



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

December 18, 2014

Group Chairman's Factual Report

AIR TRAFFIC CONTROL

CEN14FA300

A. AIRCRAFT INCIDENT

Location: Lehman, TX
Date: June 18, 2014
Time: 1635 central daylight time (CDT) / 2135 coordinated universal time (UTC)¹
Aircraft: N2428Q, a PA46-310P

¹All times are expressed in central daylight time (CDT) unless otherwise noted.

B. AIR TRAFFIC CONTROL GROUP

Chairman: Mr. Daniel Bartlett
National Transportation Safety Board (NTSB)
Washington, D.C.

Mr. Larry Johnson
Compliance Services Group
Federal Aviation Administration/AJI-13
Washington, D.C.

Ms. Karena Marinas
National Air Traffic Controllers Association (NATCA)
Los Angeles, CA

C. SUMMARY

On June 18, 2014, about 1635 central daylight time, a Piper PA 46-310P, N2428Q, crashed in an open field ½ mile east of Lehman, Texas. The private pilot and two passengers were fatally injured. The airplane was substantially damaged. The airplane was registered to Flying Lazy T, LLC., and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Instrument meteorological conditions prevailed for the flight, which operated on an instrument flight rules (IFR) flight plan. The cross country flight originated from Aspen-Pitkin County Airport/Sardy Field (KASE), Aspen, Colorado, at 1326 mountain daylight time, and was en route to Brenham Municipal Airport (11R), Brenham, Texas.

Preliminary data available from the Federal Aviation Administration indicated that the airplane was at flight level (FL) 270, deviating to the east due to weather. This preliminary data indicated that the airplane climbed to an altitude of FL293 before starting a descent. The airplane was last recorded on radar at an altitude of 12,500 feet².

The wreckage was located in an open field by the land owner. The wreckage came to rest upright, on an approximate heading of west. The main wreckage included the fuselage, empennage, both wings, and the engine and propeller assembly. The empennage and the outboard portion of the right wing separated partially from the main wreckage but came to rest immediately adjacent to the main wreckage. There were no ground scars nor was there a debris field associated with the accident.

According to witnesses in the area at the time of the accident, there was a severe thunderstorm in the immediate vicinity of the accident. The witnesses described high winds, heavy rain, and low visibility.

² Altitudes are expressed in feet above mean sea level

D. DETAILS OF THE INVESTIGATION

Albuquerque Air Route Traffic Control Center (ZAB)

On June 24, 2014, the air traffic control (ATC) group convened at ZAB, located in Albuquerque, New Mexico, to review ATC procedures and interview controllers on duty. The ATC group met with and was provided an in-brief by Mr. Terry Locke, the ZAB air traffic manager (ATM).

According to the ATM, the ZAB R16 controller accepted a handoff from Denver Air Route Traffic Control Center (ZDV) on N2428Q at 1514. The pilot checked in with ZAB at 1517 reporting level at FL270. At 1530 the R16 controller issued Dallas Fort-Worth (DFW) Center Weather Advisory (CWA) 201 and advised additional information was available on hazardous inflight weather advisory service (HIWAS). At 1534, R16 directed N2428Q to contact the ZAB R15 controller on frequency 127.85. At 1535, the pilot checked in with the R15 controller. At 1549 the R15 controller transmitted Significant Meteorological Information (SIGMET) 86C over the frequency. At 1554, the R15 controller asked N2428Q why he was not in level flight at the assigned altitude of FL270. The pilot responded that he had an auto-pilot issue. At 1556, the pilot requested a course adjustment of ten degrees left for weather. The R15 controller approved the request. At 1606, the R15 controller asked the pilot if he was going to deviate around weather between the pilot's 12 o'clock to 9 o'clock position. The pilot responded that he would and began a right turn. At 1607, the R87 controller accepted a handoff from the R15 controller. At 2115, the R87 controller transferred control of N2428Q to Fort Worth Air Route Traffic Control Center (ZFW) and at 1617 directed the pilot to contact ZFW on frequency 120.77. N2428Q acknowledged the transmission.

Fort Worth Air Route Traffic Control Center (ZFW)

On June 26, 2014, the ATC group convened at ZFW, located in Dallas/Fort Worth, Texas to review ATC procedures and interview controllers on duty.

According ZFW facility management, N2428Q checked in with ZFW at 1617:51 at FL260 climbing to FL270 and reported he was in a turn for weather. At 1630:51, N2428Q deviated left and the controller asked the pilot if he was going north for weather. The pilot responded that he was "trying to go through a window." The controller asked the pilot several times about his altitude as the airplane was climbing, and advised the pilot that he was in the middle of moderate to extreme precipitation. The pilot did not respond to ATC. There was a single "mayday" on the frequency and the controller asked the pilot for his altitude. A pilot responded "19." A pilot on the frequency asked if the controller heard the mayday. The controller continued to call N2428Q without success. An unidentified pilot on the frequency reported hearing another pilot say that he could not see the ground or the horizon. Continued efforts to contact N2428Q were unsuccessful.

On July 22, 2014, the ATC group conducted a telephone interview with Mr. Doug Estes, the ZAB radar sector 15 (R15) controller. On July 24, 2014, the ATC group conducted a telephone interview with Mr. Dakota Smith, the ZAB radar associate sector 87 (D87) controller. Mr. Estes and Mr. Smith were not available during the field portion of the investigation.

On July 1, 2014, the ATC group chairman spoke with Mr. Fred Philips, owner and operator of N656FP, an Eclipse 550 jet, which was operating in the vicinity of N2428Q prior to the accident. N656FP was en-route from Albuquerque International Sunport Airport (ABQ), Albuquerque, New Mexico, to Shreveport Regional Airport (SHV), Shreveport, Louisiana, at FL410. (See figure 1) Mr. Philips was deviating for weather and overheard the communications between the ZFW controller and N2428Q. According to Mr. Philips, he had a very good visual perspective of the weather conditions at FL410 and stated that the tops of the clouds were growing rapidly to FL480.

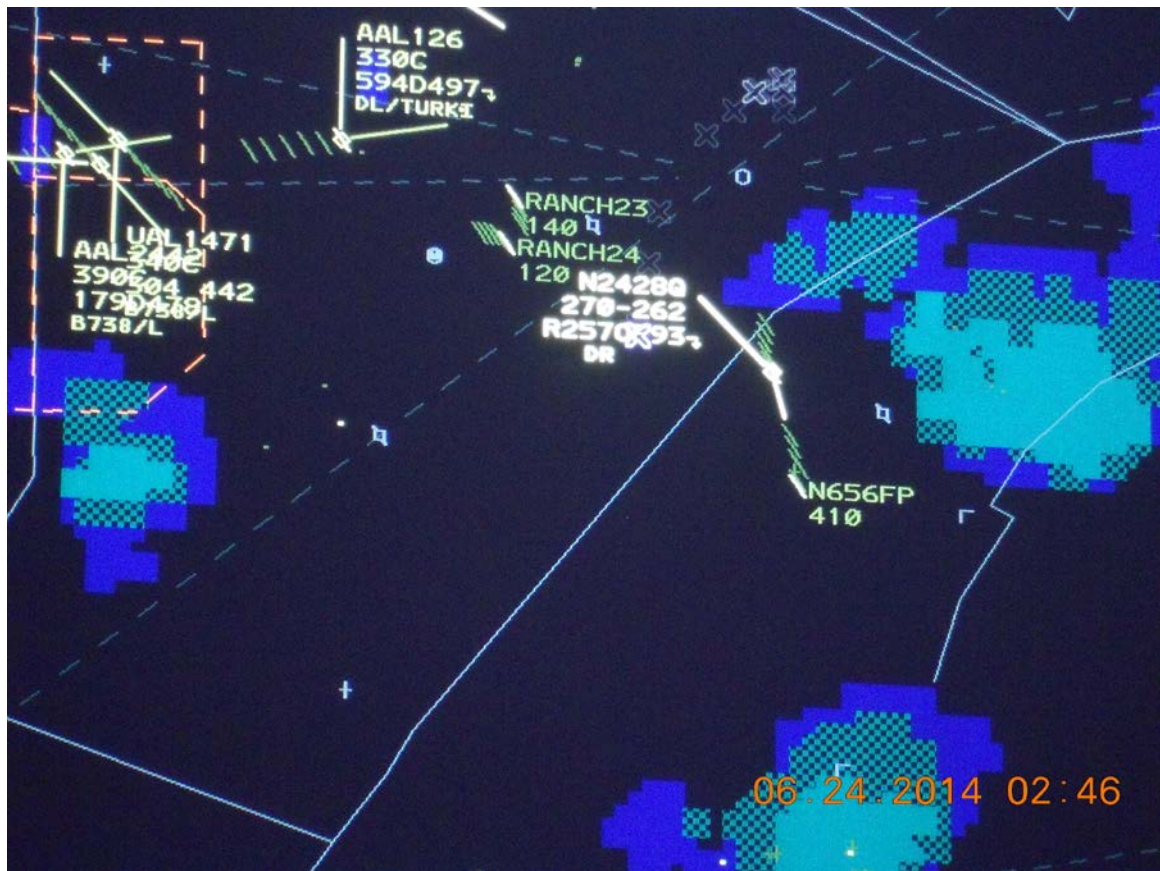


Figure 1 – En Route Automation Modernization (ERAM) screen shot from ZAB displaying N656FP at FL410 south bound after passing N2428Q at FL262. Weather depicted indicate moderate, severe, and extreme levels of precipitation.

Mr. Philips stated that the weather was closing in. At 1616, he deviated south to avoid the buildup. At 1620, he turned east and passed to the south of a thunderstorm at 1623. N656FP was clear of the weather at 1629. Mr. Philips stated that he overheard ZFW authorize N2428Q to deviate for weather. The pilot of N2428Q reported that he saw a window in the clouds and was going to go through it. He heard ZFW acknowledge N2428Q just before hearing N2428Q declare mayday. ZFW was fairly busy and Mr. Philips advised ZFW of the mayday call. N2428Q reported that he was spinning, and in an effort to assist, Mr. Philips asked N2428Q if he could see the ground or the horizon. He then asked ZFW if they had heard the transmission by N2428Q that he was in a spin.

