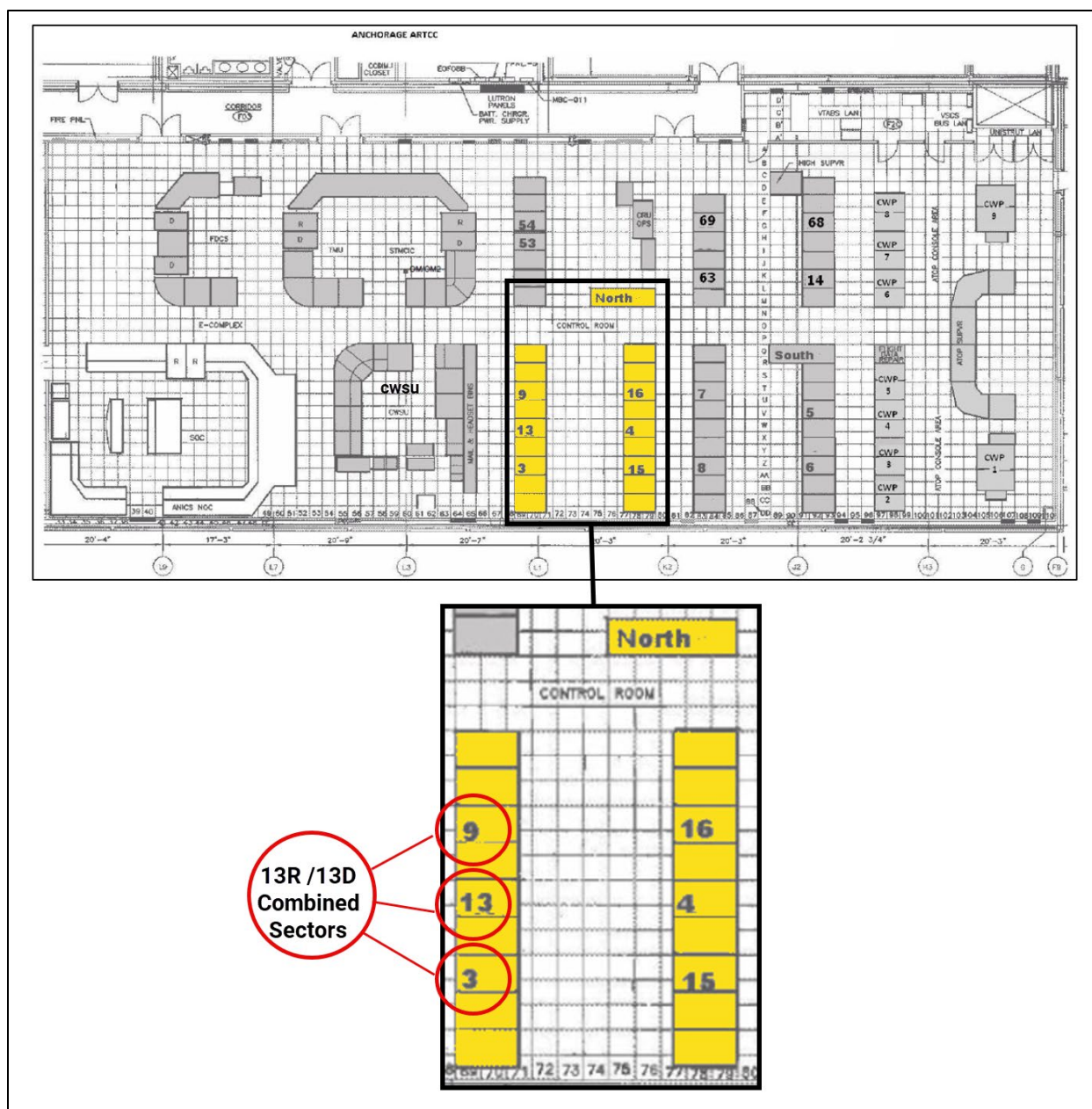


Figure 8. ZAN facility layout chart.

4.1.2 ZAN North Area Equipment

The 13R position was equipped with two air traffic control auxiliary information display (AAID)³⁹ monitors, five voice switching and control systems (VSCS)⁴⁰, three overhead reference charts, two MEARTS displays, and additional associated equipment. This suite of tools supported controllers in maintaining situational

³⁹ An AAID is a secondary screen used by air traffic controllers to view and manage supplemental data that is not part of the main radar or air situation display.

