NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

May 20, 2020

Group Chairman's Factual Report

AIR TRAFFIC CONTROL

DCA20MA059

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A. AIRCRAFT ACCIDENT

Location: Calabasas, California
Date: January 26, 2020
Time: 0945 Pacific standard time (PST[1])
1745 coordinated universal time (UTC)
Airplane: Sikorsky S76-B, N72EX

B. AIR TRAFFIC CONTROL (ATC) GROUP

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C. SUMMARY

On January 26, 2020, about 0945 PST, a Sikorsky S76-B helicopter, N72EX was destroyed when it was involved in an accident near Calabasas, California. The pilot and eight passengers were fatally injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 135 charter flight.

D. DETAILS OF THE INVESTIGATION

A "Go Team" launch was initiated on January 26, and the ATC group was formed. The group consisted of the chairman from Operational Factors, a subject matter expert from the Federal Aviation Administration (FAA), and an air safety investigator from the National Air Traffic Controllers Association (NATCA). Also embedded with the group was a Senior Meteorologist from Operational Factors[2].

Via the FAA compliance services group, the group requested controller schedules, flight track surveillance data, voice recordings, standard operating procedures (SOP), event playbacks, weather advisory documentation, and various other personnel and administrative records pertaining to the event.

On January 27, the group met at Southern California Terminal Radar Approach Control (SCT TRACON) and was provided with an in-brief from the Air Traffic Manager (ATM) and several members of his staff. Also present at the in-brief were members from the FAA's compliance services group, western service area quality control group, office of chief counsel, and air traffic district office. The group was then provided with an operational tour of the control floor focusing on the Burbank Area, which was the last area to provide services to N72EX leading up

[1] All times are in Pacific standard time (PST) unless otherwise noted.
[2] An NTSB Senior Meteorologist was embedded with the ATC group during the field phase of this investigation, however, was not a member of the ATC group and Meteorological reports have been provided separately.

to the time of the accident. The remainder of the day was spent reviewing various data that had been provided by the FAA.

On January 28, the group met at SCT TRACON and was provided a STARS[3] playback of the last 20 minutes of the accident flight. The group then conducted interviews[4] with the Woodland Sector Radar (WDLR) controller that was working at the time of the accident (and the last controller to communicate with N72EX), and the WDLR controller that was the first SCT TRACON controller to communicate with N72EX upon initial contact. The group then completed documentation of personnel training and qualification information and related data and concluded the on-site portion of the investigation at SCT TRACON.

On January 29, the group traveled to Van Nuys Air Traffic Control Tower (VNY ATCT) and conducted an interview with the Local Control One (LC1) controller that had provided services to N72EX while transitioning the VNY ATCT class D airspace. The group was also provided with a tour of the tower cab and held conversations[5] with several controllers that were working in the tower on the day of the accident in order to document the weather as observed from the tower on that day. The group then reviewed and analyzed data provided by the FAA and concluded the on-site portion of the investigation at VNY ATCT.

On January 30, the group traveled to Burbank (BUR) ATCT and conducted an interview with the Local Control (LC) controller that had provided services to N72EX while transitioning the BUR ATCT class C airspace. While the group was conducting the interview with the LC controller, the embedded meteorologist traveled to Oxnard, California to meet with the National Weather Service (NWS) regarding event related weather information. The group was also provided a tour of the tower cab and held conversations with several controllers that were working in the tower on the day of the accident in order to document the weather as observed from the tower on that day. The group then reviewed and analyzed data provided by the FAA and concluded the on-site portion of the investigation at BUR ATCT.

On January 31, the group met at the hotel and completed field notes, obtained concurrence, and concluded the field phase of the investigation. (Due to the distance of the ATC facilities from the location of the accident site and command post, the ATC group was unable to attend the progress meetings in person and provided daily updates to the IIC via email and telephone.)

E. FACTUAL INFORMATION

1.0 History of Flight

The following is a timeline and sequence of events leading up to the accident. Information was obtained from FAA certified audio re-recordings[6], and interviews conducted with air traffic controllers at SCT TRACON, BUR ATCT, and VNY ATCT. All times are rounded to the nearest

[3] STARS – 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.
[4] Summaries of all interviews conducted are included in Attachment 1: Interview Summaries
[5] A record of this conversation is included in Attachment 2: Record of Conversation
[6] A partial transcript of the certified audio re-recordings of ATC communications is included in Attachment 3: Partial ATC Communication Transcript

minute and altitudes are in feet above mean sea level (msl) in this timeline. This timeline does not contain every communication exchange between ATC and the accident pilot, but instead provides a basic sequence of events from initial departure until the time of the accident.