Mr. Philips stated that he had expected ATC to direct other aircraft to stay off the frequency during the emergency and vector aircraft out of the critical area. He was surprised by ATC handling of N2428Q and called ZFW after he landed to discuss the event. His main concern was that the handling of an aircraft seemed so “benign” and “laissez-faire” in that there was no intervention by ATC. He was referred to ZFW quality assurance and received a call from ZFW 2 hours later. He was advised by ZFW that the emergency was handled in accordance with current directives.

On July 8, 2014, the ATC group chairman spoke with Mr. Dave Bowen, United States Marine Corps. Mr. Bowen was the pilot/flight lead of a formation flight of two F/A-18s, call sign Cowboy 31, operating in the vicinity of N2428Q. (see figure 2) According to Mr. Bowen, the flight encountered moderate clear ice at FL250 indicated by an “inlet ice detector” warning in the cockpit and rapid accumulation on the windscreen. After encountering the icing, Cowboy 31 accelerated to 350 knots and requested and was cleared to descend to FL190.



Figure 2 – En Route Automation Modernization (ERAM) screen shot from ZAB displaying Cowboy 31 at FL250 southeast bound passing behind N2428Q at FL267. Weather depicted indicate moderate, severe and extreme levels of precipitation.

E. FACTUAL INFORMATION

1. History of Flight

At 1317 MDT, June 18, 2014, ASE ground control issued an IFR clearance to 11R to the pilot of N2428Q. After correcting a readback error, the ground controller directed N2428Q to taxi to runway 33 at ASE. At 1322 mountain daylight time (MDT), after the ASE local controller called N2428Q twice to see if he was on the frequency, the pilot responded that he was holding short. The ASE local controller issued the winds and asked N2428Q if he could “take those winds.” N2428Q advised that they were doing a run-up and requested the local controller to say again. The local controller repeated the winds and the question. N2428Q responded “yes, we are ready for departure.” At 1324 MDT, N2428Q was cleared for takeoff with no delay due to inbound traffic on a 6 mile final. At 1326 MDT, ASE approach established radar contact and directed N2428Q to climb and maintain FL210. At 1333 MDT, N2428Q requested a higher altitude with ASE approach and was directed to contact Denver Air Route Traffic Control Center (ZDV).

N2428Q checked in with the ZDV radar sector R12 controller at ZDV at FL210 and was assigned an altitude of FL260. At 1340 MDT the R12 controller transferred N2428Q to the R25 controller. The pilot was assigned an altitude of FL270 and 2 minutes later was cleared direct to his destination via the Alamosa (ALS) very high frequency omnidirectional range tactical air navigation beacon (VORTAC).

At 1356 MDT, N2428Q was transferred to the ZDV R30 controller. At 1403 MDT, the R30 controller inquired about N2428Q’s transponder because the mode-C altitude was intermittent and the code was changing. The pilot replied that he was not doing anything with the transponder and that he was receiving a “direct flash.” The pilot stated that he would “switch over to see if the other one works better.” At 1417 MDT/1517CDT, N2428Q was transferred to ZAB.

At 1517, N2428Q checked in with the ZAB R16 controller at FL270. Between 1523 and 1526 N2428Q’s altitude indicated 300 feet to 400 feet higher than the assigned altitude of FL270 four times. At 2030, the ZAB R16 controller issued a Fort Worth CWA. Five minutes later, the R16 controller transferred control of N2418Q to the ZAB R15 controller. N2428Q checked in with the R15 controller at FL270.

At 1549, the R15 controller issued convective SIGMET 86C for Texas. Between 1552 and 1607, N2428Q’s altitude indicated 300 feet to 400 feet above and 400 feet below the assigned altitude of FL270 eight times. After each altitude deviation, N2428Q leveled at FL270. At 1554, after the second altitude deviation, the R15 controller queried the pilot about the altitude changes. N2428Q reported that they were having autopilot issues. At 1556, during the altitude deviations, N2428Q requested and was authorized to deviate to the east for weather avoidance, but then deviated to the west. (see figure 3)

About this time, a flight of two F/A-18s, callsign Cowboy 31, were passing below N2428Q’s flight track from west to east at FL250 and, according to the flight lead, encountered moderate clear icing and requested and were approved to descend to FL190.

At 1607 The ZAB R15 controller transferred N2428Q to the ZAB R87 controller and from 1608 to 1617 N2428Q's altitude indicated 400 feet to 1000 feet below the assigned altitude of FL270 three times. At 1615 the R87 controller transferred N2428Q to the ZFW R93 controller.

At 1617, N2428Q checked in with the ZFW R93 controller at FL260 climbing to FL270 and advised the controller that he was in a turn for weather avoidance.

At 1630, N2428Q started left turn and a climb. The ZFW R93 controller asked N2428Q if he was going north for weather. The pilot responded that he "was trying to go through a window." As the pilot continued his climb out of FL270, the controller asked the pilot if he needed a higher altitude of FL290. The pilot did not respond. The controller then advised N2428Q that he was in the middle of radar displayed moderate to extreme precipitation and asked the pilot if he needed a different altitude. The pilot did not respond. 30 seconds later the controller again tried to establish communications with N2428Q without success. This was followed immediately by a single "mayday" transmission on the frequency. At 1632 the controller asked N2428Q to say altitude and the pilot responded with "nineteen."

There were several aircraft on the frequency in the vicinity of N2428Q. N656FP, an Eclipse jet en-route from Albuquerque, NM, to Shreveport, LA, was at FL410. The pilot of N656FP heard the situation developing on the frequency and, after the mayday call, asked the ZFW R93 controller if they had heard it. The ZFW R93 controller acknowledged with "N28Q, go ahead" after which someone on the frequency stated "oh, they just called a mayday to you." American Airlines flight 1536, also in the area at the time, reported that they had also heard the mayday call. In the meantime, the R93 controller continued to try to reestablish communication with N2428Q and asked Alaska Airlines flight 670 if they would try to contact N2428Q.

At 1635, N2428Q reporting that he was spinning. N656FP, in an effort to assist, asked the pilot of N2428Q if he could see the ground or the horizon, but did not receive a response. The ZFW R93 controller asked N2428Q if he could see the ground but did not get a response. A transmission from one of the pilots in the vicinity transmitted that the last call from N2428Q was that he was spinning and had said something about not being able to see the ground or horizon.

American Airlines flight 2394 advised the ZFW R93 controller that they had also heard N2428Q report that he was spinning. In response to a query from the controller, the pilot of American Airlines flight 2461 stated that he had heard N2428Q's transmissions but the words were so short that it was unclear what was said. United Airlines flight 1604 volunteered that they had heard N2428Q say he was spinning and that he had lost sight of the ground or horizon.

At 1638, another attempt by the ZFW R93 controller to reestablish communications with N2428Q was unsuccessful. (See figures 4, 5, and 6)

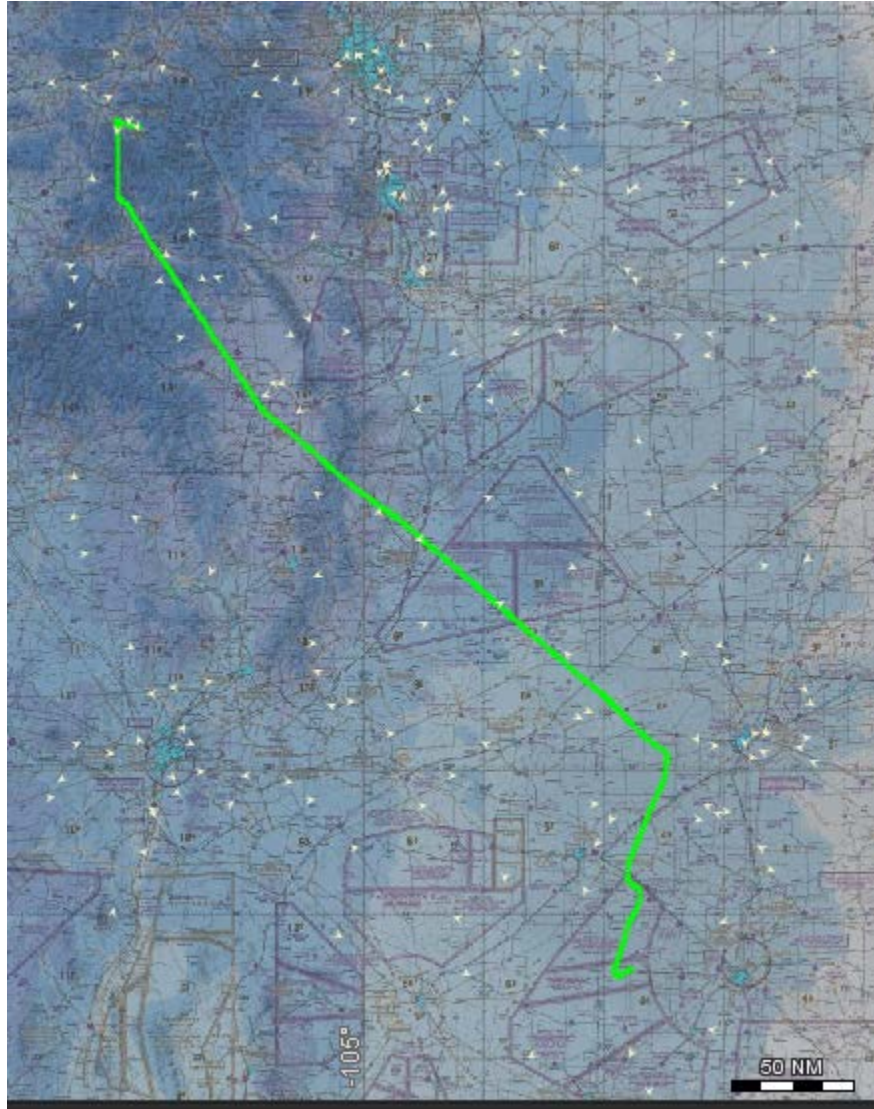


Figure 3 – Green line indicating the flight track of N2428Q.

