

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24LA144

AIR TRAFFIC CONTROL

Group Chairman's Factual Report

May 20, 2025

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A. ACCIDENT

Location: Muncie, Indiana
Date: April 1, 2024
Time: 1027 eastern daylight time (EDT)¹
1427 coordinated universal time (UTC)²
Airplane: N8438B, Piper PA28-236

B. AIR TRAFFIC CONTROL GROUP

Group Chair	Casey Ogden National Transportation Safety Board Washington, DC
Specialist - ATC	Brian Soper National Transportation Safety Board Washington, DC
Specialist - MET	Paul Suffern National Transportation Safety Board Washington, DC
Group Member	Andrew Lieser Federal Aviation Administration Chicago, IL
Group Member	Allison Mattioli National Air Traffic Controllers Association Ronkonkoma, NY

C. SUMMARY

On April 1, 2024, about 1027 eastern daylight time, a Piper PA-28-236 airplane, N8438B, sustained substantial damage when it was involved in an accident near Muncie, Indiana. The pilot sustained serious injuries and two pedestrians on the ground sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations (CFR)* Part 91 personal flight. Daylight instrument meteorological conditions (IMC)³ prevailed at the time of the accident.

¹ All times are in eastern daylight time (EDT) unless otherwise noted.

² UTC is an international time standard using four digits of a 24-hour clock in hours and minutes based on the time in Greenwich, England.

³IMC - Instrument Meteorological Conditions - Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

D. DETAILS OF THE INVESTIGATION

On Wednesday, April 3, 2024, the investigator in charge (IIC) and Office of Aviation Safety (OAS) management made the decision to form an air traffic control (ATC) group and conduct onsite investigations at Muncie Federal Contract Tower (MIE FCT)⁴ and Indianapolis Airport Traffic Control Tower (IND ATCT), both of which provided ATC services to the accident aircraft during the accident flight. The ATC group chair notified the FAA's Safety Intelligence and Response Group (SIRG) of the intent to conduct on-site investigative work and coordinated a schedule and tentative agenda for the ATC field investigation.

On Monday, April 8, 2024, the group traveled to Indiana to conduct the on-site portion of the ATC field investigation.

On Tuesday, April 9, 2024, the group convened at the hotel and held a brief organizational meeting then traveled to MIE FCT. The group participated in an in-brief that included an overview of the event by the air traffic manager (ATM). Others in attendance were members of the FAA's SIRG, Central Service Area quality control group (CSA QCG), and the Midwest ATC⁵ air traffic services manager. After the in-brief, the group was provided with an operational tour of the tower cab with an emphasis on the control positions involved and associated equipment. The group then conducted interviews with the ATM, who was present in the tower cab at the time of the accident, and the local control (LC) controller that was providing services at the time of the accident. The NTSB members of the group were then escorted to the airports automated surface observation system (ASOS) to document the location, installation, and equipage. The group then reviewed facility training and documentation before concluding the on-site portion of the investigation at MIE.

On Wednesday, April 10, 2024, the group traveled to IND ATCT and participated in an in-brief with the ATM and members of his staff. The in-brief included an overview of the services provided by IND ATCT, a FALCON⁶ replay of the event, and tower staffing at the time of the accident. Others in attendance were members of the FAA's SIRG team, the CSA QCG, and Office of Chief Counsel. Data was collected and reviewed. The group was then provided a tour of the ATCT and

⁴ FCT - FAA Contract Tower - Contract towers are air traffic control towers that are staffed by employees of private companies contracted by the FAA rather than by FAA employees. The FCT Program was established in 1982 to allow the agency to contract out the operation of certain towers.

⁵ Midwest ATC is the FAA contracted service provided for MIE ATCT.

⁶ FALCON - A software system utilized for the instant / rapid replay of air traffic control operational incidents in a format much like the one displayed to the air traffic control specialist. It is used in terminal radar facilities to review training management issues, investigate accidents and operational errors, develop facility specific specialty training programs, and present facility-wide briefings on operational incidents.

standard terminal automation replacement system (STARS)⁷ maintenance playback of the accident (video only). The group then conducted interviews with the departure radar east (DRE) controller that was providing services at the time of the accident, and the training administrator. After reviewing additional data provided by the FAA, the group concluded on-site activities for the day.

On Thursday, April 11, 2024, the group reconvened at IND ATCT and conducted interviews with the operations manager (OM) and the ATM. The group reviewed and reconciled data requested/received from the FAA and Midwest ATC, worked on the field notes before concluding on-site investigative activities at IND ATCT. The group then returned to the hotel, completed field notes, obtained concurrence, and concluded the field portion of the ATC investigation.

On Friday, April 12, 2024, the group was released by the IIC and traveled home.

E. FACTUAL INFORMATION

1.0 History of Flight

The factual data for this history of flight was compiled using the FAA source data provided in Attachments 2 through 8.

About 0937, N8438B departed Monroe County Airport (BMG) in Bloomington, Indiana destined for Delaware County Regional Airport (MIE), in Muncie, Indiana. After departure, the airplane climbed to an initial cruise altitude of 5,000 feet (ft).⁸

About 0944, the pilot of N8438B checked in with IND ATCT and reported level at 5,000 ft. The DRE controller provided the pilot with the current altimeter setting. The pilot acknowledged and requested a climb to 7,000 ft and stated that they were still in the clouds at 5,000 ft. The controller instructed the pilot to climb and maintain 7,000 ft. The pilot acknowledged with a correct readback.

About 0950, the pilot of N8438B attempted to contact the DRE controller to provide a pilot weather report (PIREP)⁹.

⁷ Standard Terminal Automation Replacement System – A system that receives radar data and flight plan information and presents the information to air traffic controllers on high resolution, 20" x 20" color displays allowing the controller to monitor, control, accept hand-off of air traffic, and assist with weather avoidance.

⁸ All altitudes are in feet above mean sea level (msl) unless otherwise noted.

⁹ PIREP – Pilot Weather Report – A report made by a pilot of meteorological phenomena encountered by an aircraft in flight.

About 0951, the DRE controller responded and the pilot of N8438B reported that the cloud bases were at 2,400 ft and tops were at 7,000 ft. The controller acknowledged and asked if they had experienced any icing. The pilot responded "negative."

About 0955, the MIE LC controller called the DRE controller and reported that the airport was IMC, the RNAV¹⁰ runway 14 approach was in use, and the current automatic terminal information service (ATIS)¹¹ code was "Echo." Subsequently, the DRE controller instructed the pilot of N8438B to advise when he had the updated weather at MIE and advised them to expect the RNAV runway 14 approach. The pilot responded that he had ATIS information Echo and acknowledged the RNAV RWY 14 approach.

About 1002, the DRE controller instructed the pilot of N8438B to change to frequency 120.65. The pilot did not acknowledge.

¹⁰ RNAV Approach – An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance.

¹¹ ATIS – Automatic Terminal Information Service – A continuous broadcast of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or specified portion of the day.