0828 The pilot of N72EX contacted Long Beach (LGB) ATCT and requested and was approved to depart under special visual flight rules (SVFR[7]).

0836 The pilot of N72EX contacted SNA ATCT and requested and was cleared to land direct at the Atlantic Aviation ramp.

0906 The pilot of N72EX called SNA ATCT from the Atlantic Aviation ramp and requested to depart SVFR to the west. The SNA ATCT LC controller approved the departure from the Atlantic Aviation ramp at their own risk west bound and the pilot acknowledged.

[SNA was reporting VFR at the time the pilot of N72EX called for departure.]

0908 The SNA ATCT LC controller terminated radar services with N72EX and instructed the pilot to squawk 1200; the pilot acknowledged.

0917 BUR ATCT reported the field was IFR[8], and that ATIS[9] information "Kilo" was current.

0920 Sky West flight 191A (SKW191A) which had been on an instrument approach to runway 8 reported they were going around. The BUR ATCT controller instructed the pilot to execute the published missed approach; the pilot acknowledged.

The pilot of N72EX first contacted BUR ATCT approaching the zoo for the 101 westbound transition at 800 feet. The BUR ATCT LC controller advised the pilot of N72EX that the class C surface area was IFR and asked his intentions. The pilot then requested SVFR clearance through the class C via the 101 westbound and was instructed to hold outside the class C due to traffic going around [SKW191A]; the pilot acknowledged.

0921 The BUR ATCT LC controller advised the pilot of N72EX to expect to hold for a few minutes due to arriving traffic. The pilot acknowledged.

The BUR ATCT controller then asked the pilot of N72EX if he needed to get to VNY. The pilot responded negative, that he was headed to Camarillo (CMA). The controller then advised that VNY was also IFR; the pilot acknowledged.

[7] SPECIAL VFR OPERATIONS− Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.
[8] IFR – Instrument Flight Rules [ICAO]- A set of rules governing the conduct of flight under instrument meteorological conditions.
[9] 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.

0922 The pilot of N72EX asked for a tops report, and the BUR ATCT tower controller advised the last reported tops were 2,400 feet; the pilot acknowledged.

0925 The BUR ATCT LC controller advised the pilot of N72EX that he would be required to hold longer for additional arriving traffic; the pilot acknowledged and advised he would continue holding.

0927 The BUR ATCT LC controller advised the pilot of N72EX that he could expect to transition after another arrival and departure; the pilot acknowledged.

The controller then called VNY ATCT via the interphone and coordinated the transition of N72EX. It was agreed between controllers that N72EX would be routed to the north of VNY airport due to multiple departures to the south.

0930 The BUR ATCT LC controller instructed the pilot of N72EX to squawk 0235 and to remain outside of class C airspace; the pilot acknowledged.

0932 The BUR ATCT LC controller cleared N72EX to transition the BUR class C surface area from southeast to northwest following the interstate 5 freeway and to maintain SVFR conditions at or below 2,500 feet; the pilot acknowledged.

0933 The BUR ATCT LC controller advised the pilot of N72EX with the current weather at BUR; calm winds, visibility of 2.5 miles with haze and an overcast ceiling of 1,100 feet above ground level (agl), and added that conditions at VNY were nearly identical.

0935 The BUR ATCT LC controller asked the pilot of N72EX if he wanted to follow the 118 for his transition to CMA. The pilot responded that he would like to follow the 118, then loop around VNY to catch the 101; the controller acknowledged.

The BUR ATCT LC controller coordinated with the VNY ATCT LC controller advising her that N72EX was going to follow interstate 5 to the 118; the VNY ATCT LC controller acknowledged.

The BUR ATCT LC controller then instructed the pilot of N72EX to keep following interstate 5 northbound to join the 118 and that VNY ATCT would work them through after that. He then terminated radar services and instructed the pilot to remain on the assigned beacon code and contact VNY ATCT; the pilot acknowledged.

0936 The pilot of N72EX contacted VNY ATCT at 1,400 feet and requested SVFR transition. The VNY ATCT LC1 controller responded and provided the current VNY weather; calm winds, visibility of 2.5 miles, and an overcast ceiling of 1,100 feet agl, then cleared the pilot to transition the VNY class D surface area at or below 2,500 feet westbound along the 118 freeway and instructed him to advise when he was in VFR conditions or clear of the class D. The pilot acknowledged with a correct readback and confirmed that he would like to talk to SCT TRACON once clear of the VNY class D.