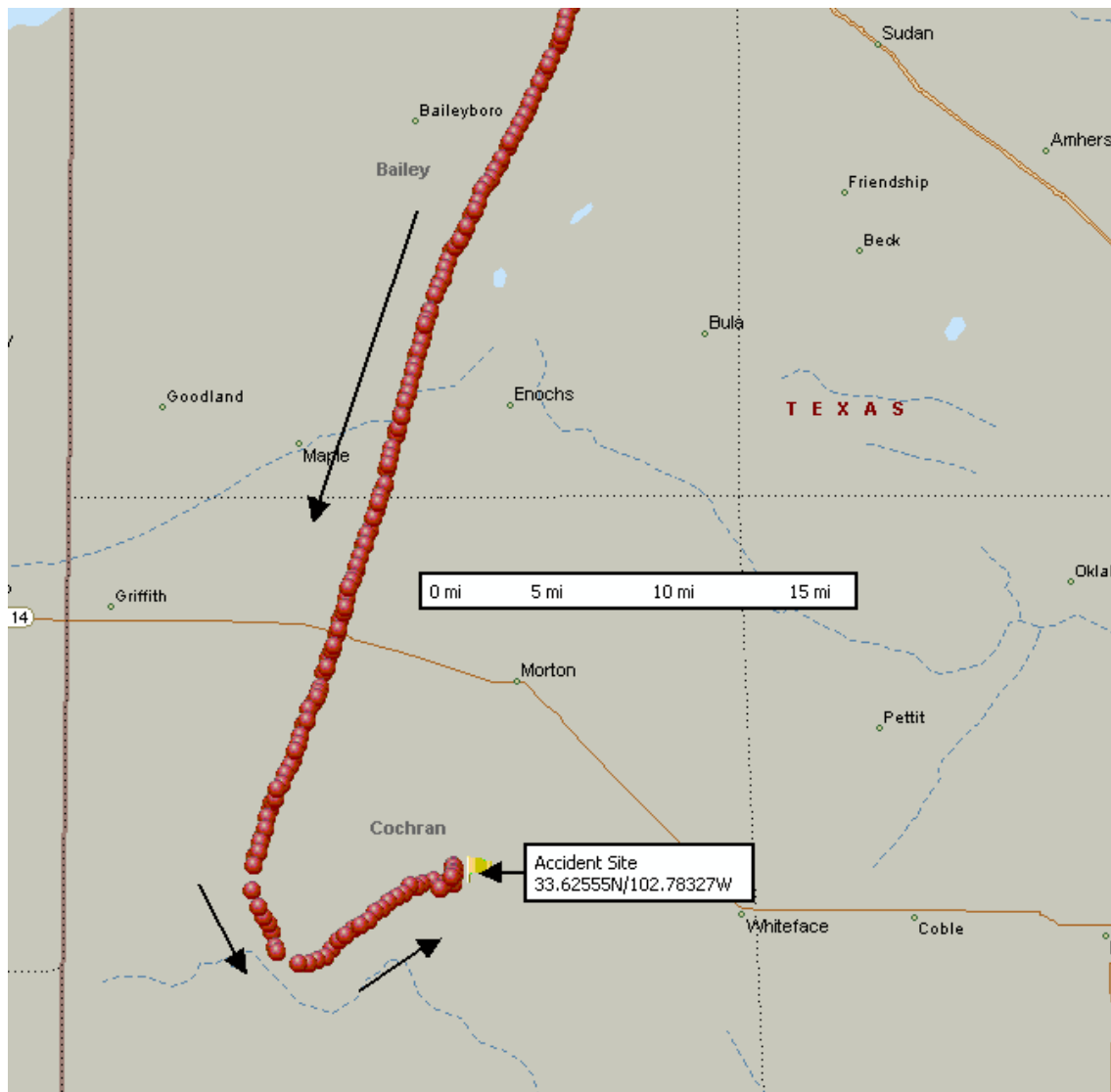


Figure 4 – Radar flight track of N2428Q from 1620 to the end of flight. The accident site is indicated by a yellow flag. Radar returns are indicated by red dots. Direction of flight is indicated by black arrows.

2. Weather Information

The 1553 aviation routine weather report (METAR) observation for the Lubbock Preston Smith International Airport (LBB), Lubbock, Texas, located approximately 48 nautical miles east of the accident site, was wind 160 degrees at 8 knots, visibility 10 statute miles. Few clouds at 6,000 feet, few clouds at 14,000 feet, 18,000 feet scattered, 30,000 feet scattered. Temperature 32 degrees C, dew point 17 degrees C. Altimeter 29.91 inches of mercury.

The 1653 aviation routine weather report (METAR) observation for LBB was wind 160 degrees at 5 knots gusts to 16 knots, visibility 10 statute miles. Few clouds at 6,500 feet, few clouds at

14,000 feet, few clouds at 18,000 feet scattered, 30, 000 feet scattered. Temperature 33 degrees C, dew point 15 degrees C. Altimeter 29.89 inches of mercury.

3. Air Traffic Control

N2428Q received ATC handling by ASE ATCT, ASE approach, two radar controllers at ZDV, three radar controllers at ZAB; R16, R15, and R87, and two radar controllers at ZFW sector R93. N2428Q reported several equipment issues, and also exhibited numerous altitude deviations and a course deviation. No information regarding the equipment issues or the multiple altitude and course deviations was passed between controllers during the transfer of radar identification. Federal Aviation Administration Order (FAAO) 7110.65, Air Traffic Control, paragraph 5-4-3b4, *Transfer of Radar Identification, Methods*, states in part:

Advise the receiving controller of pertinent information not contained in the data block or available flight data unless covered in an LOA or facility directive. Pertinent information may include:

- (a) Assigned heading.*
- (b) Speed/altitude restrictions.*
- (c) Observed track or deviation from the last route clearance.*
- (d) Any other pertinent information.*

During the period of time leading up to the accident, moderate, severe and extreme levels of precipitation were present and indicated on the controller's radar presentation. As a result of the weather conditions, numerous aircraft, including the accident aircraft, were requesting deviations from their filed flight plan routes to avoid the weather. The tops of the weather cells were being reported at 41,000 to 43,000 feet.

FAAO 7110.65, Air Traffic Control, paragraph 2-6-4a, *Weather and Chaff Services*, requires that air traffic controllers issue pertinent information on weather and chaff areas by defining the area of coverage in terms of azimuth (by referring to the 12-hour clock) and distance from the aircraft or by indicating the general width of the area and the area of coverage in terms of fixes or direction from fixes. Paragraph 2-6-4g states in part that when requested by the pilot, provide radar navigational guidance and/or approve deviations around weather or chaff areas. Paragraph 2-6-4g states:

When requested by the pilot, provide radar navigational guidance and/or approve deviations around weather or chaff areas. In areas of significant weather, plan ahead and be prepared to suggest, upon pilot request, the use of alternative routes/altitudes.

- 1. An approval for lateral deviation authorizes the pilot to maneuver left or right within the limits of the lateral deviation area.*

2. *If a pilot enters your area of jurisdiction already deviating for weather, advise the pilot of any additional pertinent weather which may affect his route.*

FAAO 7110.65, Air Traffic Control, paragraph 5-4-11, *En Route Fourth Line Data Block Usage*, states in part;

a. The *en route fourth line data block must be used to forward only the specified control information listed below. Any additional control information must be forwarded via other communication methods. En route fourth line data block free text area may be used by individual sector teams for recording any additional information the team deems appropriate for managing the sector, but must be removed prior to initiation of identification transfer.*

b. The *en route fourth line data block area must be used for coordination purposes only in association with radar identified aircraft.*

c. When *automated information transfer (AIT) procedures are applied, en route fourth line usage for transfer of control information must be specifically defined within facility AIT directive.*

d. Coordination *format for assigned headings must use the designation character “H” preceding a three-digit number.*

e. *Aircraft assigned a heading until receiving a fix or joining a published route must be designated with assigned heading format followed by the fix or route.*

f. Coordination *format for weather deviations must use the designated characters:*

D-deviation

L-left

R-right

N-north

E-east

S-south

W-west

/F – direct next NAVAID/waypoint

D+2 headings – deviate between.

See figure 1, in the radar data block of N2428Q. “DR” indicates that the aircraft is authorized to deviate to the right of the filed route of flight.

Automated information transfer (AIT) procedures utilizing en route fourth line data block free text are to be used within and between en route ATC facilities as defined in a facility AIT directive and letter of agreement.

At 1615, the ZAB R87 controller initiated a transfer of control to the ZFW R93 controller. At 1617 N2428Q checked in with the ZFW R93 controller at FL260 climbing to FL270 and advised the controller that he was in a turn for weather avoidance. The controller did not provide information on weather in the area because block 4 of the radar data block indicated "DR" for deviating right for weather. The controller stated that since N2428Q was already deviating, he did not issue weather to the aircraft because the pilot was obviously aware of it.

At 1625, a position relief briefing began at the ZFW R93 position. The position relief briefing took four minutes to accomplish. During the position relief briefing, the controller being relieved was busy with multiple intra-facility coordination requirements, responding to numerous requests for deviation and numerous aircraft transfer of control actions/handoff to adjacent sectors. ZFW sector 93 did not have a radar associate coordinator position staffed.

