



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

December 17, 2021

Specialist's Report

AIR TRAFFIC CONTROL

CEN22FA070

A. ACCIDENT

Location: Inola Oklahoma
Date: December 12, 2021
Time: 0931:11 central standard time (CST)
1531:11 coordinated universal time (UTC)
Airplane: Cessna 310J, N3187L

B. AIR TRAFFIC CONTROL GROUP

Group Chairman Charles Olvis
National Transportation Safety Board
Washington, DC

Group Member Christopher Fairbanks
Federal Aviation Administration
Dallas/Ft. Worth, TX

Group Member Amy Huschka
National Air Traffic Controllers Association
Minneapolis, MN

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National Air Traffic Controllers Association
Oklahoma City, OK

C. DETAILS OF THE INVESTIGATION

On December 12, 2021, at about 0931 local, a Cessna 310J, N3187J, crashed after taking off from Tulsa International Airport (TUL), Tulsa, Oklahoma. The pilot was fatally injured, and the airplane was substantially damaged. The flight was operating under 14 Code of Federal Regulations Part 91 as a personal flight.

The air traffic control (ATC) workgroup formed on December 16, 2021 and proceeded to the Tulsa Air Control Tower (TUL) to begin data collection and receive an inbrief from the air traffic manager (ATM) Joshua Rogers. Others in attendance at the inbrief included Mark Tomicich Office of General Council, Wardell Henning Event Investigations Manager, and Jason Perkins TUL NATCA Facility Representative, Kenneth Dech, Central Service Center Quality Control Group. After the inbrief, the work group reviewed certified audio of the accident as provided by TUL and reviewed the Standard Terminal Automation Replacement System (STARS)¹ replay of the accident as depicted on the radar display available to the air traffic controller working the accident flight. The workgroup reviewed the FAA 3120-1 Training and Proficiency Records for the controller and managers to be interviewed. Additionally, the workgroup toured the operations control room and documented the location of the equipment used by the air traffic controller. The

¹ STARS is a digital automation system capable of tracking all aircraft within the defined airspace using information from available FAA.

workgroup then interviewed the Operations Supervisor, the radar west controller responsible for the flight, and the ATM.

On December 17, 2021, the workgroup reconvened at TUL to meet with the ATM and conduct an out brief. The workgroup reconvened at the hotel and completed the field notes and provided them to the investigator in charge (IIC) with an update. The workgroup then departed the on site portion of the investigation.

D. FACTUAL INFORMATION

1.0 Radar And Automatic Dependent Surveillance – Broadcast (ADS-B) Data

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

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

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

To improve the consistency and reliability of ADS-B and radar returns, airplanes are equipped with transponders. For ADS-B equipped airplanes, the transponders are assigned a unique Mode S address for each airplane. N3187L was assigned a Mode S transponder address of A367E1 and the accident airplane was assigned an ATC transponder beacon code of 0331. The ADS-B data for this report was obtained from the FAA and was of good quality.

Figure1 illustrates the entire flight by the accident airplane obtained from available ADSB data. The data begins at 1522:28 UTC after the airplane departed TUL and ends at 1531:11 UTC.

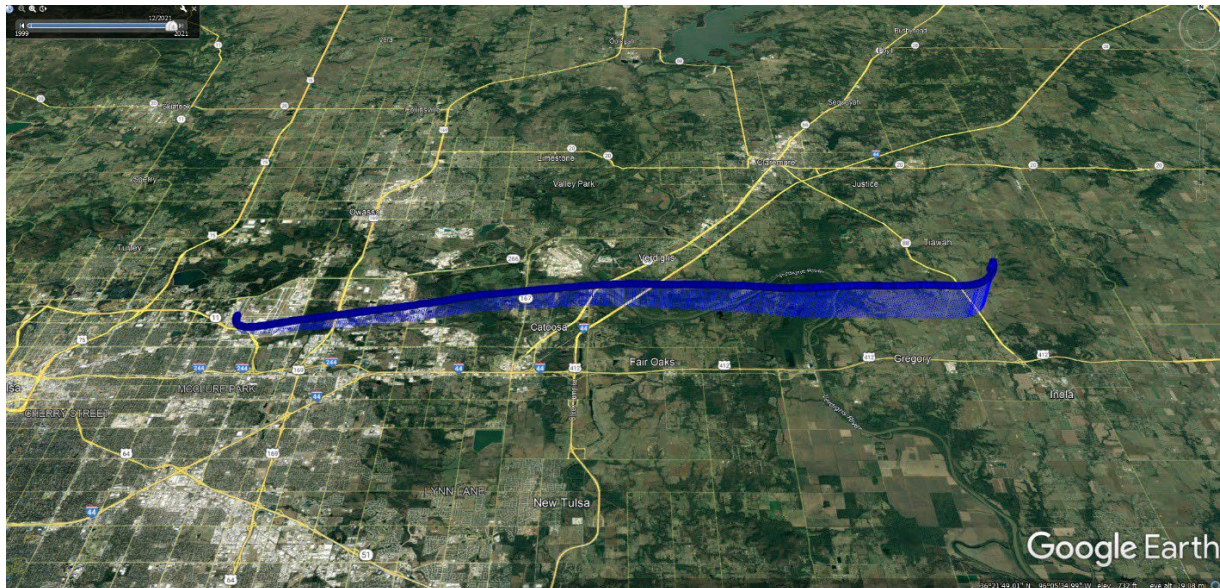


Figure 1 - Entire flight of N3187L.