0939 The pilot of N72EX asked if he could start turning to the southwest, however the transmission was interfered with by a transmission from another pilot already talking to the VNY ATCT LC controller on another frequency and therefore the controller was unable to respond for several seconds.

0940 The VNY ATCT LC controller approved the pilot's request to turn southbound and asked if he was transitioning in VFR conditions. The pilot advised he was in VFR conditions at 1,500 feet.

The VNY ATCT controller instructed the pilot of N72EX to contact SCT TRACON; the pilot acknowledged.

The pilot of N72EX contacted SCT TRACON and stated he was transitioning in VFR conditions at 1,500 feet to CMA. The SCT TRACON RW controller asked the pilot if he was going to remain that low all the way to CMA and the pilot responded in the affirmative. The SCT TRACON RW controller then advised the pilot that he would lose radar and radio contact with him at that altitude, and to just squawk VFR until he was able to contact CMA ATCT; the pilot acknowledged.

0943 A position relief briefing took place at the SCT TRACON RW position (the radar position that had been in communication with N72EX initially upon exiting the VNY class D surface area).

0945 The pilot of N72EX contacted the SCT TRACON RW controller and said he was going to go ahead and start his climb to go above the layers and would stay in communication with him. The SCT TRACON RW controller responded by asking for his location, to which the pilot advised he was just west of VNY.

The SCT TRACON RW controller instructed the pilot of N72EX to ident; the pilot acknowledged. After observing the ident, the controller advised the pilot he was still on a 1200 code and asked if he was requesting flight following. The pilot responded in the affirmative.

The SCT TRACON RW controller asked the pilot of N72EX to state his intentions. The pilot advised he was climbing to 4,000 feet. The controller then asked what he was going to do when he reached that altitude and the pilot did not respond.

The SCT TRACON RW controller made several more attempts to contact N72EX with no response.

According to the Services Rendered Telcon (SRT) conducted by the FAA, the SCT TRACON Operations Manager (OM) stated that about one hour after the accident LGB ATCT called and advised that the owner of N72EX had called and asked about N72EX because it had not arrived CMA as expected. SCT TRACON then began making notifications when the facility was informed of the crash by the Sheriff's department. An ALNOT was not issued since the location of the aircraft was known at the time of notification.

Neither of the phone calls at LGB ATCT or SCT TRACON were made on recorded lines, therefore no audio was available for either call.

1004 According to the Los Angeles County Sheriff's department incident report from the day of the accident, tag # 63 was dispatched to the accident location where the Los Angeles County Fire Department was already on scene.

2.0 Surveillance Data Sources and Radar Playback Information

2.1 Airport Surveillance Radar

Radar detects the position of an object by broadcasting an electronic signal that is reflected by the object and returned to the radar antenna. These reflected signals are called primary returns. Knowing the speed of the radar signal and the time interval between when the signal was broadcast and when it was returned, the distance, or range, from the radar antenna to the reflecting object can be determined. Knowing the direction that the radar antenna was pointing when the signal was broadcast, the direction (or bearing, or azimuth) from the radar to the object can be determined. Range and azimuth from the radar to the object define the object's position.

To improve the consistency and reliability of radar returns, aircraft are equipped with transponders that sense beacon interrogator signals broadcast from radar sites, and in turn broadcast a response signal. Even if the radar site is unable to sense a weak reflected primary return, it will sense the response signal broadcast by the transponder and be able to determine the aircraft position. The response signal can also contain additional information, such as the identifying "beacon code" for the aircraft, and the aircraft's pressure altitude (also called "Mode C" altitude). Transponder signals received by the radar site are called secondary returns. Over the course of the accident flight, N72EX was transmitting on beacon code 4300 from LGB to SNA, remaining on the same code departing SNA until exiting the SNA class D surface area at which time switched to VFR beacon code 1200. N72EX was then assigned beacon code 0235 for transition through the BUR and VNY airspace then again switching to VFR beacon code 1200 until the accident.

Radar data was provided by the FAA at SCT TRACON and included source data from several surveillance radars in the southern California area. The SCT TRACON plot playback (PPB) was of good quality and was part of the STARS. Altitudes are in feet above msl rounded to the nearest hundred feet and corrected for local altimeter settings along the accident route of flight. The altitude information is representative of what air traffic controllers would have seen on their radar displays.