There were no radio transmissions or coordination recorded at the ZFW R93 position for the next 50 seconds. No weather information was provided to N2428Q. At 1630 the oncoming ZFW R93 controller asked N2428Q if the pilot "was going to go north of that weather there." The pilot responded that he was trying to "go through a window." Fifty seconds later, noting that N2428Q was climbing above his assigned altitude of FL270, the R93 controller asked the pilot 3 times if he needed a higher altitude. The pilot did not respond. (See figure 3)

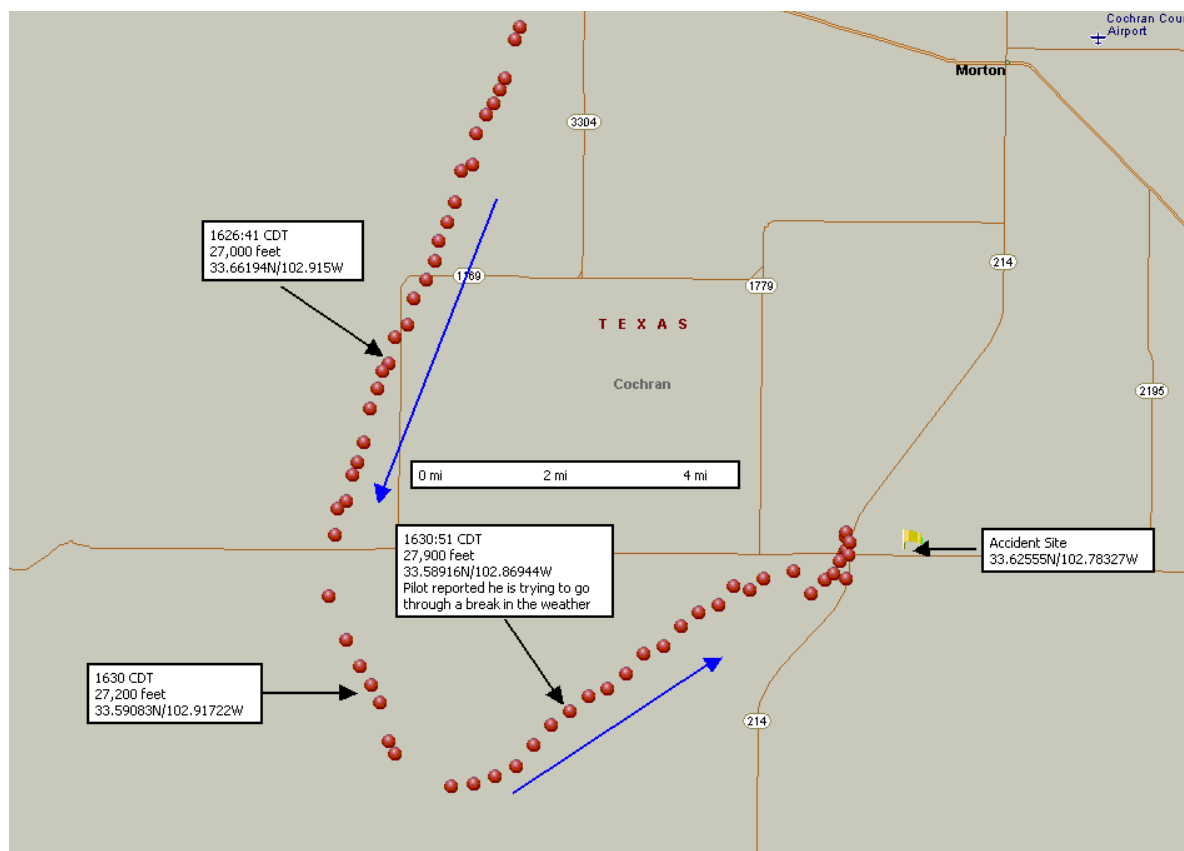


Figure 5 - Radar flight track of N2428Q. The accident site is indicated by a yellow flag. Radar returns are indicated by red dots. Direction of flight is indicated by blue arrows.

The controller who had previously been on at the ZFW R93 position remained in the area after being relieved and, noting the flight deviation of N2428Q, opened the D93 position to assist the R93 controller. At this time the controller-in charge (CIC) was also monitoring the developing situation from an adjacent control position

At 1632, the R93 controller advised N2428Q that he was in the middle of moderate to extreme precipitation and once again asked the pilot if he needed a different altitude. The pilot did not respond.

After observing N2428Q climb and then begin to descend, the R93 controller coordinated with the Lubbock low sector controller, sitting next to her, as N2428Q was about to depart her airspace and enter the airspace of the Lubbock low sector. While she was coordinating with the Lubbock sector controller, a single "MAYDAY" transmission was made. Although the MAYDAY transmission was recorded on the frequency, the controller stated that she did not hear the MAYDAY transmission. Immediately after the pilot transmitted MAYDAY, the controller asked N2428Q to say altitude. A pilot responded "nineteen."

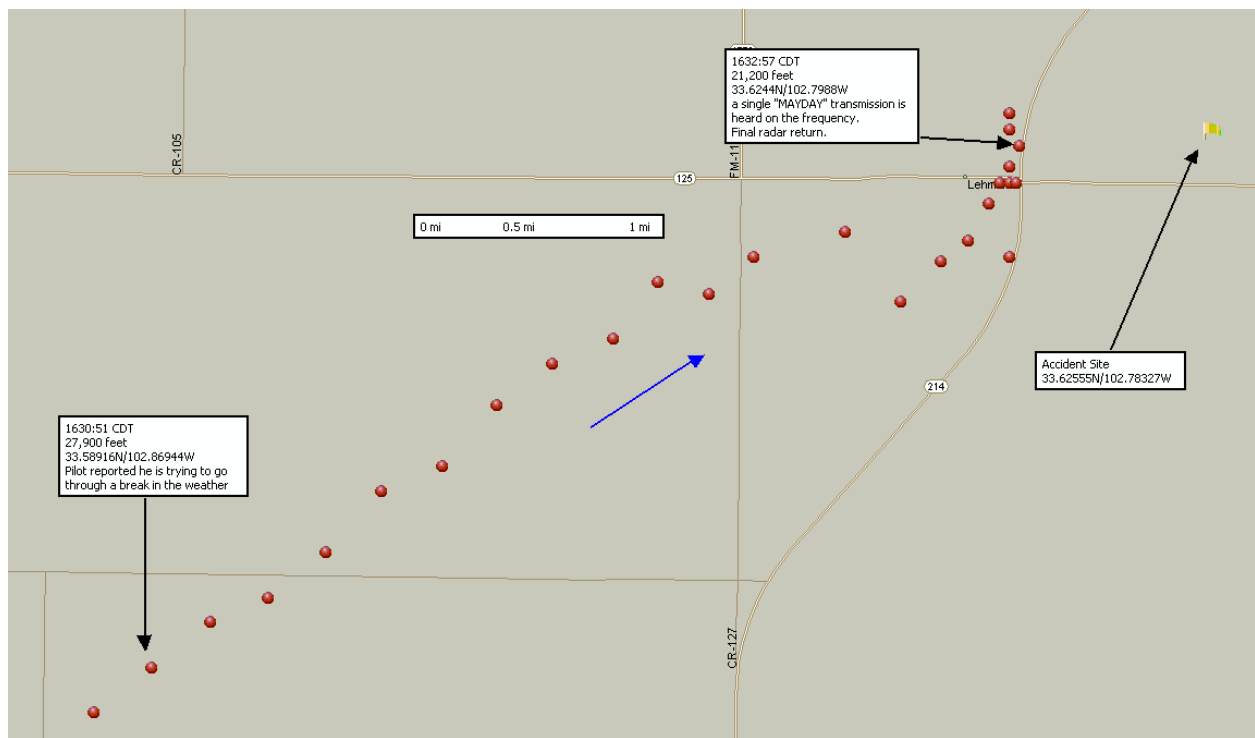


Figure 6 - Radar flight track of N2428Q. The accident site is indicated by a yellow flag. Radar returns are indicated by red dots. Direction of flight is indicated by a blue arrow.

According to the FAA Official Guide to Basic Flight Information and ATC Procedures; the Aeronautical Information Manual (AIM), chapter 6, Emergency Procedures, Section 3; Emergency and Distress Procedures, paragraph 6-3-1; Distress and Urgency Communications, states:

a. A pilot who encounters a distress or urgency condition can obtain assistance simply by contacting the air traffic facility or other agency in whose area of responsibility the aircraft is operating, stating the nature of the difficulty, pilot's intentions and assistance desired. Distress and urgency communications procedures are prescribed by the International Civil Aviation Organization (ICAO), however, and have decided advantages over the informal procedure described above.

b. Distress and urgency communications procedures discussed in the following paragraphs relate to the use of air ground voice communications.

c. The initial communication, and if considered necessary, any subsequent transmissions by an aircraft in distress should begin with the signal MAYDAY, preferably repeated three times. The signal PAN-PAN should be used in the same manner for an urgency condition.

d. Distress communications have absolute priority over all other communications, and the word MAYDAY commands radio silence on the frequency in use. Urgency communications have priority over all other communications except distress, and the word PAN–PAN warns other stations not to interfere with urgency transmissions.

The AIM, chapter 6, Emergency Procedures, Section 3; Emergency and Distress Procedures, paragraph 6-3-2; Obtaining Emergency Assistance, paragraph a3a states in part:

Transmit a distress or urgency message consisting of as many as necessary of the following elements, preferably in the order listed:

If distress, MAYDAY, MAYDAY, MAYDAY; if urgency, PAN–PAN, PAN–PAN, PAN–PAN.

FAAO 7110.65, Air Traffic Control and the AIM pilot controller glossary define MAYDAY as the international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested.

Twenty three seconds after N2428Q responded to the altitude query, a pilot on the frequency asked if the controller had heard the MAYDAY call followed by a transmission by AAL1536 stating that he believed he heard a MAYDAY call as well.

After several unsuccessful attempts by the R93 controller to contact N2428Q and a request to Alaska Airlines flight 670 to attempt to contact N2428Q, the pilot of N2428Q reported “28Q spinning” at 1635. The R93 controller acknowledged N2428Q’s call. An unidentified pilot on the frequency asked if N2428Q could see the ground or the horizon. The R93 controller asked N2428Q if the pilot could see the ground. There was no further response from N2428Q.

Several pilots reported that they had heard N2428Q report that he was spinning and could not see the ground or horizon.