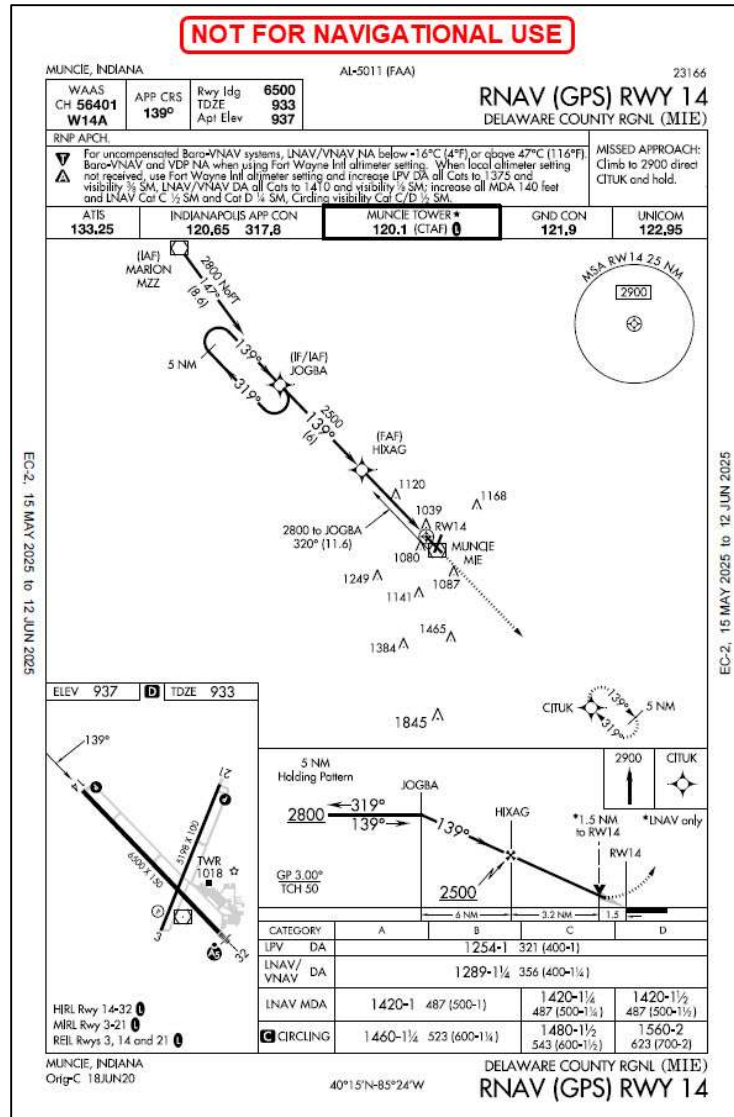


Figure 1. RNAV (GPS) RWY 14 instrument approach procedure.

About 1003, the DRE controller attempted to contact the pilot of N8438B. The pilot advised they were in receipt of ATIS information echo. The controller acknowledged and instructed the pilot to change to frequency 120.65. After initially reading back the frequency incorrectly, the controller corrected them, and the pilot acknowledged and contacted the controller on the correct frequency. The controller then instructed the pilot to turn left direct JOGBA. The pilot acknowledged with a correct readback.

About 1011, the DRE controller instructed the pilot of N8438B to descend and maintain 4,000 ft. The pilot acknowledged with a correct readback.

About 1013, the DRE controller called MIE FCT and provided the inbound information for N8438B. The LC controller acknowledged.

About 1016, the DRE controller instructed the pilot of N8438B to turn right heading 050 degrees and advised them to expect vectors inside JOGBA. The pilot acknowledged with a correct readback.

About 1017, the DRE controller instructed the pilot of N8438B to descend and maintain 3,000 ft. The pilot acknowledged with a correct readback.

About 1018, the DRE controller advised the pilot of N8438B they were four miles from HIXAG, instructed them to turn right to 120 degrees and to maintain 3,000 ft until established on the final approach course, then cleared them for the RNAV RWY 14 approach into MIE. The pilot acknowledged with a correct readback.

About 1020, the DRE controller restated the approach clearance to the pilot of N8438B, advised that radar services were terminated, and instructed them to contact MIE tower. The pilot acknowledged with a correct readback.

Figure 2 is an aerial view graphic¹² illustrating the flight path of N8438B. According to surveillance data, the aircraft tracked off course and subsequently made several right-hand turns of varying degrees. A dashed white line was used to illustrate the approximate final approach path for the RNAV RWY 14 approach.

¹² All aerial graphics in this report were produced by overlaying ADS-B flight track data from N8438B onto satellite imagery in Google Earth.

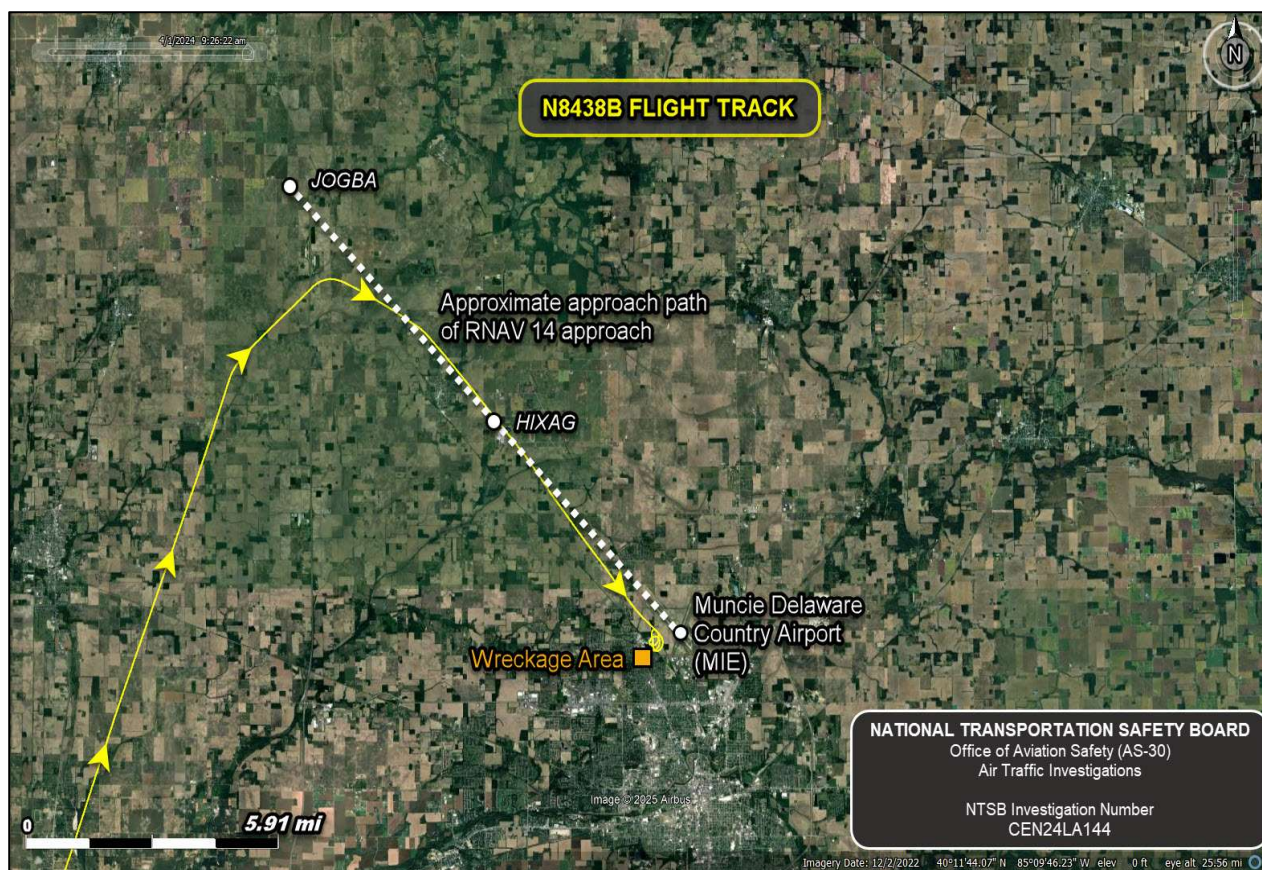


Figure 2. Overhead view N8438B approach course. A dashed white line was used to indicate the approximate approach path for the RNAV runway 14 approach.

[The ATC audio from MIE FCT did not have an associated time track, and therefore times were sourced from the MIA FCT aircraft accident package found in Attachment 4.]

About 1020 the pilot of N8438B contacted the LC controller and advised they had been cleared for the RNAV RWY 14 approach. The LC controller instructed the pilot to report the final approach fix inbound and asked them to confirm they were in receipt of ATIS information Echo. The pilot acknowledged, stated he had ATIS information Echo and would report HIXAG. The pilot of N8438B reported crossing HIXAG. The LC controller then cleared the pilot of N8438B to land on runway 14. The pilot acknowledged with a correct readback.

About 1024 the pilot of N8438B advised that he needed to make a 360 degree turn and reported the field in sight. The LC controller acknowledged.

About 1025¹³, the LC controller called the DRE controller and advised that N8438B was making a 360 degree turn so they could line back up for the approach.

¹³ Time was obtained from the DRE approach control audio file.

The DRE controller then asked the LC controller if N8438B was going to come back to approach. The LC controller stated he was doing a quick 360. The DRE controller advised the LC controller that he was going to turn out an uninvolved airplane that had been following N8438B and would re-sequence them for the approach. The DRE controller asked the LC controller to let him know when N8438B had landed. The LC controller acknowledged.