⁴⁰ VSCS is a specialized communication system used in air traffic control (ATC) to manage and direct voice communications between air traffic controllers and pilots, and among controllers themselves.

awareness, forecasting traffic flow, recording data, and performing other essential control tasks.

Figure 9 shows a photograph of the 13R control position, including its equipment and visual reference materials.



Figure 9. Sector equipment and visual references. Photo credit: NTSB.

4.1.3 ZAN Airspace

ZAN is the FAA's northernmost and westernmost ARTCC and is one of only three FAA-designated Oceanic centers. Its airspace encompasses three distinct International Civil Aviation Organization (ICAO) Flight Information Regions (FIRs):

Anchorage Domestic FIR:	1,647,105 square miles
Anchorage Oceanic FIR:	229,067 square miles
Anchorage Arctic FIR:	551,799 square miles
Total FIR Coverage:	2,427,971 square miles

ZAN coordinates directly with six international Area Control Centers (ACCs) whose airspace borders ZAN. These include Fukuoka, Japan; Petropavlovsk-Kamchatski, Russia; Murmansk, Russia; Magadan, Russia; Vancouver, Canada; and Edmonton, Canada. Anchorage maintains Letters of Agreement (LOAs) with each of these centers to ensure safe and efficient cross-boundary operations.

ZAN's airspace includes a large portion of the infamous ring of fire and contains at least 33 active volcanoes. Several times a year, notice to airmen (NOTAM)⁴¹s, aircraft reroutes and/or restrictions are required due to volcanic eruptions.

4.2 ZAN Center Weather Service Unit

The CWSU was located within the ZAN operational area. The CWSU had a staffing level of four National Weather Service (NWS) meteorologists, who provided essential weather briefings and support to ATC personnel. Their services included verbal briefings, pre-duty weather briefings for controllers, and other weather-related assistance. At the time of the accident one meteorologist staffed the CWSU.

4.2.1 ZAN Authorized Staffing

ZAN was authorized 5 OM, 5 traffic management coordinators (TMCs), 8 flight data communications specialists (FDCS), 1 supervisory flight data communication specialist (SFDCS), 1 traffic management officer (TMO), 1 ATM, 3 SMs, 2 supervisory traffic management coordinators (STMCs), 18 OS, 1 executive officer (XO), 2 air traffic services assistant (AS), 3 TS (technical administrative staff), 8 SP/AUS (support specialist), and 98 air traffic control specialist.

4.2.2 ZAN Onboard Staffing

ZAN onboard staffing was 5 OM, 4 TMCs, 6 FDCS, 0 SFDCS, 2 TMO (one detailed to AGL11), 1 ATM, 4 SMs (1 detailed to runway safety), 2 STMCs, 16 OS, 1 XO, 1 AS, 3 TS, 6 SP/AUS (5 permanent 1 on detail), and 108 ATCS (of the 108 there were 2 CPC-ITs and 25 developmental controllers).

4.2.3 ZAN North Area Staffing

At the time of the accident there were 4 controllers assigned to the North area sectors 3, 13, and 9, and 1 OS assigned to the area. The 13R (combined radar sectors 3, 13 and 9) position was staffed by 1 controller. The 13D (combined data sector 3, 13 and 9) position was staffed by 1 controller and 1 controller in training. The OS had been providing general supervision to the North area.

4.2.1 ZAN Controller Time on Position (TOP)⁴²

Tables 1 and 2 are time on position (TOP) breakdown for ZAN air traffic control. These tables provide the total time (combined actual TOP, time spent on

⁴¹ NOTAM - Notice to Airmen. A notice containing information concerning the establishment, condition, or change in any component of the National Airspace System which timely knowledge is essential to personnel concerned with flight operations.

⁴² Time on position for air traffic controllers refers to the time spent actively working on a position to

other duties, and time they were available) and the percentages for: TOP; TOP plus other duties; TOP for an 8-hour day, and TOP plus other duties for an 8-hour day.

Table 1 was ZAN's TOP breakdown for the 3 months prior to the accident, November 1, 2024, to February 7, 2025.

Table 1. TOP breakdown for November 2024 to February 2025.