2.2 Automatic Dependent Surveillance – Broadcast (ADS-B)[10]

Automatic dependent surveillance—broadcast (ADS–B) is a surveillance technology in which an aircraft determines its position via satellite navigation and periodically broadcasts it,

[10] 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.

enabling it to be tracked. The information can be received by ATC ground stations as a replacement for secondary surveillance radar, as no interrogation signal is needed from the ground. It can also be received by other aircraft to provide situational awareness and allow self-separation. ADS–B is "automatic" in that it requires no pilot or external input. It is "dependent" in that it depends on data from the aircraft's navigation system.

ADS-B data was also provided by the FAA. The ADS-B data was of excellent quality and provided more finite flight track information than radar data and was used in producing the flight track graphics in figures[11] 1-3. Altitudes are in feet above msl rounded to the nearest 25 feet and not corrected for local altimeter setting, therefore may vary from those altitudes seen in radar data.

3.0 Weather Information

3.1 Surface Observations

The area surrounding the accident site was documented using official Meteorological Aerodrome Reports (METAR[12]) and Specials (SPECI[13]). The following observations were taken from standard code and are provided in plain language. Surface observations from the weather station nearest the accident location are provided below.

An Automated Surface Observing System (ASOS[14]) was located at VNY in Van Nuys, California, which was located about 11 miles east-northeast of the accident location at an elevation of 802 feet. Augmented reports from the VNY ASOS during the times surrounding the accident flight are presented here.

[0821 PST] SPECI KVNY 261621Z 17003KT 2 1/2SM HZ OVC011 12/09 A3015 RMK AO2 T01170089=

[0851 PST] METAR KVNY 261651Z 00000KT 2 1/2SM HZ OVC011 12/09 A3016 RMK AO2 SLP211 T01170089=

[0951 PST] METAR KVNY 261751Z 00000KT 2 1/2SM HZ OVC013 12/09 A3016 RMK AO2 SLP212 T01220089 10122 20111 51010=

[1051 PST] METAR KVNY 261851Z 00000KT 2 1/2SM HZ OVC014 13/09 A3018 RMK AO2 SLP218 T01280089=

At 0951 PST, VNY reported a calm wind, visibility of two and a half statute miles, haze, ceiling overcast at 1,300 feet agl, temperature of 12°C and a dew point temperature of 9°C, altimeter setting of 30.16 inches of mercury; remarks: automated station with a precipitation

[11] Figures 1-3 are included in Attachment 4: Flight Track Graphics

[12] 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.

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

[14] 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.

discriminator, sea level pressure 1021.2 hPa, hourly temperature of 12.2°C and hourly dew point temperature of 8.9°C, six-hour maximum temperature of 12.2°C, six-hour minimum temperature of 11.1°C, atmospheric pressure increased by 1.0 hPa over the previous three hours.

3.2 Inflight Weather Advisories

At 0645 PST, the National Weather Service (NWS) Aviation Weather Center issued Airmen's Meteorological Information (AIRMET) SIERRA advisories for instrument flight rule (IFR)[15] conditions in mist and fog and for mountain obscuration for areas that included the accident location.

WAUS46 KKCI 261445
WA6S
-SFOS WA 261445
AIRMET SIERRA UPDT 2 FOR IFR AND MTN OBSCN VALID UNTIL 262100

AIRMET IFR...CA AND CSTL WTRS
FROM 20SW SNS TO 40WNW RZS TO 40N LAX TO 50SW HEC TO 40ESE MZB TO 120SW MZB TO 110SW LAX TO 140SW SNS TO 20SW SNS
CIG BLW 010/VIS BLW 3SM BR/FG. *CONDS CONTG BYD 21Z THRU 03Z.*

AIRMET MTN OBSCN...CA
FROM 70W EHF TO 40NE LAX TO 50WNW TRM TO 60S TRM TO MZB TO LAX TO 40W RZS TO 70W EHF
MTNS OBSC BY CLDS/BR. *CONDS CONTG BYD 21Z THRU 03Z.*

3.3 PIREP[16] Information

A review of PIREP information that had been disseminated into the National Airspace System (NAS) revealed the following PIREPs were from around the accident time and location.