Figure 2 is ADSB data that illustrates the departure of the accident airplane from TUL at 1522:28 UTC.

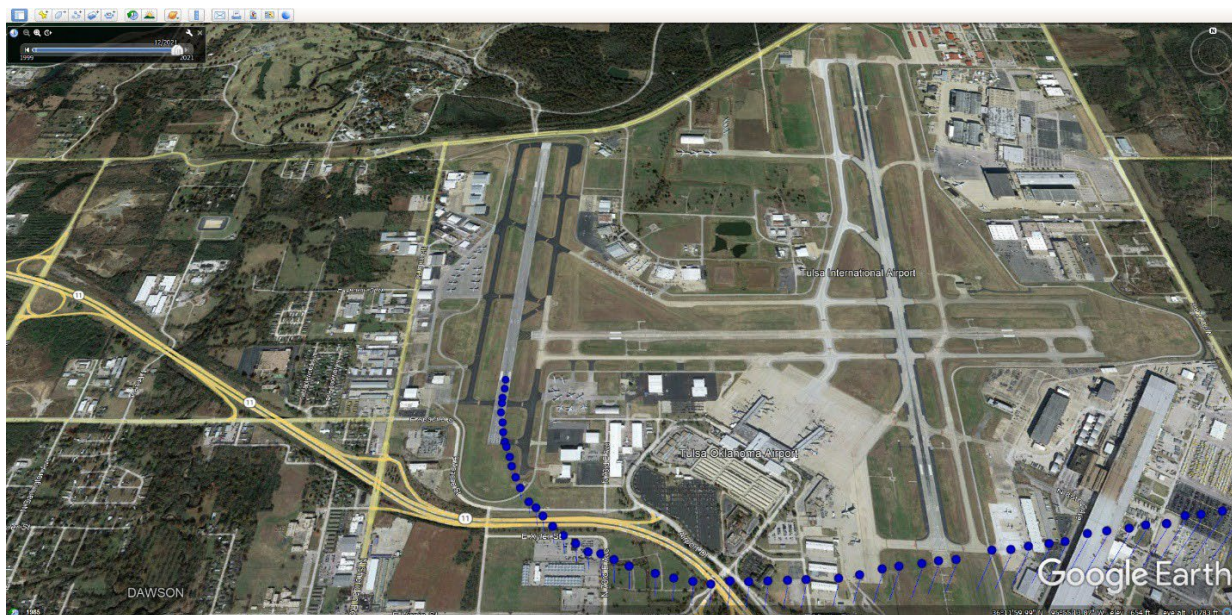


Figure 2 - Departure of N3187L from runway 18R at TUL.

Figure 3 is ADSB data that illustrates the final target of the accident airplane.



Figure 3 - Image illustrating final descent and target of N3187L.

A review of the Tulsa STARS replay on the controller display revealed what keystrokes were made by the RW controller and indicated what the airplane target displayed on the controllers radar display. The data indicated the following altitude changes as depicted by the radar display; all data is Mode C altitude information from the aircraft and is corrected for the local altimeter.

Time	Altitude
1530:34 ²	6,100'
1530:52	5,900'
1530:55	5,700'
1530:58	5,600'
1530:59	5,400'
1531:00	5,200'
1531:01	5,000'
1531:02	4,900'
1531:03	4,700' followed by XXX (3 X's indicate rapidly changing data)
1531:04	XXX

The next time displayed was 1531:21 and indicated the track was in a "Coast" (CST) status³. At 1531:51 the displayed data tag indicated "ZZ"⁴. At 1532:52 the data tag dropped automatically and was no longer displayed.

² All times for STARS displayed data in UTC

³ Status of an aircraft that is no longer giving a radar return. The air traffic control screen will display this status (usually with the acronym "CST") and will temporarily continue displaying the aircraft's movement at the last heading and speed, as if it was "coasting".

⁴ "ZZ" indicated the track was no longer active and the STARS system will no longer predict the location of the target.

The STARS replay also indicated a VFR airplane conducting multiple passes at Claremore Regional Airport (GCM) about 5 NM north of the final ADSB target for N3187L. The STARS replay indicated that after the accident airplane went into ZZ status, the RW controller activated a quick look function that pulled up the ADSB unique Mode S assigned code and call sign for all airplanes on the display. The VFR airplane at GCM was determined not to be the accident airplane and there were no other displayed aircraft near the accident airplanes last location.