Area Name	Total Time	% On Position	% On Position + Other Duties	TOP for an 8-hour day	TOP + Other Duties for an 8-hour day
FDCS	2973.13	83.13%	83.70%	6:39	6:42
TMU	1806.77	66.20%	78.07%	5:18	6:15
ZAN-3 HIGH	16153.45	45.41%	56.41%	3:38	4:31
ZAN-3 NORTH	15028.17	42.97%	58.30%	3:26	4:40
ZAN-3 SOUTH	16338.73	45.33%	57.28%	3:38	4:35
	52300.25	47.54%	59.52%	3:48	4:46

Table 2 was ZAN's TOP breakdown for calendar year 2024, January 1, 2024, to January 1, 2025.

Table 2. TOP breakdown for calendar year 2024.

Area Name	Total Time	% On Position	% On Position + Other Duties	TOP for an 8-hour day	TOP + Other Duties for an 8-hour day
FDCS	11692.87	80.48%	82.91%	6:26	6:38
TMU	7273.98	63.27%	81.43%	5:04	6:31
ZAN-3 HIGH	62082.15	46.59%	57.47%	3:44	4:36
ZAN-3 NORTH	54125.90	44.05%	59.23%	3:31	4:44
ZAN-3 SOUTH	60087.10	46.81%	56.91%	3:45	4:33
	195262.00	48.60%	60.20%	3:53	4:49

4.3 OME Flight Service Station

The OME FSS building was located at PAOM airport, approximately 700 feet southeast of the intersection of runways 21 and 23.

OME FSS had three flight service positions: pre-flight, IF1 and IF2 positions. The IF1 controller handled traffic, issued transponder codes for flight plans, relayed

separate and manage air traffic. This is distinct from other duties like training or administrative tasks.

IFR clearances to aircraft from ZAN, reported off times of IFR aircraft to ZAN and when needed cancelled IFR and VFR flight upon arrival. In addition, they kept track of information transmitted and received on flight progress strips, managed in-flight emergencies, and were backed up by the people working the preflight and in-flight two positions.

The IF2 controller handled over the counter and on the phones pilot briefings, filed flight plans and passed those to the in-flight one position for activation and departure. The IF2 responsibilities also include handling IFR and VFR arrivals, departures, cancellations, and clearances for 15 outlying airports, as well as issuing NOTAMs for those airports, and for PAOM.

The duties of the preflight position included supporting the other two positions. This required two people to work the preflight position during the day and one during the evening.

Figure 10 is a google earth screenshot depicting the location of the OME FSS building at PAOM airport.



Figure 10. Google Earth Screenshot of OME FSS building at PAOM.

Figure 11 is the OME FSS facility layout, illustrating the location of the FSS operations areas (highlighted in yellow), including the IF1 and IF2 positions.