Air Traffic Controller Interviews

Albuquerque Air Route Traffic Control Center (ZAB)

3.1 Bridgett Guasp – R16 Certified Professional Controller (CPC)

The ATC group interviewed Ms. Guasp on June 24, 2014. Ms. Guasp was represented by Mr. David Bricker, ZAB NATCA vice president/facility representative. In response to questions presented by the group, Ms. Guasp provided the following information:

Ms. Guasp had started working for the FAA on June 12, 2006. Ms. Guasp’s first facility was Memphis TRACON (M03), where she worked from 2006-2007. From 2007 to 2008, Ms. Guasp was radar certified and worked Kandahar Approach Control in Afghanistan for Midwest Air

Traffic Control. In 2008, Ms. Guasp worked at Memphis Air Route Traffic Control Center (ZME) for one year. Ms. Guasp has worked at ZAB from 2009 to present.

Ms. Guasp held a Class Two medical certificate that was current, with no restrictions or waivers. Her regular days off were Sunday and Monday. She typically worked Tuesdays 1500-2300, Wednesdays 1340-2140, Thursdays 0800-1600, Fridays 0645-1445, and Friday 2345 to Saturday 0645. Ms. Guasp estimated she worked approximately one overtime shift per month and stated that she felt the schedule was workable and not a problem.

Ms. Guasp was fully certified on all sectors in ZAB's North Specialty. ZAB's North Specialty includes three low sectors, three high sectors and an ultra-high sector. Ms. Guasp's supervisor had been Elizabeth Guerrie for approximately six months. Ms. Guasp's initials were XD.

On June 18, 2014, Ms. Guasp was working the radar position at sector 16 (R16). Ms. Guasp did not recall whether the radar associate position (D16) was staffed. Ms. Guasp took the initial hand off on N2428Q from Denver ARTCC (ZDV). She didn't recall working N2428Q until she saw the playback (SATORI). She stated that even after watching the playback, nothing occurred that was of consequence to her.

Ms. Guasp didn't recall if there was weather in the sector. She stated that there were no professional discussions in the facility about the accident. She also stated that she hadn't had any informal communication about the accident aircraft except that N2428Q had crashed.

Ms. Guasp stated that she solicited pilot report (PIREP) information from pilots according to the conditions in the sector she was working. She stated that ZAB's PIREP process included the controller writing the information down on a PIREP form and giving it to the front-line manager (FLM.) She stated that the FLM takes the form to the Traffic Management Unit (TMU) and TMU enters the information into the computer to disseminate throughout the center via a General Information (GI) message. Ms. Guasp did not think the forms were difficult for controllers to fill out, nor were the GIs too many for controllers to manage. She stated that the FLMs typically delivered the forms to TMU immediately. Ms. Guasp estimated that when she had delivered PIREPs to her FLM in the past, it has taken between two and five minutes to process through the facility.

Ms. Guasp stated that she considers weather training for controllers to be adequate at ZAB. She stated that controllers received weather briefings once per week at 1340 and her weekly briefing normally occurred on Wednesdays. Ms. Guasp said that the briefings included forecast information.

Ms. Guasp further stated that the FLMs were briefed twice a day on weather and would return to their areas and brief controllers on what they had learned regarding forecasted information. Ms. Guasp stated that she displayed weather from the ground up at sector 15, including moderate, heavy and extreme precipitation levels. She referenced the requirement from FAA JO 7110.65, 2-6-4, stating that she had to report weather to pilots if it was displayed on her scope as heavy and/or extreme.

Ms. Guasp indicated that she issued weather even if the pilot said they saw it. She stated that both general aviation (GA) aircraft and commercial aircraft's onboard weather radar were not "extremely accurate," and particularly less accurate for GA aircraft. She stated that she was not confident or comfortable that the weather displayed at her sector was accurate. She stated that she "just [issued] what she sees and lets pilots know that the radar only shows precipitation," so it may not depict all weather.

3.2 Dallas Brewton – R15 CPC

The ATC group interviewed Mr. Brewton on June 25, 2014. Mr. Brewton was represented by Mr. Dave Bricker, NATCA vice president/facility representative. In response to questions presented by the group, Mr. Brewton provided the following information:

Mr. Brewton started his ATC career on September 22, 2002. His first and current assignment was at the Albuquerque Air Route Traffic Control Center (ZAB). He was qualified on all positions in the North Area.

Mr. Brewton's Class II medical certificate was current, with a restriction to wear corrective lenses while working air traffic, and he was wearing corrective lenses on the day of the accident.

Mr. Brewton's work schedule included regular days off on Sundays and Mondays, Tuesdays from 1500 to 2300, Wednesdays from 1400 to 2200, Thursdays from 0800 to 1600, Fridays from 0600 to 1400 and a quick turn to 2230 on Friday until 0630 Saturday mornings. Mr. Brewton stated he had worked scheduled overtime (OT) 3 days in the past four weeks. He also stated that he was on the "No, I do not want to be assigned OT" list; however, he worked the OT when assigned. He considered overtime to be a problem at the facility because "there doesn't seem to be an end in sight." Mr. Brewton's supervisor for the past 2 months was Mr. Jerrod Sanchez. Mr. Brewton's operating initials were BH.

Mr. Brewton had the opportunity to review a replay of the event on the night of June 18, 2014. He said that he didn't view the replay from start to finish. When asked to describe the event, Mr. Brewton stated he worked sector R15 from approximately 1420 local to around 1530 local. He said that when he assumed the R15 position that there were two thunderstorm cells, one in the vicinity of TEXICO VOR (TXO) and one in the vicinity of the DUMAS VOR (DUX). The cells were remaining relatively stationary and may have moved, only slightly, to the northeast. He did not recall them getting any larger or smaller. About 20 to 25 minutes before N2428Q approached the weather, another aircraft at FL200 made some minor deviations through weather and reported no adverse ride. The cells didn't appear to be closing up.

When N2428Q checked on frequency, at FL270, Mr. Brewton knew that the aircraft might need to deviate later but didn't discuss it at that time. As the complexity of sector R15 increased, Mr. Brewton noticed N2428Q climb to FL275 and then descend to FL266. He advised the pilot that the aircraft was 500 feet high then 400 feet low to which the pilot responded that he was having auto-pilot issues. The pilot later requested a left deviation which Mr. Brewton approved. Over

the next ten minutes Mr. Brewton didn't notice any altitude deviations and felt the issue had been resolved and therefore there was no need to pass the information along to the next controller.

Mr. Brewton learned of the fatal crash approximately 5 hours after being relieved from the R15 position.

When asked if he knew what his responsibilities are with regard to FAA Order 7110.65 and when to solicit PIREPs he responded correctly and said once he solicits PIREPs he fills out a PIREP form and passes it to the FLM for dissemination. He felt that dissemination seems to be done in a timely manner for the most part. He doesn't like the General Information (GI) messages generated by Traffic Management because so many are generated to the entire center, even when they do not pertain to his area. He preferred information written on strips and placed on the sector because they were easier to remember as they seemed to "jog the memory" with the strip right in front of him.

Mr. Brewton felt that the center radar was not as good as the radar on board the aircraft.

On the day of the event he had received a main briefing at 1340 that included a 5 minute overview of what the weather unit was forecasting for the evening. He said that Wednesday was the only day that he received a thorough briefing and he felt that it was very beneficial. He also said that the FLMs will sometimes provide a briefing to the controllers after their stand-up briefing, although it isn't as thorough as the Wednesday 1340 briefing.

Mr. Brewton said that on June 18, 2014, the volume on the sector was average but the complexity was higher than normal. Sector R15 can be very unpredictable, going from not busy to very busy in a matter of minutes and then back again. The sector seemed busier than normal, but not to a point of being unmanageable. There was no radar associate staffed during Mr. Brewton's time on the R15 position.

When asked about staffing at ZAB, Mr. Brewton stated that the area staffing is "hanging by a thread," and on days of bad weather it was worse. He was told on the date of the interview that they were likely going to need to hold him over that evening, because of the bad weather expected and the center not having the staffing to cover the needs of the facility. Over the last year he said that they had lost 12 to 15 people to facility transfers and retirements.

3.3 Doug Estes - R15 CPC

The ATC group interviewed Mr. Estes by telephone on July 22, 2014. Mr. Estes was represented by Mr. Dave Bricker, NATCA Vice President/Facility Representative. In response to questions presented by the group, Mr. Estes provided the following information:

Mr. Estes reviewed the SATORI playback of the accident aircraft flight before the interview on July 21.

Mr. Estes began his career in the FAA in September 2002. He had worked at ZAB since then. He was qualified on all radar and radar assist sectors/positions (R/D) in the ZAB east specialty.

At the time leading up to the accident, Mr. Estes was working the ZAB R15 sector without a radar associate controller.

Mr. Estes Class II medical certificate was current with no waivers or restrictions. His supervisor was Mike Sayamonty. Mr. Estes's operating initials were ES.

His work schedule consisted of 8 hour shifts on Wednesday from 1500 to 2300, Thursday from 1340 to 2140, Friday from 0800 to 1600, Saturday from 0640 to 1440 and Sunday from 0615 to 1415. His regular days off were Monday and Tuesday.

When asked to describe the event, Mr. Estes stated that he plugged into the position and received a position relief briefing from Mr. Brewton. The position brief included weather with large cells in the area and a growing weather cell near Amarillo. Mr. Brewton had authorized Cowboy 31, a flight of 2 F-18s, to deviate for weather and the accident aircraft, N2428Q, was deviating from his filed flight plan for weather. After taking the position, Mr. Estes approved a weather deviation for another aircraft and noticed that N2428Q was at FL266, 400 feet below his assigned altitude. He attributed that altitude deviation to turbulence and did not consider it a problem. Cowboy 31 requested descent and reported engine ingestion icing. The pilot clarified that he was experiencing clear icing. Mr. Estes filled out two PIREP forms and gave them to his supervisor. He noticed that the PIREPs had been posted internally at ZAB on the on the en-route decision support tool (EDST) shortly thereafter. After filling out the PIREPs, Mr. Estes noted that N2428Q was back at FL270 and was still on a deviation left of course when the pilot suddenly deviated to the west, right of course. Mr. Estes asked the pilot if he was deviating to the west and the pilot responded that he was. Mr. Estes did not consider that icing was affecting N2428Q, and thought that the previous altitude deviation was the result of turbulence. N2428Q did not mention icing or any other flight issues while on frequency with Mr. Estes. After N2428Q deviated to the west, Mr. Estes updated line 4 of the radar data block from DL to DR and transferred control to the ZAB R87 sector. Mr. Estes would not restrict an aircraft that deviated left or right of course unless a potential conflict existed. In the case of the weather deviations for Cowboy 31 and N2428Q, there were no potential conflicts associated with approving the weather deviations.