About 1025 the LC controller advised the pilot of N8438B that there was another aircraft inbound for the approach behind them and instructed the pilot to advise when they were re-established on final approach. The pilot acknowledged and stated they would report re-established on final.

The pilot of N8438B then completed two clockwise 360 degree turns and was midway through the third turn when surveillance data stopped at 1026:22, approximately 0.8 nm southwest of the approach end of runway 14 at MIE.

Figure 3 illustrates the multiple turns made by N8438B and their positional relationship to runway 14 and the control tower.

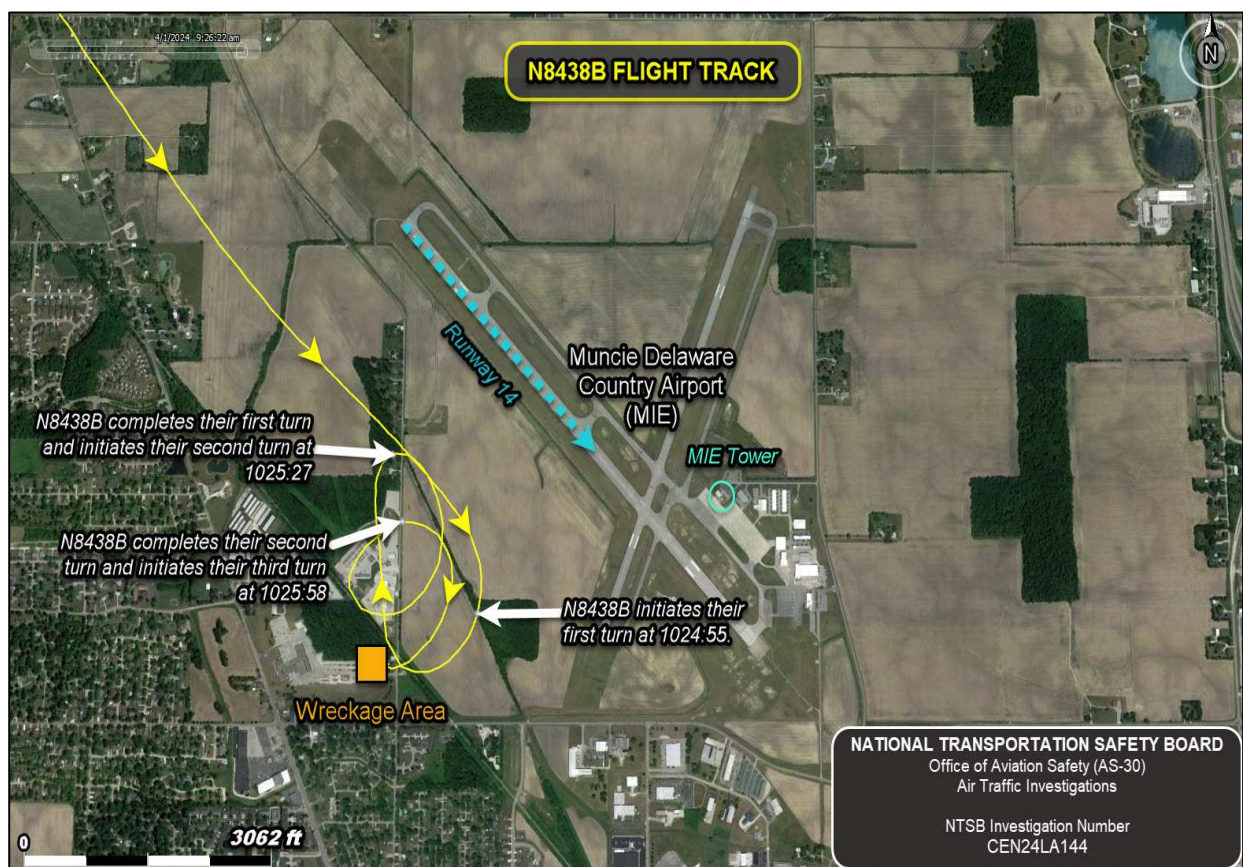


Figure 3. Overhead view of N8438B conducting multiple right hand turns with the times each turn was conducted.

About 1028, the DRE controller called the LC controller, and the LC controller stated he was still waiting for the pilot to report established back on final approach. The LC advised that ceilings were about 500 ft [agl] overcast, and he could not see anything. The DRE controller advised the LC controller that he had lost radar contact on N8438B about a mile west of MIE. The LC controller stated that it was about the area where they expected the airplane to be located, based on position where the pilot had requested the 360-degree turn. The DRE controller said he was going to inform his supervisor about N8438B and asked the LC controller to advise if they were able to reach the pilot.

[Several attempts to contact N8438B were made by the LC controller with no response.]

About 1030, the LC controller called the DRE controller and advised that the aircraft had crashed outside of the airport property and that the airport was clear for subsequent arrivals.

No further communications were identified on the ATC audio recordings between the pilot of N8438B and MIE FCT or IND ATCT.

2.0 Surveillance Information

2.1 Automatic Dependent Surveillance - Broadcast¹⁴

Certified ADS-B data was provided by the FAA. These data were provided in comma separated value (.csv) and keyhole markup language (.kml) formats. The ADS-B data provided flight track surveillance information and was used to produce the graphics included in Figures 2-4.

¹⁴ 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.

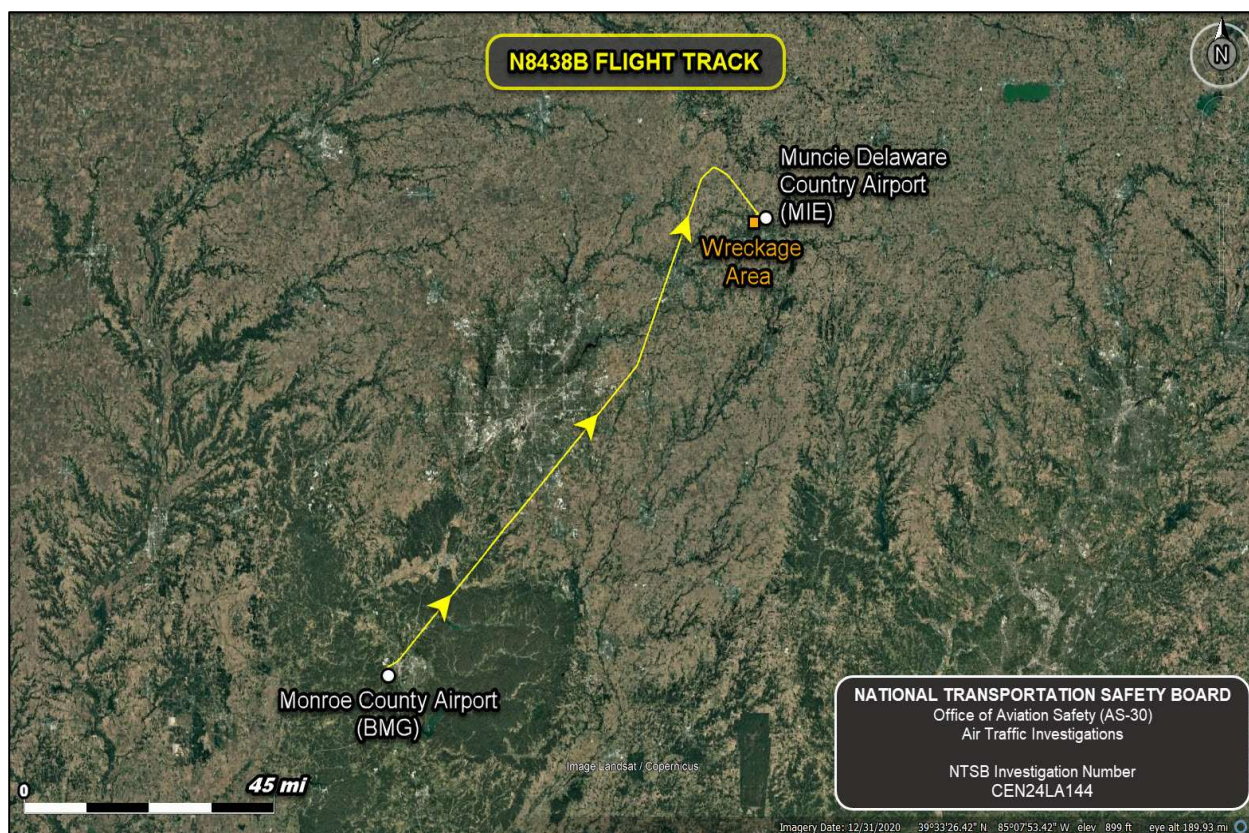


Figure 4. Overhead view of the flight track of N8438B.