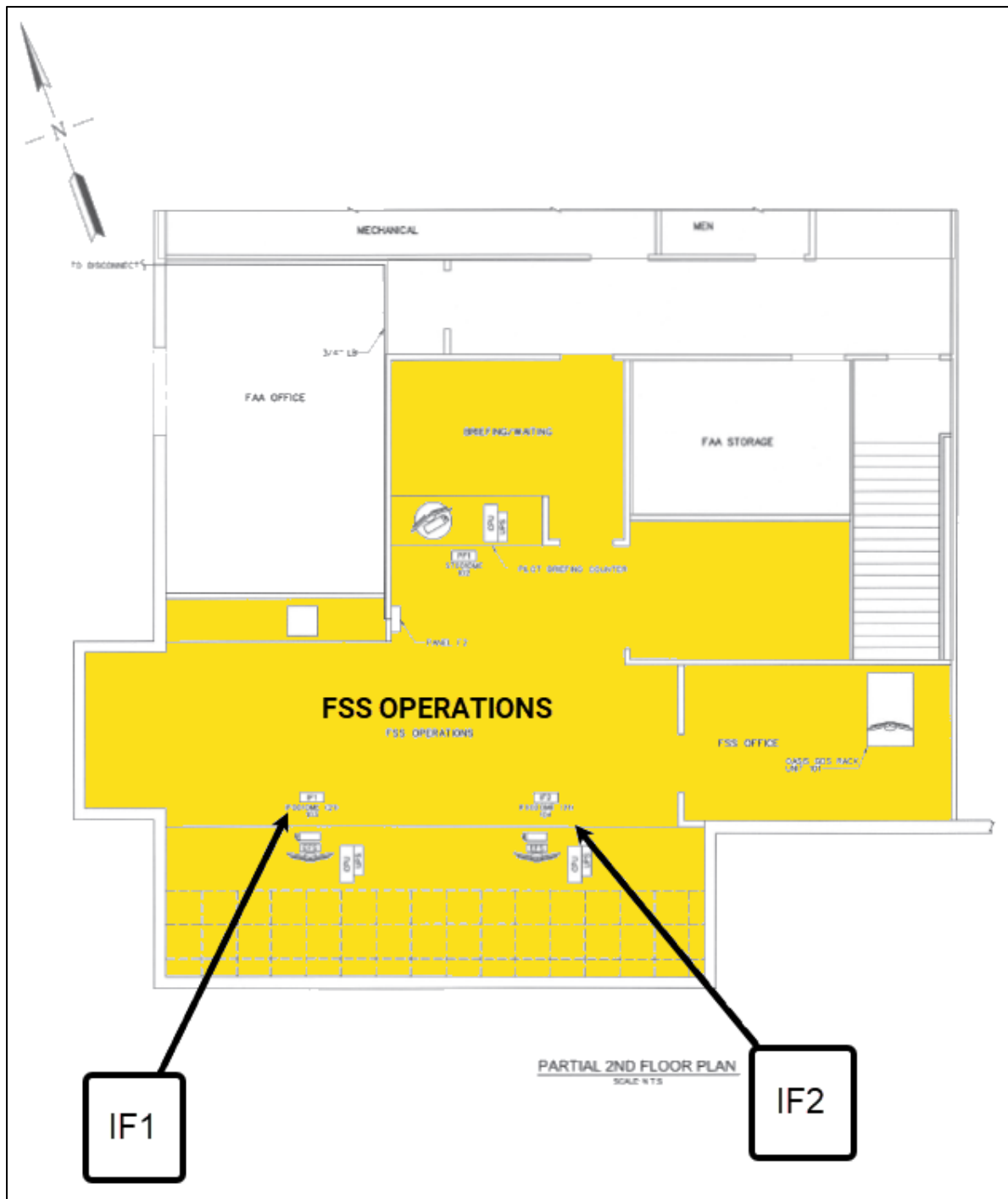


Figure 11. OME FSS operations layout.

OME operated from 0715 to 1045 with flight service specialists rotating shifts. When OME closed, its frequencies and one briefings phone line were transferred to Fairbanks FSS.

The Fairbanks flight service station (FAI FSS) was considered a "hub" facility that includes Northway FSS, Nome FSS, Kotzebue FSS, Barrow FSS and Deadhorse

FSS as satellite facilities. In 2007, all Alaska FSS facilities received an upgrade to operational and supportability implementation system (OASIS)⁴³ equipment, which means all Alaska FSS facilities use the same basic equipment to display weather, NOTAM, and flight plan information.

F. INTERVIEWED PERSONNEL

All interviews conducted during the onsite investigation were audio recorded and sent to Free State Reporting, Inc. for transcription. Detailed information on each interview is included in Attachment 1: Interview Transcripts.

1.0 ZAN Interviews

1.1 Sector 13R Controller

The 13R controller was assigned to the combined radar sectors 13, 3, and 9 positions at the time of the accident.

Their air traffic control career began in February 2018, when they attended initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. Following successful completion of this training, the controller had worked at ZAN continuously since June 2018.

The 13R controller had been certified as a controller in charge (CIC) and OJTI, and had been qualified and current on the following North Area positions:

Position	Certification Date
13R:	February 18, 2022
9R:	February 18, 2022
3R:	February 18, 2022
16R:	August 21, 2021
15R:	August 21, 2021
4R:	August 21, 2021
16D:	December 16, 2020
15D:	December 16, 2020
4D:	December 16, 2020
13D:	December 22, 2019
9D:	December 22, 2019
3D:	December 22, 2019

⁴³ OASIS is a system in the national airspace system (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.