Mr. Estes stated that he felt moderately busy at time during his shift with a lot of weather deviations but not a lot of volume. He stated that the low altitude sectors, such as R15, were busier than the high altitude sectors and he could have used the assistance of a radar associate controller but did not feel that he needed one.

Mr. Estes stated that staffing at ZAB was less that required and that current staffing did not allow for staffing of all positions if required.

Mr. Estes receives a weather briefing from the CWSU on the second day watch of the work week and then passes on the brief to other controllers during the day. On June 18, Mr. Estes received a weather brief from Mr. Brewton during the position relief brief.

Mr. Estes stated that he thought that airborne weather radar on aircraft was better than ATC weather radar and this was validated by the fact that N2428Q remained clear of weather while in his sector.

Mr. Estes felt that the controllers at ZAB complied with FAA Order 7110.65 regarding issuing weather when required, especially after the accident involving N2428Q.

3.4 Brad Funkhauser – R87 CPC

The ATC group interviewed Mr. Funkhauser on June 24, 2014. Mr. Funkhauser was represented by Mr. David Bricker, ZAB NATCA vice president/facility representative. In response to questions presented by the group, Mr. Funkhauser provided the following information:

Mr. Funkhauser was working the ZAB R87 position during the period N2428Q was in the ZAB R87 airspace and had recently reviewed a Falcon playback of the event.

Mr. Funkhauser started his career with the FAA in 1982. He worked at Houston ARTCC (ZHU) from 1982 to 1988. He had worked at ZAB from 1988 to present. He was qualified on all sectors of the southeast area which included radar sectors 19, 89, 23, 78, 87, 21, and 63.

Mr. Funkhauser held a private single engine land, instrument airplane, and glider aero tow certification from the FAA. His instrument airplane certification was not current. His Class II medical certificate was current with a restriction to wear corrective lenses and have reading glasses in his possession while providing ATC services. He was wearing his glasses on June 18.

Mr. Funkhauser's work schedule included regular days off (RDO) on Saturdays and Sundays, Monday from 0900 to 1700, Tuesday from 0700 to 1500, and Wednesday/Thursday/Friday from 0900 to 1700. His supervisor for the past two years had been Jim Burris. Mr. Funkhauser's operating initials were ZK.

When asked to describe the event, Mr. Funkhauser recalled that he was very busy with weather deviations and the R87 position was combined with the R21 and R23 positions. Mr. Funkhauser did not know why sector 87 was combined with sectors 21 and 23. He was not aware if staffing was an issue. He stated that sector 87 was commonly combined with sectors 21 and 23 and that it was workable, the exception being when weather was present. The R23 position is rarely opened because of the White Sands Missile Range (WSMR) special use airspace (SUA) restricted air activity in the area. Combining R87 with R21/23 limited the service Mr. Funkhauser was able to provide. Had R21, with an altitude up to FL280, been open and staffed, N28Q would have received better service regarding deviations, altitude fluctuations, etc. R87 stand-alone allows the controller to zoom in for a better presentation.

He was busy and the radar associate controller was busy. The radar associate controller was a developmental qualified on all radar associate positions in the area. Mr. Funkhauser considered the radar associate controller above average professionally and was comfortable working with him. The daily crew briefing had discussed weather associated the Marfa Dry Line, just east of the airspace. When N2428Q was transferred from the R15 sector, the airplane was climbing to

FL270. The R87 controller took the handoff and saw N2428Q climbing from FL266 to FL270. He assumed the aircraft was still in the climb phase. He didn't know where the aircraft had departed from. The aircraft was deviating to the southwest for weather avoidance, specifically around a displayed weather cell southwest of the Texico (TXO) fix. Once clear of the cell, Mr. Funkhauser expected the aircraft to turn eastbound through a gap between observed weather cells. While in his airspace, Mr. Funkhauser observed that N2428Q was on a good track to avoid weather and wasn't concerned that there was a problem with weather avoidance. There had been no coordination/communication with previous sectors regarding N2428Q other than information on line 4 of the data block, which indicated DL (deviate left.) The airplane was actually deviating right so Mr. Funkhauser modified line 4 of the data block to indicate DR (deviate right.) Mr. Funkhauser did not know that the aircraft was having auto-pilot problems or that icing had been reported in the area. He stated that had he been aware of the issues he would have "had a discussion" with N2428Q.

After initiating the radar handoff to ZFW, Mr. Funkhauser did not recall talking to the airplane while in his airspace; however, when the pilot acknowledged the frequency change to ZFW, he knew that he had been on frequency. ZFW did not accept the automated handoff, so his radar associate controller coordinated a manual handoff. Mr. Funkhauser understood that ZFW was busy as well. Mr. Funkhauser's technique for indicating that he had established communication with an aircraft was to move the data block behind the target so that the data block trailed the radar target. Another method of confirming that communications have been established is to check the box on the URET/EDST. He noticed that N2428Q was several hundred feet below his assigned altitude of FL270 and considered calling ZFW to discuss but noticed the airplane stabilizing level at FL270. He discussed this with his radar associate controller and determined that a call to ZFW was not necessary because the airplane was correcting.

Mr. Funkhauser had an Eclipse jet operating at FL410. He expected the Eclipse jet and N2428Q to fly through the observed gap between weather cells but neither aircraft did. The Eclipse turned 90 degrees right and N2428Q continued southwest bound. Both aircraft were in ZFW airspace.

Mr. Funkhauser stated that there were a lot of inaccuracies in the radar weather presentation. It is common for ATC not to see the weather the pilot may be seeing. Mr. Funkhauser did not coordinate/communicate any concerns to ZFW.

Mr. Funkhauser stated that overall facility staffing had become an issue. He stated that a recent shift did not have enough radar controllers to staff all positions. He assumed that R23 was not opened during his time on position because of light traffic in the R23 sector. He stated that he was relatively confident that he could ask for help with staffing, but did not recall the last time he asked for staffing assistance. He felt that if he asked for such assistance his request would be honored/addressed.

Mr. Funkhauser stated that limited weather is displayed in the area on the Enhanced Status Information System (ESIS) display, but questioned the consistent accuracy of the information. The weather forecast can be a precursor to the need to solicit pilot reports of weather conditions, but he stated that ATC is reactive versus pro-active and will not normally solicit PIREPs until

after a situation has developed. When PIREPs were solicited, a standard PIREP form is utilized capturing the pertinent data and then provided to the supervisor. Mr. Funkhauser did not know what happens to the PIREP form after that.

Mr. Funkhauser stated the he did not receive daily weather briefings and that the only source of weather information came from the position relief brief, airport reports, radar observations or data on the ESIS/TSD (traffic situation display). However, a recent facility initiative began on the second day of the workweek, at 1340, where meteorologists from the Center Weather Service Unit (CWSU) provided a weekly weather briefing, but that did not last very long.

Mr. Funkhauser stated that aircraft weather radar was limited but that air carriers were better equipped than general aviation. He went on to say that he felt that ATC weather training could be better, especially in the case of weather influences on general aviation.

Mr. Funkhauser stated that he felt that follow-on training was deficient and once qualified, follow-on training was uncommon. He was not aware that an ERAM radar playback was possible.

3.5 Dakota Smith - D87 – Developmental Controller

The ATC group interviewed Mr. Smith by telephone on July 24, 2014. Mr. Smith was represented by Mr. Dave Bricker, NATCA Vice President/Facility Representative. In response to questions presented by the group, Mr. Smith provided the following information:

Mr. Smith reviewed the SATORI playback of the accident aircraft flight prior to the interview on July 23.

Mr. Smith started his career with the FAA via the FAA academy on October 15, 2012. After graduation from the academy he started working at ZAB where he has been ever since. He was qualified as a radar associate (D) on all radar sectors in the southeastern specialty. These radar associate qualifications included sector 20, 63, 78, 19, 89, 21, 23, and 87. At the time leading up to the accident involving N2428Q, he was working the ZAB D87 position which was combined with D21 and D23.

Mr. Smith was scheduled to begin radar training on August 8, 2014. Mr. Smith's supervisor for the past 8 months was John Sokolowski. Mr. Smith's operating initials were DA.

Mr. Smith's work schedule of 8 hour shifts included Tuesday from 1500 to 2300, Wednesday from 1340 to 2140, Thursday from 0800 to 1600, Friday and Saturday from 0700 to 1500. Sunday and Monday were his regular days off.

When asked to describe the event, Mr. Smith that he was working the D87 position combined with the D21 and D23 positions. The position was busy with a lot of weather deviations when N2428Q was handed off from the R15 sector. Mr. Smith did not recall if the supervisor was present. When N2428Q entered the 87 sector, N2428Q was climbing to FL270 and line 4 of the

radar data block indicated DR. Mr. Smith did not notice any discrepancies regarding N2428Q. After N2428Q transited the sector, an electronic handoff was initiated to ZFW. As N2428Q was approaching the airspace boundary between ZFW and ZAB, the electronic handoff had not been accepted. Mr. Smith initiated a manual handoff and the handoff was accepted by ZFW. After ZFW accepted the handoff, Mr. Smith directed his attention to higher priority duties and no longer monitored N2428Q. Mr. Smith did not recall any PIREP information. He was not aware of any difficulty that N2428Q may have been experiencing.

Mr. Smith stated that staffing in the ZAB southeast specialty was insufficient especially during inclement weather. Mr. Smith stated that trackers were rarely utilized but that he that he had worked with a tracker on two occasions, one of which required a tracker, a supervisor and another controller utilizing quick-look from another position because the sector became very busy very fast with 30 to 40 aircraft on frequency. He stated that he TMU did a good job most of the time with traffic management initiatives (TMI) when they had time to plan for the increased traffic flow.