3.0 Weather Information

3.1 Surface Observations

The area surrounding the accident site was documented using official aviation routine weather reports (METAR)¹⁵ and aviation selected special weather reports (SPECI)¹⁶. Cloud heights are reported above ground level (agl) in the following section. The magnetic variation over the area was estimated at 6° west based on the latest sectional chart for the area. For more detailed weather information, see the Meteorology Factual Report in the public docket.

¹⁵ 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.

¹⁶ A special report or SPECI is an unscheduled report taken when any of the special criteria have been observed. The criteria for SPECIs can be found in the Federal Meteorological Handbook Number 1, Surface Weather Observations and Reports. With regards to ceilings, a SPECI is required when cloud cover of 5/8 or more forms, or dissipates, decreases to less than or, if below increases to or exceeds the following values: 3,000 ft, 1,500 ft, 1,000 ft, 500 ft agl or the lowest standard instrument approach procedure minimum.

3.1.1 MIE METAR and SPECI Observations

The accident occurred about 1/2 mile west of MIE with an elevation of 937 ft. The airport had an ASOS¹⁷ which broadcasted locally and line of site on 114.4 very high frequency (VHF) and was augmented by ATC personnel through a Limited Aviation Weather Reporting System (LAWRS)¹⁸ agreement during normal operating hours between 0600 and 2200. The hourly observation closest to the accident time was 0953 and the SPECI closest to the time of the accident time was 1027. These observations are indicated in bold text below and include plain language descriptions:

**0953 EDT METAR KMIE 011353Z 05010KT 10SM BKN007 10/08 A2987
RMK AO2 CIG 005V011 SLP112 T01000078=**

Weather observation for KMIE at 0953 EDT, wind from 050° at 10 knots, visibility 10 statute miles or more, ceiling broken at 700 ft agl, temperature 10° C (50°F), dew point temperature 8° C (46°F), altimeter setting 29.87 inches of mercury (inHg). Remarks: automated station with a precipitation discriminator, ceiling varying between 500 ft and 1,100 ft, sea level pressure 1011.2-hectopascals (hPa), temperature 10.0°C, dew point 7.8°C.

[The accident time was 1027.]

**1037 EDT SPECI KMIE 011437Z 05010KT 5SM BR OVC004 09/08
A2988 RMK AO2 T00940078=**

Special weather observation for KMIE at 1037 EDT, wind from 050° at 10 knots, visibility 5 statute miles in mist, ceiling overcast at 400 ft agl, temperature 9° C (49°F), dew point temperature 8° C (46°F), altimeter setting 29.88 inHg. Remarks: automated station with a precipitation discriminator, temperature 9.4°C, dew point 7.8°C.

3.2 PIREP Information

The following is a list of all PIREPs that were reported in the national airspace within 50 miles of the accident site from 0730 to 1230. The reports above 18,000 ft have been omitted. The reports are in standard code and abbreviations and times are in UTC. For more detailed PIREP information, see the Meteorology Factual Report, Section 5.0, *Pilot Reports*, located in the public docket.

¹⁷ ASOS – Automated Surface Observing System – Automated sensor suites equipped with meteorological instruments to observe and report wind, visibility, ceiling, temperature, dewpoint, altimeter, and barometric pressure. These systems generally report at hourly intervals but also report special observations if weather conditions change rapidly and cross aviation operation thresholds.

¹⁸ LAWRS – Limited Aviation Weather Reporting Station – An airport weather station that utilized various degrees of automated sensors and/or other automated equipment (ie; AWOS) and is often augmented/backed up by certified tower weather observers at these locations.

IND UA /OV VHP160010/TM 1153/FLDURGD/TP C310/SK 017BKNUNKN
IND UA /OV IND/TM 1308/FL025/TP B737/SK 023OVCUNKN/RM DURC
IND UA /OV VHP160010/TM 1310/FLDURGD/TP A20N/SK UNKNBKN047
IND UA /OV VHP160009/TM 1313/FL020/TP A20N/SK 020BKN047
IND UA /OV IND/TM 1400/FL070/TP P28B/SK 024OVC070
IND UA /OV IND/TM 1403/FL008/TP CRJ9/SK 017BKNUKN/RM DURGD
[The accident time was 1427 UTC.]
IND UA /OV MIE160015/TM 1501/FL150/TP CRJ9/TB NEG
IND UA /OV VHP060016/TM 1527/FL048/TP BE40/SK UNKNBKN050/RM DURD
IND UA /OV VHP100020/TM 1617/FL080/TP E75S/SK UNKN BKN 050

4.0 Airport Information

4.1 Delaware County Regional Airport (MIE)

The MIE airport was a medium sized, primarily general, business, and corporate aviation airport located in the city of Muncie, Indiana. MIE was a towered airport, and the control tower was operated by Midwest ATC Service, Inc. MIE airport had two grooved asphalt runways; runway 14/32 was 6,500 ft long and 150 ft wide, and runway 03/21 was 5,198 ft long and 100ft wide.

Figure 5 is an illustration of the airport diagram. Runway 14, the intended landing runway, is illustrated with a dashed yellow arrow overlaid and the tower is labeled and illustrated with a blue circle.