The 13R controller's working hours for the week leading up to the accident, including the day of the accident were:

Table 3. 13R controller's working hours for the week leading up to and day of the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Eve	1430 to 1810	
Saturday	February 01	Mid	2200 to 0600	
Sunday	February 02	Mid	0000 to 0700	
Monday	February 03	Mid	2155 to 0555	
Tuesday	February 04	Mid	2200 to 0600	
Wednesday	February 05	Off	NA	
Thursday	February 06	OT shift	1425 to 2025	6:00

1.2 Sector 13D Controller (OJTI)

The 13D OJTI controller had been assigned to and provided training on the combined data sectors 13, 3, and 9 at the time of the accident.

Their air traffic control career began in May 2018, with initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. Following successful completion of this training, the controller had worked at ZAN continuously since September 2018.

The 13D controller had been certified as a CIC and OJTI, and had been qualified and current on the following North Area positions:

Position	Certification Date
3R:	May 2, 2023
9R:	May 2, 2023
13R:	May 2, 2023
4R:	September 27, 2022
15R:	September 27, 2022
16R:	September 27, 2022
3D:	November 21, 2021
9D:	November 21, 2021
13D:	November 21, 2021
4D:	August 20, 2021
15D:	August 20, 2021
16D:	August 20, 2021

The 13D controller's working hours for the week leading up to the accident, including the day of the accident were:

Table 4. 13D controller's working hours for the week leading up to and day of the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Eve	1300 to 1810	
Saturday	February 01	Eve	1235 to 2035	
Sunday	February 02	Leave	NA	
Monday	February 03	Day	0836 to 1800	
Tuesday	February 04	Off	NA	
Wednesday	February 05	OT shift	1638 to 2038	4:00
Thursday	February 06	Eve	1415 to 1957	

1.3 Sector 13D Controller (CPC-IT)

The 13D CPC-IT controller had been assigned training on the combined data sectors 13, 3, and 9 at the time of the accident.

Their air traffic control career began in October 2015 with initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. Following completion, they worked at ZAN from February 2016 to October 2020; D10 from October 2020 to September 2024; and returned to ZAN in September 2024, where they remain currently assigned. Since their return, the 13D controller had been qualified on the following North Area positions:

Position	Certification Date
4D:	December 10, 2024
15D:	December 10, 2024
16D:	December 10, 2024
4R:	January 29, 2025
15R:	January 29, 2025
16R:	January 29, 2025

The 13D controller's working hours for the week leading up to the accident, including the day of the accident were:

Table 5. 13D CPC -IT controller's working hours for the week leading up to and day of the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Day	0812 to 1346	
Saturday	February 01	Off	NA	
Sunday	February 02	Off	NA	
Monday	February 03	Eve	1130 to 2100	
Tuesday	February 04	Eve	1045 to 2030	
Wednesday	February 05	Day	0900 to 1700	
Thursday	February 06	Day	0815 to 1745	

1.4 Operations Supervisor

The operations supervisor had been assigned to the North Area OS position at the time of the accident.

The OS began their air traffic control career in March 2016, attending initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After successfully completing training, they worked at Fairbanks International Airport (FAI) from June 2016 to November 2018; Willow Run Airport (YIP) from November 2018 to March 2021; Bismarck Municipal Airport (BIS) from March 2021 to October 2022; and have been at ZAN since October 2022.

Prior to their promotion to North Area OS on June 27, 2023, they served as a CPC in the North Area and were qualified on the following positions:

Position	Certification Date
4R:	June 22, 2023
4D:	April 05, 2023

The OS's working hours for the week leading up to the accident, including the day of the accident were:

Table 6. OS's working hours for the week leading up to and day of the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Eve	1155 to 2115	
Saturday	February 01	Mid	2130 to 0545	
Sunday	February 02	Off	NA	
Monday	February 03	Off	NA	
Tuesday	February 04	Off	NA	
Wednesday	February 05	Leave	NA	
Thursday	February 06	Eve	1350 to 2150	

1.5 Sector 13R Relived Controller (OJTI)

The 13R relieved controller, who was not involved in the accident, had been working the 13R position (covering combined radar sectors 13, 3, and 9) prior to the accident.

Their air traffic control career began in April 2016 with initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. Following successful completion, they had been assigned to ZAN continuously since August 2016.