2.0 Weather Information

The TUL weather at 0853 est, wind 160 degrees at 12 knots, visibility 10 statute miles, clear, temperature of 3°Celsius (C), dew point temperature of -3°C, and an altimeter setting of 30.23 inches of mercury (inHg). Pressure Trend Amount of change: →↑ 0.7 hpa, Pressure: Decreasing or steady, then increasing; or increasing then increasing more rapidly.

METAR KTUL 121453Z 16012KT 10SM CLR 03/M03 A3023 RMK AO2 SLP240 T00331033 53007

3.0 Clearance

The pilot of N3187L had requested a visual flight rules (VFR) departure from TUL. The TUL ground controller (GC) had instructed the pilot to maintain VFR below two thousand five hundred, issued a departure frequency of 124.0, and issued a transponder beacon code of 0331. The flight was not put into the National Airspace system (NAS) via the Flight Data Input/Output (FDIO) system ore air traffic controller's keyboard.

4.0 Air Traffic Control Personnel

4.1 Operations Supervisor (OS)

The OS began working for the FAA in July 2008 reporting to the FAA Training Facility, Oklahoma City, OK. He graduated from the training facility in September 2008 and reported to San Antonio Air Traffic Control Tower (SAT). In August 2012 he departed SAT and reported to Tulsa Riverside ATCT (RVS). In October 2014 he left RVS and reported to Corpus Christi ATCT (CRP). In May 2017, he left CRP and reported to TUL ATCT. In September 2019 he left TUL and reported to RVS as an Operations Supervisor (OS). He left RVS in December 2020 and reported to TUL as an OS.

The OS' medical certificate was current with no restrictions and did not hold any other aeronautical licenses. He was certified and current on all operating positions at TUL. His previous ATC experience was with the United States Air Force (USAF). He entered on duty with the USAF in January 2002 and served at Lackland Air Force Base (SKF), Balad Iraq, and Mosul Iraq. He ended active-duty service in January 2008.

The OS' regular days off were Monday and Tuesday. On Wednesday's he worked 1300 to 2100, on Thursday's he worked 1300 to 2100, on Fridays he worked 0700 to 1500, on Saturday's he worked 0700 to 1500, and on Sunday's he worked 0600 to 1400. On the day of the accident, he worked a 0600 to 1400 shift.

4.2 Radar West Controller (RW)

The RW controller began working for the FAA in November of 2015 as a direct hire from the FAA Training Facility, Oklahoma City, OK. He graduated from the training facility with the Basic and Enroute Class in April of 2016 and reported to Seattle Center (ZSE). He was certified on one D side and then filed for a hard-ship transfer to Tulsa Air Traffic Control Facility (TUL) in February of 2017. He is qualified on all operating positions in the tower and terminal radar approach control (TRACON) and was designated a Controller in Charge (CIC).

The RW had a current medical certificate with no restrictions. He held no additional certificates.

The RW's regular days off (RDO) were Sunday/Monday. On Tuesdays he worked a 1445 to 2245 shift, on Wednesdays he worked a 1300-2100 shift, on Thursdays he worked a 0700 to 1500 shift, on Fridays he worked a 0700 to 1500 shift and on Saturdays he worked a 0600 to 1400 shift. Mr. Burton was on an overtime (OT) shift on the Sunday of the accident. He came in on a 0600 to 1400 shift. He has routinely been working a six-day work week throughout the year.

4.3 Air Traffic Manager (ATM)

The ATM began working for the FAA in March 2003 and reported to Abilene ATCT (ABI). In June 2005 he left ABI and reported to Seattle TRACON (S56). In January 2008 he left S56 and reported to Chicago TRACON (C90). While in C90 he was promoted to OS. He left C90 in November 2014 and reported to Corpus Christi ATCT (CRP) for duty as an Operations Manager (OM). He left CRP in April 2016 and reported to TUL for duty as the ATM.

The ATM's prior ATC experience was with the USAF. He joined the USAF in November 1993 and graduated USAF Air Traffic Control School in May 1994 and reported to Laughlin AFB (DLF) in Del Rio Tx. In July 1998 he left DLF and reported to Thule AFB in Greenland (BGTL). In July 1999 he left BGTL and reported to Grand Forks AFB (RDR) in Grand Forks North Dakota. He departed active duty and joined the Department of Defense as a civilian air traffic controller at RDR and left in March 2003 to join the FAA.

The ATM did not have an aviation medical, nor was he required. He did not have any additional aeronautical licenses. His regular days off (RDO) were Saturday and Sunday, and his weekly schedule was normally Monday through Friday 0630 to 1530.

E. LIST OF ATTACHMENTS

Attachment 1 Interview Summaries
Attachment 2 Transcript

Submitted by:

Charles Olvis
Senior Air Traffic Control Investigator