RNM UA /OV RNM27001/TM 1801/FL024/TP BE36/SK TOP020
LGB UA /OV LGB200005/TM 1748/FL022/TP DA42/SK OVC012-TOP022
BUR UA /OV BUR/TM 1724/FL008/TP E135/RM RY8 IN SIGHT 700 AGL 2MI FINAL RY8
SNA UA /OV KSNA180005/TM 1715/FL027/TP B737/SK OVC027-TOP
BUR UA /OV BUR/TM 1653/FL008/TP CRJ2/RM RY8 IN SIGHT 600AGL 2MI FINAL RY8
CMA UA /OV 08002/TM 1620/FL012/TP RV8/SK BASES AT 013 TOPS AT 026
BUR UA /OV BUR/TM 1600/FL008/TP B737/RM RY8 IN SIGHT ON A 3MI FINAL 800AGL

A review of ATC voice recordings from VNY ATCT, BUR ATCT, and SCT TRACON revealed the following PIREP information had been provided by pilots around the time of the accident flight but were not found in the longline[17] dissemination.

[15] IFR conditions - Ceilings less than 1,000 feet agl and/or visibility less than three statute miles.
[16] PIREP – Pilot Weather Report – A report made by a pilot of meteorological phenomena encountered by an aircraft in flight.
[17] "Longline" refers to the dissemination of weather observations with the intent that they are available in near-real time to national databases (effectively, the whole world) and accessible to the general global public from a large number of vendors. This does not include public accessibility to observations from a reporting station's Very High Frequency (VHF; line-of-site) or telephone broadcast, where applicable. Longline dissemination of weather

BUR TM1720 / SKW191A/E75L executed go-around, controller never ascertained reason
VNY TM1949 / N600GS/G600 reported tops at 2,500 ft after landing RWY 16R

For more detailed weather information see the Meteorology Factual Report in the public docket.

4.0 ATC Personnel

Interviews were conducted with the following ATC personnel who provided services to or in support of N72EX during the accident flight. Facility personnel, training, and qualification records were reviewed and background information on the controllers interviewed is provided below. Summaries of the interviews conducted are in Attachment 1: Interview Summaries.

4.1 BUR ATCT

4.1.1 LC Controller

The BUR ATCT LC controller was 33 years old. On the day of the accident he had provided services to N72EX and was working the LC, Local Control Assist (AL), and Helicopter Control (HC) positions combined to the LC position. This configuration was normal for that time of day and tempo of operations. He began his ATC career in February 2011 when he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, OK. After initial training he was assigned to Amarillo (AMA) ATCT until September 2015 when he transferred to BUR ATCT.

He had been certified on LC since February 2016 and was current and proficient on the positions he was working on the day of the accident in accordance with facility standards. He was working his normally scheduled shift and recalled nothing remarkable about the 72 hours leading up to the time of the accident consisting of normal daily routine, with adequate sleep and meals. According to CRU-ART[18] his working hours for the week leading up to and including the day of the accident were:

Monday	Off	
Tuesday	0615-1415	
Wednesday	Off	
Thursday	1415-2215	
Friday	1245-2045	
Saturday	0545-1345	
Sunday	0545-1345	(Day of accident)

He possessed a current ATC medical clearance that was issued on September 11, 2019. There were no limitations to his medical clearance.

observations is the primary vehicle through which the general global public has access to surface weather observations, particularly outside of the aviation community.

[18] CRU-ART – The ATO Resource Tool ("CRU-ART") is the official time and attendance system used by FAA air traffic control facilities for recording the time used by bargaining unit employees (i.e., air traffic controllers).

4.2 VNY ATCT

4.2.1 LC1 Controller

The VNY ATCT LC controller was 51 years old. On the day of the accident she had provided services to N72EX and was working the LC1, Local Control Two (LC2), Local Assist (AL), and Helicopter Control (HC) positions combined to the LC1 position. This configuration was normal for that time of day and tempo of operations. She began her ATC career in October 2002 when she was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, OK. After initial training he was assigned to Santa Monica (SMO) ATCT until August 2007 when she transferred to VNY ATCT.

She had been certified on LC1 since March 2008 and was current and proficient on the positions she was working on the day of the accident in accordance with facility standards. She was working her normally scheduled shift and recalled nothing remarkable about the 72 hours leading up to the time of the accident consisting of normal daily routine, with adequate sleep and meals. According to CRU-ART her working hours for the week leading up to and including the day of the accident were:

Monday	0600-1530	
Tuesday	0745-1700	
Wednesday	0600-1615	
Thursday	Off	
Friday	Off	
Saturday	0715-1515	
Sunday	0545-0945	(Day of accident)

She possessed a current ATC medical clearance that was issued on January 24, 2019. She had a requirement to wear corrective lenses while performing ATC tasks that involved use of distant vision and stated that she was wearing them when providing ATC services on the day of the accident.