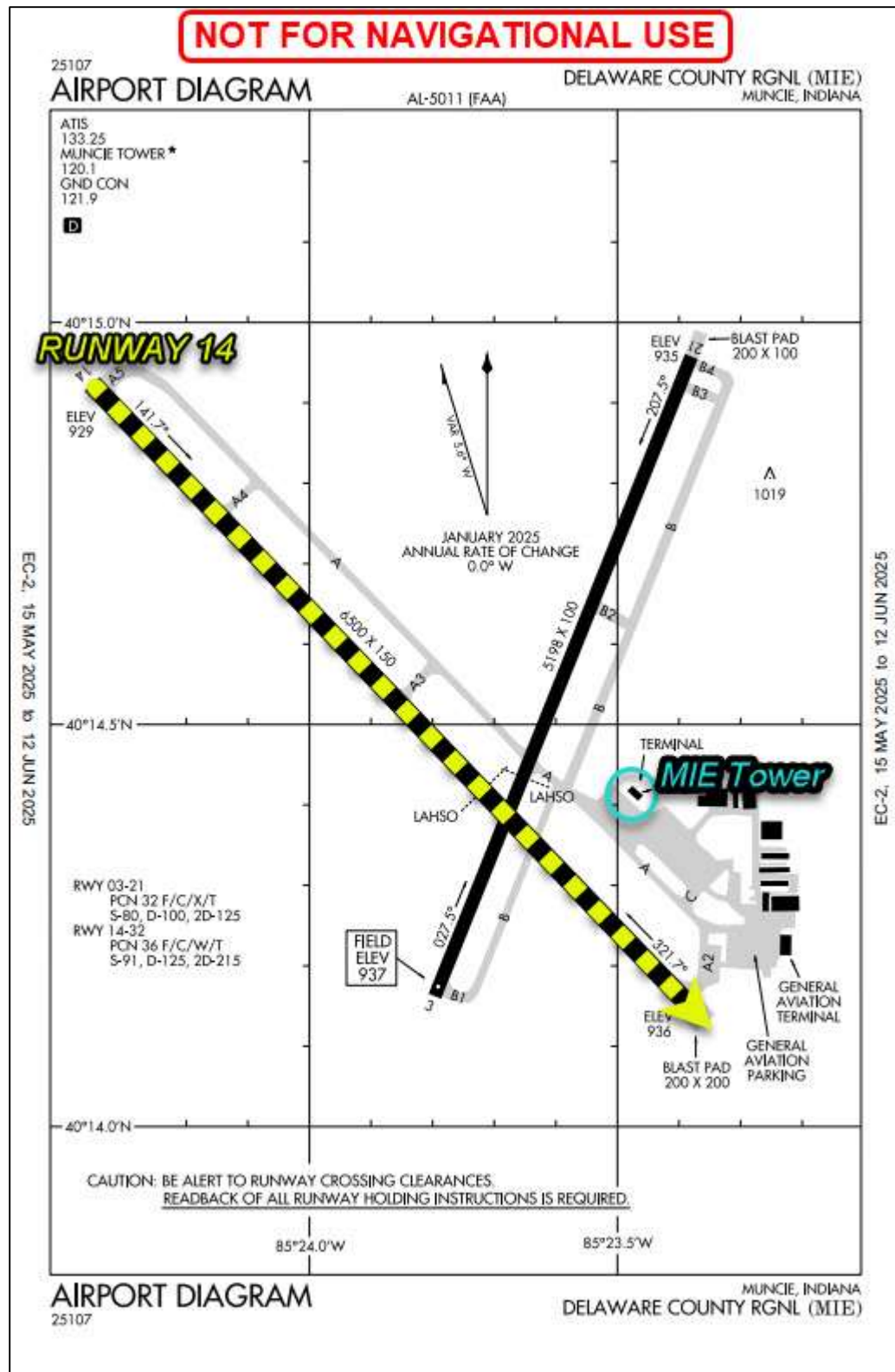


Figure 5. MIE airport diagram.

5.0 Air Traffic Control Facilities

5.1 MIE Federal Contract Tower

The MIE FCT was located within class D airspace that extended from the surface to 2,500 ft agl (3,400 ft msl). The facility operated seven days a week from the hours 0600-2200. The MIE tower height was 60 ft. MIE was not equipped with any type of airport surface detection equipment capability, nor did they have any type of control tower radar display. Figure 6 is a photo of the tower, and figure 7 shows the tower cab layout.



Figure 6. Photo of MIE FCT taken by NTSB staff.

5.1.1 Tower Cab Layout

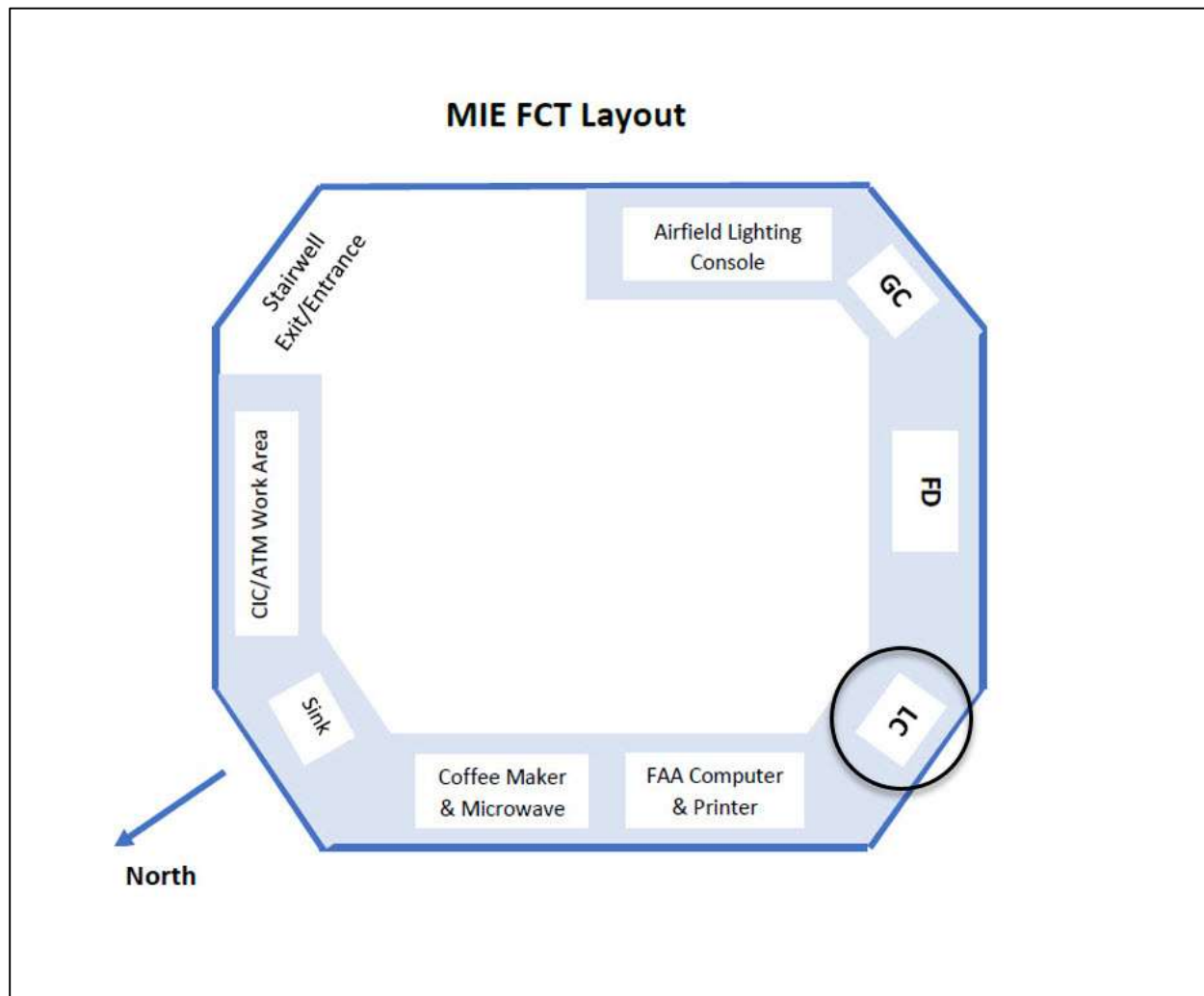


Figure 7. MIE control cab layout.

5.1.2 Tower Cab Pertinent Equipment

MIE FCT was equipped with an ASOS operator input device (OID)¹⁹ where controllers could view current weather conditions. Additionally, the facility status information area (SIA)²⁰ list was located at the flight data (FD) position under plexiglass, shown in figure 8. Monitoring of the ASOS information and SIA were the responsibility of the FD position.

¹⁹ The OID consists of a monitor and keyboard and provides interactive access to ASOS data.

²⁰ SIA - System Information Area - An area on the controller's console where information can be manually entered and allows for intra-facility wide dissemination of pertinent information.