Mr. Smith received a weekly CWSU weather briefing on the second shift of the work week and then from the FLM on occasion during the week. Absent those briefs, he would get the weather from the overhead monitors or by observing the radar scope.

Mr Smith stated that he felt that there was room for a lot of improvement in the ATC radar displayed weather and that he felt that airborne aircraft weather radar was better than the ATC weather radar.

3.6 John Sokolowski - Front Line Manager (FLM)

The ATC group interviewed Mr. Sokolowski on June 25, 2014. Mr. Sokolowski was represented by Mr. Steven Osit from the FAA Office of Chief Counsel (AGC 400). In response to questions presented by the group, Mr. Sokolowski provided the following information:

Mr. Sokolowski was the FLM for the ZAB southeast area on the afternoon of the incident. He started his shift at 1340. Mr. Sokolowski's position currency requirements included qualification and currency of 8 hours a month total combined on the D19 and D89 positions. Mr. Sokolowski stated he was current on both positions.

Mr. Sokolowski began his employment with the FAA in 1988 after spending four years in the United States Marine Corps, two of which were as an air traffic controller. He worked at New Haven Air Traffic Control Tower (HUN) from 1988 to 1990, New York TRACON (N90) from 1990 to 1994, Cleveland ARTCC (ZOB) from 1994 to 1996, Cleveland ATCT (CLE) from 1996 to 1997 and Mansfield ATCT (MFD) for less than a year before returning to CLE from 1997 to 2006. He worked at Houston TRACON (I90) from 2006 to 2011 and worked details at FAA Headquarters as a specialist and terminal airspace manager from 2011 to 2014. He held no other FAA certifications. He had been working at ZAB as an FLM for less than a year. His supervisor for the last three months was Clenette Hosier. Mr. Sokolowski's operating initials were SK.

Mr. Sokolowski's Class II medical certificate was current with a requirement to wear corrective lenses when working traffic. He stated that he was wearing corrective lenses on June 18.

Mr. Sokolowski's work schedule consisted of RDO on Sunday and Monday, 1500 to 2300 on Tuesday, 1340 to 2230 on Wednesday, 1340 to 2140 or 1000 to 1800 on Thursday, 0700 to 1500 on Friday and 0500 to 1300 or 0630 to 1430 on Saturdays. He did not work overtime, but did work credit hours.

When asked to describe the incident, Mr. Sokolowski stated that he did not recall N2428Q as he was not in the area during the time. He was attending facility briefings away from the southeast area. He normally assigns a controller-in-charge (CIC) when he was not in the area, but he did not recall to whom he had assigned CIC duties. One of the briefings he attended was the weekly weather briefing that began at 1340 but he did not recall any weather information being discussed. This was followed by a breakout discussion with area controllers to discuss matters related to everyday operation of the area. Mr. Sokolowski stated that he monitors controller workload in the area by reviewing the TSD and noticed that there appeared to be no problems with the area around 1500.

Mr. Sokolowski learned of the accident involving N2428Q from the OM after the daily standup and deferred to the OM to accomplish any administrative actions including developing a replay of the event as is the normal custom. Mr. Sokolowski had not reviewed the incident but had gathered from talking to reliable sources what had happened. He felt he knew all he needed to know and that a review of radar and or voice playback was unnecessary. He stated that the real concern related to this accident was that the controllers did not trust the weather radar presentation. He had not briefed or discussed the event with the controllers in his area.

Mr. Sokolowski stated that he received an exhaustive weather briefing at daily stand up and would disseminate the weather to the controllers in his area; however, the effort was redundant because the controllers have other sources for weather with ATC radar being the primary and the ESIS being secondary.

Mr. Sokolowski did not often direct controllers to solicit PIREPs but when he did get a PIREP from a controller that he would provide it to the TMU for dissemination and that they were regularly disseminated in a timely manner. PIREPs were solicited in accordance with the requirements of FAA Order 7110.65. He felt that the controllers had enough time to process PIREP data once distributed.

Mr. Sokolowski stated that R87 was combined with R21 and R23 most of the time and opening R21 creates havoc as no one is familiar with operating with R21 open. He considers traffic flow before opening R23; however, R23 rarely has traffic of consequence.

Mr. Sokolowski stated that the TMU would not normally re-route traffic for weather because it would be for a short time and it was easier to allow traffic to deviate than re-route.

Mr. Sokolowski felt that facility staffing was adequate to handle whatever situation presented itself, including weather, and that facility management did an excellent job in managing tasks that the FLMs were tasked with.

ZFW

3.7 Mike McCoy - R93 CPC

The ATC group interviewed Mr. McCoy on June 26, 2014. Mr. McCoy was represented by Mr. Paul Lastrapes, NATCA facility representative. In response to questions presented by the group, Mr. McCoy provided the following information:

Mr. McCoy started his career with the FAA in September of 1991 where he had been a controller at ZFW to present. His Class II medical was current with no waivers or restrictions

His work schedule consisted of RDO on Sunday and Monday, 1430 to 2230 on Tuesday, 1315 to 2115 on Wednesday, 0630 to 1430 on Thursday, 1430 to 2230 on Friday and 1230 to 2030 on Saturday. Mr. McCoy's operating initials were FO.

Mr. McCoy was qualified on all sectors in the Raider area at ZFW. At the time leading up to the accident, he was working the R93/TURKI sector. However, at the actual time of the accident he was working the D93 position assisting the R93 controller.

When asked to describe the event, Mr. McCoy stated he that received a position relief brief from the previous R93 controller and took over the position. Traffic was not too busy. There was a line of weather stretching from Amarillo to Midland and a lot of aircraft were requesting deviations. Mutual deviations for headings had been coordinated with previous sectors as was common practice. Preference settings for NEXRAD were FL240 to 999 with precipitation settings for moderate/heavy/extreme. Mr. McCoy did not solicit any PIREPs during the shift and recalled receiving one PIREP earlier in the day. He did not receive a specific weather briefing that day but did receive a weather briefing from the previous controller during his position relief briefing. Mr. McCoy did not recall if any SIGMETs, weather warnings or any other weather advisories were in effect. Radio communications were good and Mr. McCoy did not have to switch transmitters during the session to ensure clear communications.

Mr. McCoy was not sure how long he had been on position when he accepted the handoff on N2428Q, but he recalled that N2428Q checked in at FL260 climbing to FL270 and deviating right for weather. No coordination or communication was passed from ZAB regarding N2428Q other than DR for deviating right [for weather] in line four of the radar data block. Since N2428Q was already deviating, Mr. McCoy did not issue weather to the aircraft because the pilot was obviously aware of it. Mr. McCoy was relieved from the R93 position by Ms. Harbin. The relief brief took about four minutes, an unusually long time, because numerous aircraft from adjacent sectors were requesting deviations for weather as soon as the aircraft came on the frequency. The position got pretty busy pretty fast. This was due in part to a trainee on an adjacent sector transferring communications during a position relief on R93 and not addressing

the weather deviations while aircraft were in that particular sector. After completing the position relief brief, Mr. McCoy observed the R93 position for about a minute before moving his name to the break list on the staffing log. He returned to observe the radar scope at R93 and observed N2428Q climbing out of FL270 as Ms. Harbin asked him to “look at this guy climbing without a clearance.” Mr. McCoy advised the CIC of the situation and, sensing that Ms. Harbin may have needed assistance at the R93 position, opened the D93 radar assist position and began coordinating for R93. The CIC was observing the R93 position from an unoccupied radar position via the SA mode of radar, known as “see all” which allows a controller to view other sectors from another position. Mr. McCoy observed N2428Q at 19,000 feet and recalled hearing the pilot report “spinning” and “I can’t see the ground or horizon”. Mr. McCoy did not doubt the transmissions were coming from N2428Q. Mr. McCoy was not sure what Ms. Harbin had heard, but thought that she may have heard N2428Q report “descending” vice “spinning.” As Mr. McCoy continued coordinating at the D93 position, he recalled observing the last radar return for N2428Q at 13,500 feet. Mr. McCoy and Ms. Harbin were eventually relieved from position.

In follow-up discussion Mr. McCoy stated that he considered the radar weather presentation to be good and not erroneous but that the best source of aviation weather was via pilot reports. When Mr. McCoy solicited or received PIREPs, he would provide the information to the supervisor who would, in turn, submit them to the CWSU for continued dissemination. Mr. McCoy was not familiar with the PIREP process beyond that point.

Mr. McCoy stated that he issued weather to aircraft entering his sector when warranted. If an aircraft came into the sector on a deviation, he did not issue weather as the pilot was already familiar with the weather situation or the aircraft would not have been on a deviation. He recalled that he had failed to issue weather to one aircraft during his shift, an American flight, but otherwise, used his best judgment to determine when weather was issued. Mr. McCoy cited FAA Order 7110.65, 2-6-4, paragraph 2, to support his position.

Mr. McCoy stated that the TMU always advises of sector saturation alerts and that the FLMs and CICs were always aware of the developing situations. They would assign a radar associate assistant whether he asked for one or not as traffic increased or was predicted to. Mr. McCoy, who had been a CIC in the past, felt that the CICs were adequately trained to address traffic issues.

3.8 Connie Harbin – R93 CPC

The ATC group interviewed Ms. Harbin on June 27, 2014, via video teleconference between ZFW and the San Antonio ATCT. Ms. Harbin was represented by Mr. Paul Lastrapes, NATCA facility representative. In response to questions presented by the group, Ms. Harbin provided the following information:

Ms. Harbin started her career with the FAA in April 1994 and has worked at ZFW since then. She was qualified on all sectors in the Raider area. At the time of the accident she was working the R93/Turki position.

Ms. Harbin's Class II medical was current with a requirement to wear glasses while providing ATC services. She was wearing her glasses on April 18. Her supervisor for the last 6 months was Joel McBride. Ms. Harbin's operating initials were CH.