The 13R relieved controller had been certified as a CIC and OJTI and had been qualified and current on the following North Area positions:

Position	Certification Date
13R:	November 11, 2019
9R:	November 11, 2019
3R:	November 11, 2019
16R:	July 21, 2019
15R:	July 21, 2019
4R:	July 21, 2019
16D:	October 15, 2018
15D:	October 15, 2018
4D:	October 15, 2018
13D:	May 12, 2018
9D:	May 12, 2018
3D:	May 12, 2018

The 13R controller's working hours for the week leading up to the accident, including the day of the accident were:

Table 7. 13R relieved controller's working hours for the week leading up to the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Off	NA	
Saturday	February 01	Mid	1415 to 0000	
Sunday	February 02	Eve	1215 to 2215	
Monday	February 03	Eve	1230 to 2030	
Tuesday	February 04	Eve	1241 to 2041	
Wednesday	February 05	Mid	1454 to 2054	
Thursday	February 06	OT shift	0725 to 1540	8:15

1.6 Sector 13R Relieved Controller (Trainee)

The 13R relieved trainee controller, who was not involved in the accident, had been training on the 13R position (sectors 13, 3, and 9) prior to the accident.

Their air traffic control career began in August 2022, when they attended initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After successfully completing training, they had been working at ZAN since December 2022. The 13R trainee controller was qualified and current on the following positions:

Position	Certification Date
16D:	July 10, 2024
15D:	July 10, 2024
4D:	July 10, 2024
13D:	January 16, 2024
9D:	January 16, 2024
3D:	January 16, 2024

The 13R relieved trainee controller's working hours for the week leading up to the accident, including the day of the accident were:

Table 8. 13R relieved trainee controller's working hours for the week leading up to the accident.

Day	Date	Shift	Hours	Overtime
Friday	January 31	Off	0755 to 1755	10:00
Saturday	February 01	Off	NA	
Sunday	February 02	Eve	1150 to 1950	
Monday	February 03	Day	0755 to 1555	
Tuesday	February 04	Day	0755 to 1555	
Wednesday	February 05	Day	0750 to 1550	
Thursday	February 06	Day	0755 to 1555	

1.7 Operations Manager

The operations manager's air traffic control career began in February 1997 when they were directly hired by the FAA through the Air Traffic College Initiative Program at the University of Alaska, Anchorage. They worked at the following facilities/positions:

Facility	Position	Time Period
FSD ⁴⁴	CPC	September 1997 to November 1999
FAI	CPC	November 1999 to October 2003
ZAN	CPC, OS,	October 2003 to October 2013
ZAN	OM	October 2013 to Present
ZAN	Detailed to AJI-111 ⁴⁵	October 2017 to April 2020
ZAN	AJG-C11 ⁴⁶ Temp Transfer	January 2021 to February 2023
ZAN	Detailed to A11 as ATM	April 2023 to August 2023

The OM's normal working hours are day shifts Monday to Friday.

1.8 OM - Detailed Training Administrator

The training administrator's air traffic control career with the began in February 2006 when they attended initial ATC training at the FAA Academy in Oklahoma City, OK. After successful completion of initial training, they worked at the following facilities/positions:

⁴⁴FSD -Joe Foss Field Airport, Sioux Falls, South Dakota.

⁴⁵ AJI-111 - Evaluation division within the safety and technical training service unit of the air traffic organization (ATO).

⁴⁶ AJG-C11 -Organizational effectiveness group within the FAA's management services office.

Facility	Position	Time Period
ZAN	CPC	May 2006 to December 2010
ZAN	Detailed as OS and TMC	January 2011 to December 2014,
SLC ⁴⁷	OS	December 2014 to September 2019
SLC	STMC	September 2019 to March 2021
SLC	SM TMU	March 2021 to July 2021,
ZAN	OS	August 2021 to March 2022
ZAN	Detailed as OM	March 2022 to July 2022
ZAN	Promoted to OM	August 2022 to present
ZAN	Acting SM Trg.Mgr.	August 2021 to present

The OM-detailed training administrator's normal working hours are day shifts Monday to Friday.