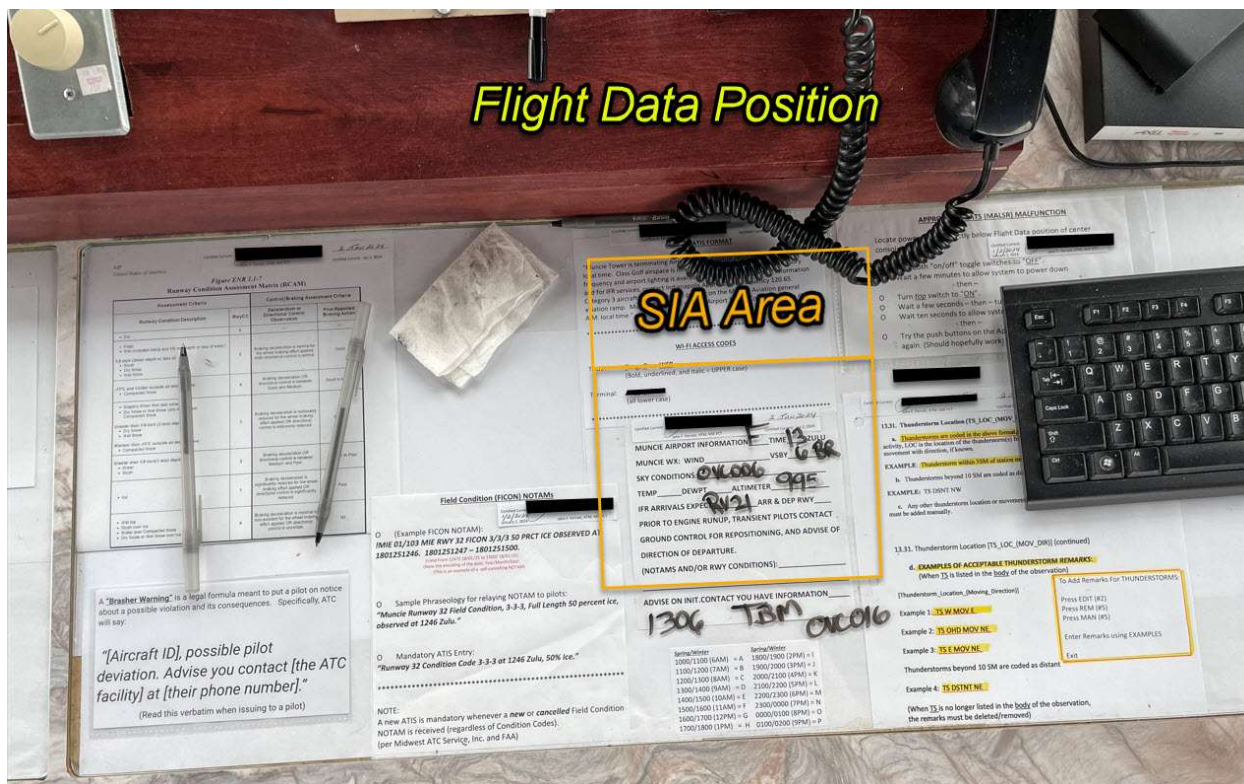


Figure 8. FD SIA information area.

Figure 9 is a photo of inside the control tower taken by NTSB staff during the onsite investigation. The photo includes markings added to identify location of the LC position, ASOS OID, and the view of runway 14 from the LC position.



Figure 9. Southwest view of the MIE local control position, ASOS OID, and RWY14.

5.1.3 Staffing - Time of Accident

At the time of the accident, there were two CPCs on duty. All control positions, including controller-in-charge (CIC), were combined at the LC position and staffed by one controller. A controller was annotated on the ground control (GC) position from the position logs. However, it was identified from interviews that the GC controller had stepped out of the operation and that the LC controller had combined the GC position and assumed the responsibilities. A position relief briefing (PRB) was not captured, and the position logs did not reflect the change²¹. The ATM was in the tower observing operations. According to the facility, this configuration was normal for that time of day and volume of traffic.

5.1.4 Interviewed Personnel

All interviews were recorded and transcribed by Free State Reporting, Inc.²²

²¹ MIE FCT Position logs are provided in Attachment 4: MIE Facility Administrative Documentation.

²² Certified transcripts of all recorded interviews are included in Attachment 1: Interview Transcripts.

5.1.4.1 Local Controller

The LC was providing services to N8438B at the time of the accident. The LC, GC, FD, and CIC positions were combined to the LC position which was normal for MIA FCT. He was employed by Midwest ATC and reported directly to MIE FCT in March 2008. He had been certified on the LC position since April 2008 and was current and proficient in accordance with facility standards on the day of the accident.

He was 54 years old and held a current second-class medical clearance at the time of the accident, and his last ATC physical was conducted on August 2, 2023. He had a medical waiver associated with his medical clearance that was documented in his medical record. He was prescribed regular maintenance medications and stated that he had been taking them as prescribed, including the day of the accident. He was required to wear corrective lenses while performing ATC duties and stated that he was wearing his prescribed contact lenses at the time of the accident. Neither post-accident drug nor alcohol testing were ordered nor conducted. The LC controller's working hours for the week leading up to and including the day of the accident were:

Day	Date	Shift	Hours	Overtime
Tuesday	Mar 26	Eve	1415-2215	None
Wednesday	Mar 27	Swing	0900-1700	None
Thursday	Mar 28	Day	0545-1345	None
Friday	Mar 29	Day	0545-1345	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Eve	1415-2215	None
Monday	Apr 1	Swing	0900-1700	None

5.1.4.2 Air Traffic Manger

The ATM was on the control floor and assisted with coordination for emergency services to N8438B but was not assigned to a control position. He was previously employed by the FAA and held a variety of roles throughout his career. In January of 2000 he was employed by Midwest at Anderson FCT and transferred to Muncie FCT in May 2000. He entered his role as the facility ATM in January 2010.

He was 67 years old and held a current second-class medical clearance at the time of the accident, and his last ATC physical was conducted on August 6, 2023. He was required to wear corrective lenses while performing ATC duties. Neither post-accident drug nor alcohol testing were ordered nor conducted. The ATM's working hours for the week leading up to and including the day of the accident were:

Each person interviewed received a copy of the transcript for their review prior to being placed as an attachment to this report.

Day	Date	Shift	Hours	Overtime
Tuesday	Mar 26	Day	0545-1345	None
Wednesday	Mar 27	Day	0900-1700	None
Thursday	Mar 28	Day	0900-1700	None
Friday	Mar 29	Day	0900-1700	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Off	None	None
Monday	Apr 1	Day	0900-1700	None

5.2 Indianapolis Airport Traffic Control Tower

IND ATCT was located on IND which was located approximately seven miles southwest of downtown Indianapolis. The facility was one of the largest FedEx hubs in the world. The height of IND ATCT was 348 ft. IND ATCT was a combined tower and terminal radar approach control (TRACON) facility, commonly referred to as an "up-down." The tower portion of the facility was not involved with this accident and the on-site investigation focused on the services provided by the TRACON. Figure 10 is a photograph of IND ATCT taken during the onsite investigation.



Figure 10. Photo of IND tower and TRACON at ground level taken by NTSB staff.

5.2.1 ATCT TRACON Position Consolidation

At the time of the event the control positions Departure Radar West (DRW), Satellite Radar South (STS) were combined to the DRE position. Figure 11 is a map of the delegated airspace as contained in the IND ATCT standard operation procedures (SOP). The sector boundary surrounding the MIE airport has been highlighted in blue. This area is also known as area "S", and the DRE controller was responsible for providing ATC services to aircraft within this airspace from the surface to 9,000 ft. Position logs can be found in Attachment 5: IND ATCT Facility Documentation.

APPENDIX D-10. DELEGATED AIRSPACE – TRACON: RUNWAY 23 COMPOSITE

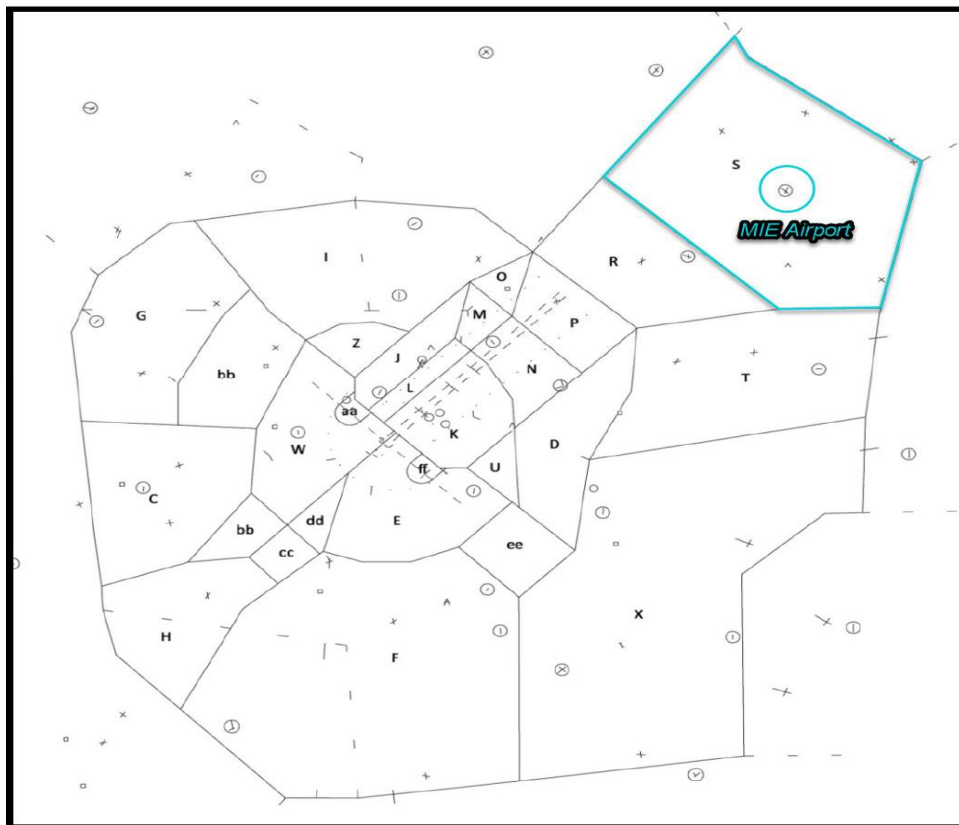


Figure 11. Delegated airspace graphic with MIE control sector highlighted in blue and the MIE airport identified with a blue circle.