4.3 SCT TRACON

4.3.1 WDLR Controller (Initial)

The initial SCT TRACON WDLR controller was 29 years old. On the day of the accident he had provided services to N72EX briefly upon initial contact. He began his ATC career in October 2014 when he was hired by the FAA and attended initial training at the FAA Academy in Oklahoma City, OK. After initial training he was assigned to Hilo (ITO) ATCT until October 2016 when he transferred to SCT TRACON.

He had been certified on WDLR since November 2018 and was current and proficient on the positions he was working on the day of the accident in accordance with facility standards. He was working his normally scheduled shift and recalled nothing remarkable about the 72 hours leading up to the time of the accident consisting of normal daily routine, with adequate sleep and meals. According to CRU-ART his working hours for the week leading up to and including the day of the accident were:

Monday	2145-0600	(Mid-shift Mon-Tue)
Tuesday	Off	
Wednesday	Off	
Thursday	1445-2215	
Friday	1245-2100	
Saturday	0730-1530	
Sunday	0530-1900	(Day of accident)

He possessed a current ATC medical clearance that was issued on April 2, 2018. There were no limitations to his medical clearance. Post-accident toxicology testing was performed, and findings were negative for a wide range of drugs, including major drugs of abuse.

4.3.2 WDLR Controller (Accident)

The accident SCT TRACON WDLR controller was 40 years old. On the day of the accident was providing services to N72EX at the time of the accident. He began his ATC career in the United States Air Force where he served as an air traffic controller from 1999-2003. In February 2007 he was hired by the FAA and worked at Charleston (CHS) ATCT until December 2011 when he was transferred to SCT TRACON.

He had been certified on WDLR since November 2012 and was current and proficient on the positions he was working on the day of the accident in accordance with facility standards. He was working an overtime shift and recalled nothing remarkable about the 72 hours leading up to the time of the accident consisting of normal daily routine, with adequate sleep and meals. According to CRU-ART his working hours for the week leading up to and including the day of the accident were:

Monday	Off	
Tuesday	1245-2045	
Wednesday	1245-2045	
Thursday	0700-1500	
Friday	0600-1400	
Saturday	0600-1400	
Sunday	0700-1930	(Day of accident – hours after accident were admin)

He possessed a current ATC medical clearance that was issued on December 21, 2018. There were no limitations to his medical clearance. Post-accident toxicology testing was performed, and findings were negative for a wide range of drugs, including major drugs of abuse.

5.0 ATC Procedures

FAA Order JO 7110.65Y, Air Traffic Control, outlined procedures for air traffic controllers providing radar services to aircraft. FAA Order JO 7110.65Y, Chapter 5, Section 3 stated in part:

5−3−1. APPLICATION

Before you provide radar service, establish and maintain radar identification of the aircraft involved, except as provided in Paragraph 5−5−1, Application, subparas b2, b3 and in Paragraph 8−5−5, Radar Identification Application.

5−3−3. BEACON/ADS−B IDENTIFICATION METHODS

When using only Mode 3/A radar beacon or ADS−B to identify a target, use one of the following methods:

a. Request the pilot to activate the "IDENT" feature of the transponder/ADS−B and then observe the identification display.

b. Request the pilot to change to a specific discrete or non-discrete code, as appropriate, and then observe the target or code display change. If a code change is required in accordance with Section 2, Beacon/ADS−B Systems, of this chapter, use the codes specified therein.

5−3−6. POSITION INFORMATION

Inform an aircraft of its position whenever radar identification is established by means of identifying turns or by any of the beacon identification methods outlined in Paragraph 5−3−3, Beacon Identification Methods. Position information need not be given when identification is established by position correlation or when a departing aircraft is identified within 1 mile of the takeoff runway end.