1.9 Air Traffic Manager

The ATM began their air traffic control career in March 2006 by attending initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After successfully completing initial training, they worked at the following facilities and positions:

Facility	Position	Time Period
ZDV ⁴⁸	CPC	May 2006 to September 2010
ZAN	CPC	September 2010 to July 2014
ZAN	Detailed as OS	July 2014 to June 2015
ZAN	Promoted to OS	June 2015 to September 2017
ZAN	Detailed as OM	October 2017 to March 2018
ZAN	TMO	September 2018 to May 2019
A11 ⁴⁹	ATM	May 2019 to August 2020
ZAN	ATM	August 2020 to present
AJT-232 ⁵⁰	Detailed as Group Mgr.	August 2022 to August 2024

The ATM's normal working hours are day shifts Monday to Friday.

1.10 Support Manager Alaska District

The SM began their air traffic control career in March 2014 by attending initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After successfully completing initial training, they worked at ZAN from 2014 to present. During that period, they worked as a CPC, CIC, OS, and SM.

⁴⁷ SLC - Salt Lake City International Airport, Salt Lake City, UT.

⁴⁸ ZDV - Denver ARTCC, Longmont, CO.

⁴⁹ A11 - Anchorage TRACON.

⁵⁰ AJT-23 - Air traffic services, operations headquarters directorate; operations business support team.

2.0 OME Flight Services Interviews

2.1 OME FSS Inflight 1 Controller

The IF1 controller began their air traffic control career in October 2018 by attending initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After successfully completing the training, they were assigned to ZAN, where they worked from May 2019 to December 2022. They then attended the Kenai FSS Academy and subsequently worked at Kenai FSS until April 2024, when they transferred to a temporary assignment at OME FSS. In November 2024, they became a permanent controller at OME.

They were qualified and current on all positions at OME FSS, which included IF1, IF2, and preflight, and were certified as a CIC.

2.2 OME FSS Inflight 2 Controller

The IF2 controller began their air traffic control career in 2013, when they attended initial ATC training at the FAA Academy in Oklahoma City, Oklahoma. After completing training, they attended the Kenai FSS Academy and worked at Kenai FSS as well as several other FSS locations in the Alaksa area until 2021, when they transferred to OME FSS, where they are currently employed.

They were qualified and current on all positions at OME FSS, which included IF1, IF2, and preflight, and were certified as a CIC.

3.0 CWSU Interviews

3.1 CWSU Meteorologist on Duty

A meteorologist was working in the CWSU at the time of the accident. They had been with the National Weather Service (NWS) since May 1998, with previous assignments in Key West, Florida; Memphis, Tennessee; Eureka, California; Santa Teresa, New Mexico; and the Los Angeles ARTCC. They then spent three years in Flagstaff, Arizona, before returning to the Los Angeles ARTCC. In June 2024, they transferred to the ZAN CWSU.

3.2 CWSU Meteorologist

The uninvolved meteorologist's career began in 2010 at the Bureau of Meteorology, where they worked until 2012. From 2012 to 2015, they worked as a meteorologist for Qantas, and from 2015 to 2017, they returned to the Bureau of Meteorology and worked in Australia. In 2017, they began working for the National Weather Service in Anchorage, Alaska. Prior to transferring to CWSU, they worked in the Alaska Aviation Unit in Anchorage.

G. AIR TRAFFIC CONTROL PROCEDURAL REFERENCES

1.0 FAA Order JO 7110.65 AA, Air Traffic Control

1.1 Purpose of This Order

Chapter 1, Section 1, General, paragraph 1-1-1, Purpose of This Order, stated in part:

This order prescribes air traffic control procedures and phraseology for use by persons 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 their best judgment if they encounter situations that are not covered by it.

1.2 ATC Service

Chapter 2, Section 1, paragraph 2-1-1, ATC Service, stated in part:

- a. The primary purpose of the ATC system is to prevent a collision involving aircraft operating in the system.
- b. In addition to its primary purpose, the ATC system also:
 1. Provides a safe, orderly, and expeditious flow of air traffic.
 2. Supports National Security and Homeland Defense missions.
- c. The ATC system must provide certain additional services to the extent permitted. The provision of additional services is not optional on the part of the controller, but rather required when the work situation permits. It is recognized that the provision of these services may be precluded by various factors, including, but not limited to:
 1. Volume of traffic.
 2. Frequency congestion.
 3. Quality of surveillance.
 4. Controller workload.
 5. Higher priority duties.
 6. The physical inability to scan and detect situations falling in this category.