5.2.2 ATCT TRACON Layout

Figure 12 is a copy of the IND ATCT TRACON facility layout chart obtained from the IND ATCT SOP. The DRE position is highlighted in yellow.

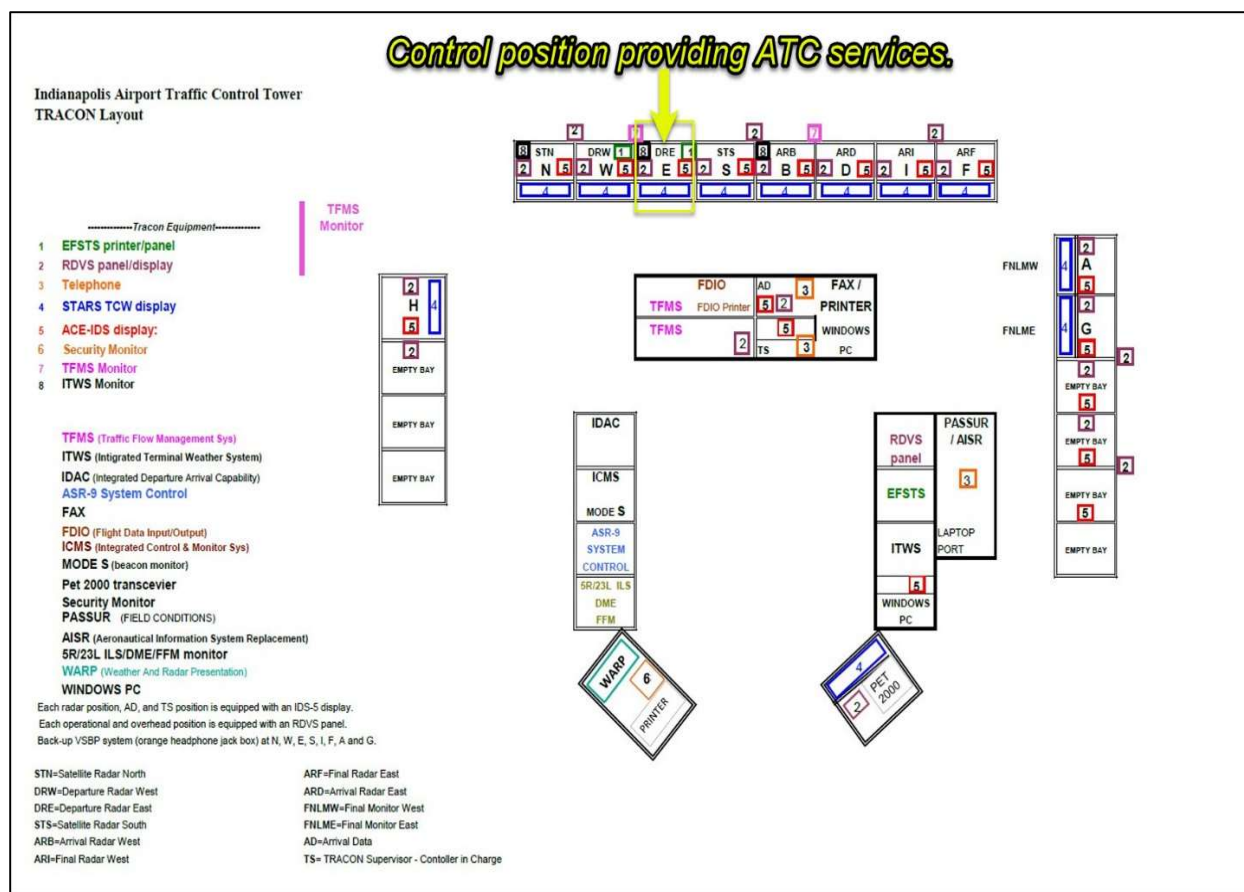


Figure 12. IND ATCT TRACON control room layout.

5.2.3 DRE Sector Pertinent Equipment

The DRE position was equipped with a traffic flow management system (TFMS), integrated terminal weather system (ITWS)²³ monitor, integrated display system (IDS)²⁴, rapid deployment voice switch (RDVS), and STARS display. This equipment installation was designed to provide the necessary equipage and tools for controllers to safely provide radar services. This included monitoring assigned airspace, communicating with aircraft and adjacent ATC facilities, and maintaining situational awareness of weather and other flight related information pertinent to their area of responsibility.

²³ ITWS - Integrated Terminal Weather System - An automated weather information system, and it uses a variety of weather sensors to make full use of airport runways in all kinds of weather. The ITWS receives data from weather and surveillance radars and sensors and then uses computer software to display current weather information in graphic and text formats. The ITWS provides weather products that are easy to understand, and it removes the need for interpretation by meteorologists

²⁴ IDS - Information Display System - A system that provides the ATC environment with a single point of access to static data, such as documents, lists, and maps, and to dynamic data, such as weather display systems or automated tools with quick accessibility to the controller.

Figure 13 is a photo of the DRE approach control position and its associated equipment, taken during the onsite investigation. The photo depicts the TFMS monitor, ITWS monitor, ACE-IDS display, STARS display, and the RDVS panel.



Figure 13. View of the DRE approach control position and its associated equipment.

5.2.4 Staffing - Time of Accident

The staffing included personnel for the control tower and the TRACON. There was a total of 11 controllers, two trainees, and two OSs on duty at the time of the accident. There were three controllers and one trainee on position in the TRACON; three controllers on position in the control tower; and five controllers and one trainee on break or conducting other duties. An OS was providing direct supervision in the TRACON, and the other OS was providing direct supervision in the tower.

5.2.5 Interviewed Personnel

All interviews were recorded and transcribed by Free State Reporting, Inc.

5.2.5.1 Departure Radar East Controller

The DRE controller provided services to N8438B. He was employed by the FAA in September 2018 and reported directly to IND ATCT. He had been certified on the DRE control position since March 2022. He was current and proficient in accordance with facility standards on the day of the accident.

He was 43 years old and held a current second-class medical clearance at the time of the accident with no waivers, restrictions, or limitations. His last ATC physical was conducted on February 12, 2024. Post-accident drug and alcohol testing were ordered; however, this testing was not conducted until the following morning. The DRE controller's working hours for the week leading up to and including the day of the accident were:

Day	Date	Shift	Hours	Overtime
Tuesday	Mar 26	Day	0700-1400	None
Wednesday	Mar 27	Day	0600-1400	None
Thursday	Mar 28	Mid	2215-0406	5.51 HR
Friday	Mar 29	Off	None	None
Saturday	Mar 30	Eve	1700-2400	None
Sunday	Mar 31	Eve	1254-2054	None
Monday	Apr 1	Day	0600-1400	None

5.2.5.2 Operations Supervisor

The OS was providing direct supervision to the DRE controller at the time of the accident. He was employed by the FAA in August 2018 and reported directly to IND ATCT. He had been certified on the OS position since April 2023 and was current and proficient in accordance with facility standards on the day of the accident.

He was 37 years old and held a current second-class medical clearance at the time of the accident, and his last ATC physical was conducted on November 7, 2022. He had a medical waiver associated with his medical clearance that was documented in his medical record. He was required to wear corrective lenses while performing ATC duties and stated that he was wearing his prescribed contact lenses at the time of the accident. Neither post-accident drug nor alcohol testing were ordered nor conducted. The OS's working hours for the week leading up to and including the day of the accident were:

Day	Date	Shift	Hours	Overtime
Tuesday	Mar 26	Mid	2200-0545	None
Wednesday	Mar 27	Mid	2215-0615	8 HR
Thursday	Mar 28	Off	None	None
Friday	Mar 29	Day	0635-1230	None
Saturday	Mar 30	Eve	1330-2245	None
Sunday	Mar 31	Day	0845-1715	None
Monday	Apr 1	Day	0650-1630	None

5.2.5.3 Operations Manager

The OM was an un-involved controller. She was employed by the FAA in May 2010 and reported directly to Charleston ATCT. She transferred to IND ATCT in May 2020. She had been designated OM for approximately one year.