5−3−7. IDENTIFICATION STATUS

a. Inform an aircraft of radar contact when:

1. Initial radar identification in the ATC system is established.

2. Subsequent to loss of radar contact or terminating radar service, radar identification is reestablished.

FAA Order JO 7110.65Y, Air Traffic Control, outlined the procedures to be followed when experiencing an unexpected simultaneous loss of radar and radio communications with a VFR or IFR aircraft. FAA Order JO 7110.65Y, Chapter 10, Section 2 stated in part:

10−2−5. EMERGENCY SITUATIONS

Consider that an aircraft emergency exists and inform the RCC or ARTCC when any of the following exist:

a. An emergency is declared by either:

1. The pilot.

2. Facility personnel.

3. Officials responsible for the operation of the aircraft.

b. There is unexpected loss of radar contact and radio communications with any IFR or VFR aircraft.

FAA Order JO 7110.65Y, Air Traffic Control, outlined the duty priority of air traffic controllers in providing ATC services. FAA Order JO 7110.65Y, Chapter 2, Section 1 stated in part:

2−1−2. DUTY PRIORITY

a. Give first priority to separating aircraft and issuing safety alerts as required in this order. Good judgment must be used in prioritizing all other provisions of this order based on the requirements of the situation at hand.

NOTE−
Because there are many variables involved, it is virtually impossible to develop a standard list of duty priorities that would apply uniformly to every conceivable situation.
Each set of circumstances must be evaluated on its own merit, and when more than one action is required, controllers must exercise their best judgment based on the facts and circumstances known to them. That action which is most critical from a safety standpoint is performed first.

b. Provide support to national security and homeland defense activities to include, but not be limited to, reporting of suspicious and/or unusual aircraft/pilot activities.
c. Provide and/or solicit weather information in accordance with procedures and requirements outlined in this order.

NOTE−
Controllers are responsible to become familiar with and stay aware of current weather information needed to perform ATC duties.

d. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.

FAA Order JO 7110.65Y, Air Traffic Control, outlined procedures for air traffic controllers in authorizing SVFR operations. FAA Order JO 7110.65Y, Chapter 7, Section 5 stated in part:

7−5−1. AUTHORIZATION

a. SVFR operations in weather conditions less than basic VFR minima are authorized:
1. At any location not prohibited by 14 CFR Part 91, Appendix D or when an exemption to 14 CFR Part 91 has been granted and an associated LOA established. 14 CFR Part 91 does not prohibit SVFR helicopter operations.
2. Only within the lateral boundaries of Class B, Class C, Class D, or Class E surface areas, below 10,000 feet MSL.
3. Only when requested by the pilot.
4. On the basis of weather conditions reported at the airport of intended landing/departure.

5. When weather conditions are not reported at the airport of intended landing/departure and the pilot advises that VFR cannot be maintained and requests SVFR.

b. SVFR operations may be authorized for aircraft operating in or transiting a Class B, Class C, Class D, or Class E surface area when the primary airport is reporting VFR but the pilot advises that basic VFR cannot be maintained.

NOTE−
The basic requirements for issuance of a SVFR clearance in subparagraph a apply with the obvious exception that weather conditions at the controlling airport.

7−5−2. PRIORITY

a. SVFR flights may be approved only if arriving and departing IFR aircraft are not delayed.

1. A SVFR aircraft has been cleared to enter a Class B, Class C, Class D, or Class E surface area and subsequently an IFR aircraft is ready to depart or is in position to begin an approach. Less overall delay might accrue to the IFR aircraft if the SVFR aircraft is allowed to proceed to the airport and land, rather than leave, a Class B, Class C, Class D, or Class E surface area or be repositioned to provide IFR priority.
2. A SVFR aircraft is number one for takeoff and located in such a position that the number two aircraft, an IFR flight, cannot taxi past to gain access to the runway. Less overall delay might accrue to the IFR aircraft by releasing the SVFR departure rather than by having the aircraft taxi down the runway to a turnoff point so the IFR aircraft could be released first.

NOTE−
The priority afforded IFR aircraft over SVFR aircraft is not intended to be so rigidly applied that inefficient use of airspace results. The controller has the prerogative of permitting completion of a SVFR operation already in progress when an IFR aircraft becomes a factor if better overall efficiency will result.

b. Inform an aircraft of the anticipated delay when a SVFR clearance cannot be granted because of IFR traffic. Do not issue an EFC or expected departure time.

F. LIST OF ATTACHMENTS

Attachment 1: Interview Summaries
Attachment 2: Record of Conversation
Attachment 3: Partial ATC Communication Transcript
Attachment 4: Flight Track Graphics
Attachment 5: ADS-B Data

Submitted by:

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Brian Soper
Senior Air Traffic Investigator