1.3 Weather Information - Familiarization

Chapter 2, Section 6, paragraph 2-6-1, Familiarization, stated in part:
Controllers must become familiar with pertinent weather information when coming

on duty, and stay aware of current and forecasted weather information needed to perform ATC duties.

NOTE—Every phase of flight has the potential to be impacted by weather, and emphasis must be placed on gathering, reporting, and disseminating weather information.

1.4 PIREP Solicitation and Dissemination

Chapter 2, Section 6, paragraph 2–6–2, PIREP Solicitation and Dissemination, stated in part:

Emphasis must be placed on the solicitation and dissemination of Urgent (UUA) and Routine (UA) PIREPs. Timely dissemination of PIREPs alerts pilots to weather conditions and provides information useful to forecasters in the development of aviation forecasts. PIREPs also provide information required by ATC in the provision of safe and efficient use of airspace. This includes reports of strong frontal activity, squall lines, thunderstorms, light to severe icing, wind shear, and turbulence (including clear air turbulence) of moderate or greater intensity, braking action, volcanic eruptions and volcanic ash clouds, detection of sulfur gases in the cabin, and other conditions pertinent to flight safety. Controllers must provide the information in sufficient detail to assist pilots in making decisions pertinent to flight safety.

NOTE—Routine PIREPs indicating a lack of forecasted weather conditions, for example, a lack of icing or turbulence, are also valuable to aviation weather forecasters and pilots. This is especially true when adverse conditions are expected or forecasted but do not develop or no longer exist.

- a. Solicit PIREPs when requested, deemed necessary or any of the following conditions exists or is forecast for your area of jurisdiction:
 1. Ceilings at or below 5,000 feet. These PIREPs must include cloud bases, tops, and cloud coverage when available. Additionally, when providing approach control services, ensure that at least one descent/climb-out PIREP and other related phenomena is obtained each hour.
 2. Visibility (surface or aloft) at or less than 5 miles.
 3. Thunderstorms and related phenomena.
 4. Turbulence of moderate degree or greater.
 5. Icing of light degree or greater.
 6. Wind shear.
 7. Braking action reports less than good.
 8. Volcanic ash clouds.

9. Detection of sulfur gases (SO₂ or H₂S), associated with volcanic activity, in the cabin.

b. Record with the PIREPs:

1. Time.
2. Aircraft position.
3. Type aircraft.
4. Altitude.
5. When the PIREP involves icing include:

- (a) Icing type and intensity.
- (b) Air temperature in which icing is occurring.

c. Obtain PIREPs directly from the pilot, or if the PIREP has been requested by another facility, you may instruct the pilot to deliver it directly to that facility.

PHRASEOLOGY—REQUEST/SAY FLIGHT CONDITIONS. Or if appropriate, REQUEST/SAY (specific conditions, i.e., ride, cloud, visibility, etc.) CONDITIONS. If necessary, OVER (fix), or ALONG PRESENT ROUTE, or BETWEEN (fix) AND (fix).

d. Disseminate PIREPs as follows:

1. Relay pertinent PIREP information to concerned aircraft in a timely manner.
2. EN ROUTE. Relay all operationally significant PIREPs to the facility weather coordinator.
3. TERMINAL. Relay all operationally significant PIREPs to:
 - (a) The appropriate intrafacility positions.
 - (b) The OS/CIC for long line dissemination via an FAA approved electronic system (for example, AIS-R, or similar systems); or,
 - (c) Outside Alaska: The overlying ARTCC's Flight Data Unit for long-line dissemination.
 - (d) Alaska Only: The FSS serving the area in which the report was obtained.

NOTE—The FSS in Alaska is responsible for long line dissemination.

- (e) Other concerned terminal or en route ATC facilities, including non-FAA facilities.

H. ATTACHMENTS

Attachment 1: Interview Transcripts
Attachment 2: FAA Aircraft Accident Package
Attachment 3: ZAN ATC Audio Recordings
Attachment 4: OME ATC Audio Recordings
Attachment 5: ADS-B Data
Attachment 6: Record of Conversation - Vehicle Drivers
Attachment 7: ZAN Training and Staffing Documents
Attachment 8: ZAN Facility Administration and Operations Documents
Attachment 9: OME Facility Administration and Operations Documents

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