She was 38 years old and did not possess a current second-class medical clearance, nor was she required to have one.

5.2.5.4 Training Administrator

The training administrator was an un-involved controller. He was employed by the FAA in June 1988 and held a variety of roles. He began working as the training administrator at IND ATCT in April 2020.

He was 61 years old and did not possess a current second-class medical clearance, nor was he required to have one.

5.2.5.5 Air Traffic Manager

The ATM was an un-involved controller. He was employed by the FAA in April 1997 and held a variety of roles. He began working as the ATM at IND ATCT in October 2022.

He was 50 years old and did not possess a current second-class medical clearance, nor was he required to have one.

6.0 Air Traffic Control Procedures

6.1 FAA Order JO 7110.65AA, Air Traffic Control

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.

Chapter 2, Section 1, General, 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.*

Chapter 2, Section 6, Weather Information, paragraph 2-6-2, PIREP Solicitation and Dissemination, stated in part:

- 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.*

NOTE– Use the word gain and/or loss when describing to pilots the effects of wind shear on airspeed.

EXAMPLE– “Delta Seven Twenty-one, a Boeing Seven Thirty-seven, previously reported wind shear, loss of two five knots at four hundred feet.” “Alaska One, a Boeing Seven Thirty-seven, previously reported wind shear, gain of two-five knots between niner hundred and six hundred feet, followed by a loss of five zero knots between five hundred feet and the surface.”

- 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);*

Chapter 3, Section 10, Arrival Procedures and Separation, paragraph 3-10-2, Forwarding Approach Information by Nonapproach Control Facilities, stated in part:

a. Forward the following, as appropriate, to the control facility having IFR jurisdiction in your area. You may eliminate those items that, because of local conditions or situations, are fully covered in a letter of agreement or a facility directive.

1. When you clear an arriving aircraft for a visual approach.

REFERENCE—

FAA Order JO 7110.65, Para 7-4-1, Visual Approach.

2. Aircraft arrival time.
3. Cancellation of IFR flight plan.
4. Information on a missed approach, unreported, or overdue aircraft.
5. Runway in use.
6. Weather as required.

REFERENCE—

FAA Order JO 7110.65, Para 2-6-3, Reporting Weather Conditions.

b. When the weather is below 1,000 feet or 3 miles or the highest circling minimums, whichever is greater, issue current weather to aircraft executing an instrument approach if it changes from that on the ATIS or that previously forwarded to the center/approach control.

Chapter 3, Section 10, Arrival Procedures and Separation, paragraph 3-10-7, Landing Clearance Without Visual Observation, stated in part:

When an arriving aircraft reports at a position where he/she should be seen but has not been visually observed, advise the aircraft as a part of the landing clearance that it is not in sight and restate the landing runway.

Chapter 4, Section 7, Arrival Procedures, paragraph 4-7-10, Approach Information, stated in part:

a. Both en route and terminal approach control sectors must provide current approach information to aircraft destined to airports for which they provide approach control services. This information must be provided on initial contact or as soon as possible thereafter. Approach information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code.

Chapter 4, Section 7, Arrival Procedures, paragraph 4-7-11, Arrival Information by Approach Control Facilities, stated in part:

TERMINAL

a. Forward the following information to non-approach control towers soon enough to permit adjustment of the traffic flow or to FSSs soon enough to provide local airport advisory where applicable:

1. Aircraft identification.
2. Type of aircraft.
3. ETA.
4. Type of instrument approach procedure the aircraft will execute; or
5. For SVFR, the direction from which the aircraft will enter Class B, Class C, Class D, or Class E surface area and any altitude restrictions that were issued; or
6. For aircraft executing a contact approach, the position of the aircraft.

Chapter 4, Section 8, Approach Clearance Procedures, Paragraph 4-8-1, Approach Clearance, stated in part:

NOTE—

Clearances authorizing instrument approaches are issued on the basis that, if visual contact with the ground is made before the approach is completed, the entire approach procedure will be followed unless the pilot receives approval for a contact approach, is cleared for a visual approach, or cancels their IFR flight plan.

Chapter 4, Section 8, Approach Clearance Procedures, Paragraph 4-8-9, Missed Approach, stated in part:

Except in the case of a VFR aircraft practicing an instrument approach, and approach clearance automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown.

Chapter 5, Section 9, Radar Arrivals, Paragraph 5-9-1, Vectors to Final Approach Course, stated in part:

Except as provided in paragraph 7-4-2, Vectors for Visual Approach, vector arriving aircraft to intercept the final approach course:

a. At least 2 miles outside the approach gate unless one of the following exists:

- 1. When the reported ceiling is at least 500 feet above the MVA/MIA and the visibility is at least 3 miles (report may be a PIREP if no weather is reported for the airport), aircraft may be vectored to intercept the final approach course closer than 2 miles outside the approach gate but no closer than the approach gate*
- 2. If specifically requested by the pilot, aircraft may be vectored to intercept the final approach course inside the approach gate but no closer than the final approach fix.*

EXCEPTION. *Conditions 1 and 2 above do not apply to RNAV aircraft being vectored for a GPS or RNAV approach.*

- b. Provide a minimum of 1,000 feet vertical separation between aircraft on opposite base legs unless another form of approved separation is established during turn-on to final approach.*
- c. For a precision approach, at an altitude not above the glideslope/glidepath or below the minimum glideslope intercept altitude specified on the approach procedure chart.*
- d. For a non-precision approach, at an altitude which will allow descent in accordance with the published procedure.*

Chapter 7, Section 1, General, Paragraph 7-1-2, VFR Conditions, stated in part:

- a. You may clear aircraft to maintain "VFR conditions" if one of the following conditions exists:
 - 1. *The pilot of an aircraft on an IFR flight plan requests a VFR climb/descent.*
 - 2. *TERMINAL. The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an FAA-approved noise abatement route or altitude.*

PHRASEOLOGY–

MAINTAIN VFR CONDITIONS.

MAINTAIN VFR CONDITIONS UNTIL (time or fix).

MAINTAIN VFR CONDITIONS ABOVE/BELOW (altitude).

CLIMB/DESCEND VFR, and if required,

BETWEEN (altitude) AND (altitude) or

ABOVE/BELOW (altitude).

- b. When, in your judgment, there is reason to believe that flight in VFR conditions may become impractical, issue an alternative clearance which will ensure separation from all other aircraft for which you have separation responsibility.*

Pilot/Controller Glossary, Positive Control, stated in part:

POSITIVE CONTROL- The separation of all air traffic within designated airspace by air traffic control.

6.2 MIE FCT Standard Operating Procedures (SOP)

Chapter 5, Section 5, Other Operations, Paragraph 5-5-4, Pilot/Controller Initiated Go-Around/Missed Approach Procedures, stated in part:

The Local Controller is responsible for all coordination with Indianapolis Approach Control. All coordination must be accomplished over the recorded 1GP45304 ("Shout Line").

a. In the event of a go-around/missed approach for aircraft on an IFR flight plan, including aircraft on visual approach:

- 1. Issue missed approach instructions provided by Indianapolis Approach Control.*
- 2. If no instructions have been provided, issue runway heading and climb to the MVA and coordinate with Indianapolis Approach Control for further instructions.*

F. LIST OF ATTACHMENTS

Attachment 1: Interview Transcripts
Attachment 2: MIE Audio Recordings
Attachment 3: IND Audio Recordings
Attachment 4: MIE Facility Administrative Documentation
Attachment 5: IND Facility Administrative Documentation
Attachment 6: IND Procedures
Attachment 7: MIE and IND Letter of Agreement
Attachment 8: ADS-B Data

Submitted by:

Casey Ogden
Air Traffic Control Investigator