Her work schedule consisted of 8 hour shifts on Monday between 1500 and 2300, Tuesday from 1330 to 2130, Wednesday from 0630 to 1430, Thursday from 0630 to 1430 and then 2230 to 0630 on Friday. Saturday and Sunday were RDO. Mr. Harbin worked overtime infrequently and was on the overtime call list.

When asked to describe the event, Ms. Harbin stated that she had reviewed the event via SATORI and ERAM playback on June 24th.

Ms. Harbin reviewed the weather on the area ESIS and was aware of a north to south line of thunderstorms in the area. She approached the R93 position and offered to provide a break to Mr. McCoy, who was working R93. The position relief briefing took a while because a lot of aircraft were checking in requesting deviations, the DALHART A98 ultra high sector was open and a lot of aircraft were deviating to the high and ultra-high sectors. Traffic was complex and busy with a lot of weather deviations. Mr. McCoy pointed out an aircraft that had turned left from a previous weather deviation direct Shreveport at FL410 indicating that the tops of the weather were at least up to FL410. After signing on the position, she was evaluating traffic and ensuring aircraft were going to appropriate sectors with all the deviations going on. She noticed N2428Q turning into a radar displayed weather cell and climbing. She asked N2428Q if he was deviating to the north of the weather cell and the pilot responded that he was going through a gap in the weather. Ms. Harbin asked the pilot if he needed FL290 but the pilot did not respond. She asked Mr. McCoy, who was observing the position, to look at this guy climbing. Mr. McCoy opened the D93 position to assist without being asked. The CIC had been observing the R93 position. With the help of Mr. McCoy on D93, Ms. Harbin had ample assistance working the issue. Ms. Harbin heard N2428Q say "descending" which is what would she expected to hear based on the observed radar data block. As N2428Q continued to descend, Ms. Harbin pointed out the aircraft to the Lubbock low sector controller, sitting next to her, as the aircraft was entering the low sector from R93's airspace. The pilot continued to descend and Ms. Harbin, who now considered the aircraft to be an emergency, did not want to ask the pilot questions regarding fuel on board, souls on board, etc., as she figured the pilot was dealing with enough trying to fly the airplane. N2428Q reported that he could not see the ground or the horizon. A pilot on the frequency asked if she had heard N2428Q declare a mayday. Ms. Harbin did not recall hearing a mayday call and attributed to the fact that she may have been coordinating when the call was made. Mode C dropped off the data block and she continued to work other traffic. The CIC coordinated with the OM and the data block remained on the scope for a while. Ms. Harbin was relieved from the position and remained in the area, eventually receiving confirmation that an aircraft had crashed in the vicinity of N2428Q's last radar return.

Ms. Harbin considered staffing adequate for the traffic load and complexity.

3.9 Sabu Varghese - Controller-in-Charge (CIC)

The ATC group interviewed Mr. Varghese on June 26, 2014. Mr. Varghese was represented by Mr. Brent Luna, NATCA Raider area representative. In response to questions presented by the ATC group, Mr. Varghese provided the following information:

Mr. Varghese began his career in the FAA in 2007. He worked at ZFW from 2007 until 2014. Mr. Varghese was qualified as a controller-In-charge (CIC), an on-the-job training instructor (OJTI), and as a national subject matter expert (SME) for ERAM. Mr. Varghese's Class II medical was current with no waivers or restrictions.

Mr. Varghese's supervisor for the last six months was Joel McBride. Mr. Varghese's operating initials were SV.

His work schedule included Saturday and Sunday as his regular days off and Monday through Friday 1030 until 1830. He was on the overtime list, but rarely had to work overtime.

Mr. Varghese was qualified in the Raider Specialty at ZFW. On June 18th, Mr. Varghese worked traffic in the Raider Specialty from 1030 to 1330, and then worked the CIC position, with breaks, for the remainder of the shift. Mr. Varghese was working the CIC position at the time of the accident.

Mr. Varghese stated that he had seen both a Falcon replay of the event and an ERAM replay that he pulled himself on the evening of June 18th.

Mr. Varghese recalled that weather that day was in an area on the western side of TURKI and Lubbock sectors; a scattered line from Texico (TXO) to south of Lubbock (LBB). He stated that aircraft at flight level 430 were deviating around the weather. Mr. Varghese also recalled that the cell near N2428Q was showing extreme precipitation intensity and that the same weather cells were displayed on the low altitude sector as well.

When asked to describe the event, Mr. Varghese stated that he received a position relief briefing from the previous CIC around 1619. During the position relief briefing, the CICs followed a checklist and the preceding CIC briefed Mr. Varghese on the weather that was forecast for the area that evening. The previous CIC relayed what she learned from the briefing she received from the CWSU at the afternoon stand up meeting. He recalled that the forecast included the weather that was already in the Raider area airspace and was expected to remain there through the evening shift. Furthermore, he recalled turbulence being in the forecast for the evening. When Mr. Varghese took the CIC position, he walked over to an unused radar scope and utilized the see-all function to view the traffic at each sector in the specialty. He stated that he typically did this when he was CIC. After reviewing the specialty's TSD, he noticed sector 94 would be busy within 15 minutes and he initiated a conversation with the sector 94 radar team to make an operational plan and discuss whether a radar associate would be needed. During this time, Connie Harbin returned from break for a work assignment. Mr. Varghese asked the sector 94 radar controller if he wanted a radar associate controller. The R93 controller declined assistance. Subsequently, Mr. Varghese directed Ms. Harbin to relieve the next controller who was due a break, which was the TURKI High sector, 93, staffed by radar controller, Mr. Michael McCoy.

Mr. Varghese continued to monitor sectors on the see-all scope and stopped at the TURKI High sector because he noticed the traffic volume was growing quickly as Mr. McCoy gave Ms. Harbin a position relief briefing. Mr. Varghese noticed N2428Q's altitude deviate. At that point, Mr. McCoy had completed giving Ms. Harbin a relief briefing. A short time later, Mr. Varghese saw Mr. McCoy assume the radar associate position. Mr. Varghese said he was walking over to Mr. McCoy to ask him for more information when Mr. McCoy took the position.

Mr. Varghese then returned to the see-all scope and saw N2428Q's altitude at FL293 and descending. Mr. Varghese called the operations manager (OM). He advised the OM that he saw the aircraft's altitude deviate and that it looked like it was in a descent and the controllers were unsure of what was going on.

Mr. Varghese walked back over to the TURKI High sector, noted that Ms. Harbin was busy and told Mr. McCoy to let Mr. Varghese know what was going on when the radar team got more information about the aircraft. Mr. Varghese then stated that he called Lubbock Approach to see if they were getting a mode C readout on N2428Q. Lubbock Approach called back a short time later and told Mr. Varghese the approach controller said the last altitude they received on N2428Q was at 12,500 feet. At that point, Mr. Varghese went back to the TURKI High sector and Mr. McCoy said he thought they heard the pilot of N2428Q say he was either spinning or descending and Ms. Harbin was trying to get more info. Mr. Varghese then called the OM and updated him. Mr. Varghese remembered that the aircraft was at flight level 190 at one point, but couldn't remember if Ms. Harbin and Mr. McCoy had told him N2428Q was at flight level 190 or if Mr. Varghese saw the data block himself, and read flight level 190.

Mr. Varghese then said that Lubbock approach control (LBB) called and told him there was an airport near the aircraft's target: Cochran Field (F85). Mr. Varghese began looking up airport information for F85 and was specifically searching for a phone number for the F85 airport manager. In the meantime, LBB Approach called the Sheriff's department. LBB then recalled Mr. Varghese and relayed that they had called the Sheriff, but there was confusion as to whether the Sheriff was actually at the scene or had received a call from another entity about the accident. LBB Approach told Mr. Varghese that the sheriff wanted to know how many souls were onboard the aircraft. Mr. Varghese called Flight Service to request the number of souls on board, according to the flight plan filed, and was told there were three souls on board. Mr. Varghese then called the OM to update him. The OM told Mr. Varghese he would call the sheriff back with the information and left Mr. Varghese to return to his CIC duties and monitor the operational area.

Mr. Varghese said a few controllers came back from break and he instructed them to offer Mr. McCoy and Ms. Harbin a break, but they both initially declined. He stated that there was training going on at TURKI High Radar and when the training team returned from break, they relieved Ms. Harbin and Mr. McCoy was relieved shortly after.

Mr. Varghese did not direct the controllers to make a statement and was unsure if the OM instructed them to do so. He also stated that there had been no facility briefings on the accident at the time of the interview.

Mr. Varghese was eventually relieved by another CIC. There were no FLMs present in the area that day because they were at an all FLM meeting and were all dismissed from the facility at 1430. Mr. Varghese did state that when FLMs are available to be recalled, he can do so, without issue.

Mr. Varghese stated that he was unaware of any autopilot issue with N2428Q.

When asked, Mr. Varghese stated that he does trust WARP weather radar data to a certain degree, but finds that pilot information helps him better understand what he sees on a WARP display.

Mr. Varghese felt the area was normally adequately staffed, but noted that on June 18th, two controllers, were assigned the CIC position and there were two training teams. For that reason, he stated the staffing wasn't really as good as it appeared.

Mr. Varghese recalled that there were weather reroutes required by TMU that evening. TMU was calling dynamically on specific aircraft, requiring reroutes in the WOVAN High sector.

Mr. Varghese stated that he did not request controllers to solicit PIREPs on June 18th, but did recall getting a PIREP from a different sector, earlier in the day. He was unsure if the facility tracked hourly PIREP solicitations.

When asked about weather pre-briefing, Mr. Varghese stated that he refers to the ESIS before taking position and relies on the controller being relieved to "paint a better picture" of the actual weather in the sector.

In reference to the GI process at ZFW, Mr. Varghese stated that he doesn't like the previous practice of using paper strips for weather, and instead preferred using the EDST. He stated that the yellow indication light on the EDST helps him to notice and disseminate new weather information quickly.

Mr. Varghese stated that training for the CIC position consists of a one day class, followed by eight hours of on-the-job training with an FLM. He stated that in the two years he had been CIC, he felt that the training was sufficient. However, on June 18th, he realized he had never had any training on how to react in the CIC capacity with the situation that occurred with N2428Q.

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