

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA124

AIR TRAFFIC CONTROL

ATC Services Review

March 14, 2026



National Transportation Safety Board

Office of Aviation Safety / Operational Factors Division (AS-30)

ATC Services Review Worksheet

Date of Event (UTC)

Apr 14, 2024

Review Date

Mar 14, 2026

Time of Event (UTC)

0319 UTC

Time of Event (LCL)

2019 PDT

Investigation Number

WPR24FA124

Keys Number

194082



CHART



AIRFIELD



SIAP/SID/STAR

A review of the ATC services provided in the above incident/accident was conducted by an ATC Investigator. Investigative work was limited to a review of the factual data collected over the course of the investigation and consideration of the current rules, regulations, and procedural guidance current at the time. The ATC investigator did not travel to the scene, nor to any ATC facilities in support of this investigation. Additionally, the ATC investigator did not conduct any personnel interviews, and all investigative work was conducted from their assigned office.

ATC Investigator: Brian Soper, Lead ATC Accident Investigator



SRT RELEASE APPROVED

Involved ATC Facilities: Facility 1: SCT TRACON Facility 2: Facility 3: Facility 4:

Involved Aircraft: Aircraft 1: N965BC Aircraft 2: Aircraft 3: Aircraft 4:

☒ Data Requested

☐ NOTAM Issues

Surveillance Data Source

OpsVue Track Data

Audio Data Source

FAA Certified Audio

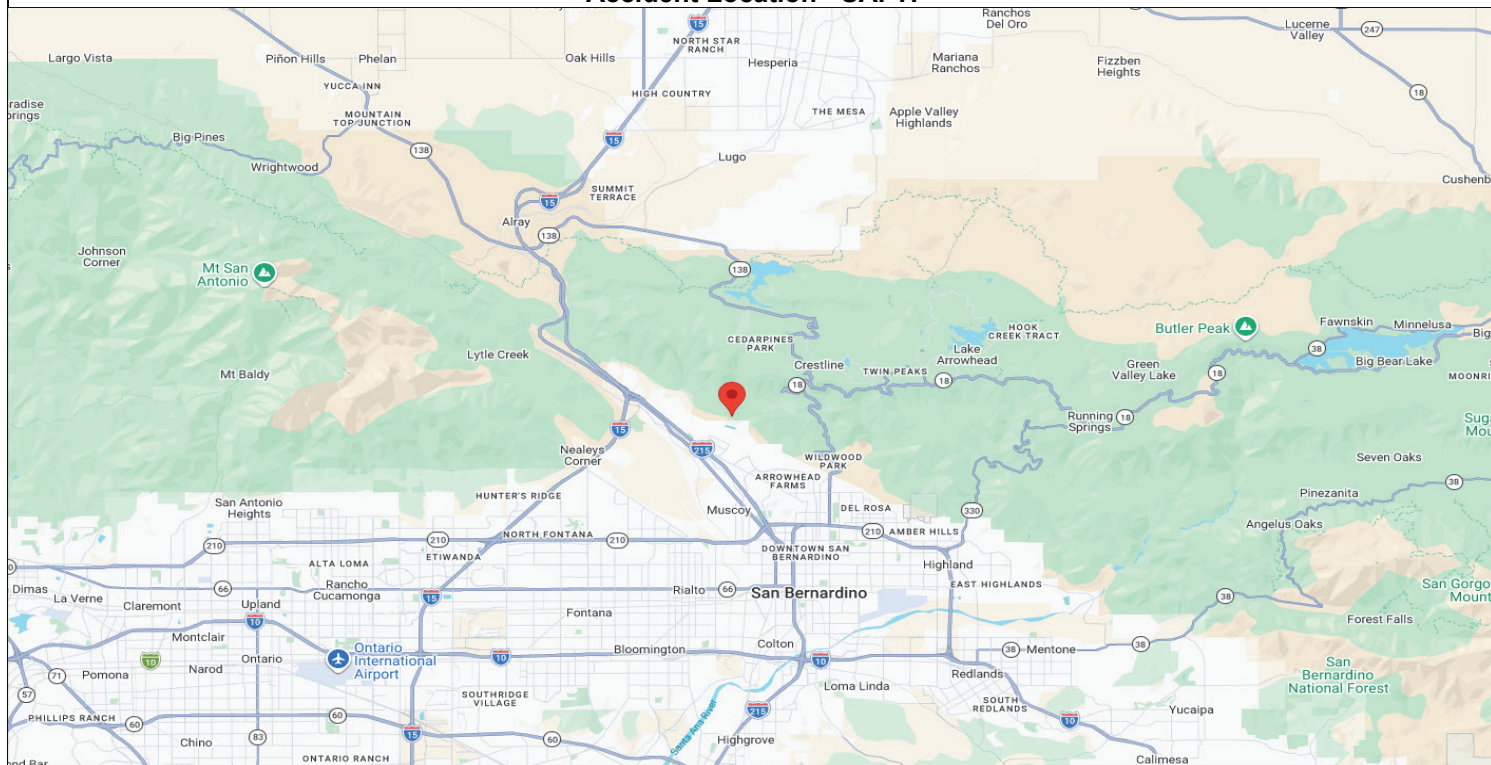
☒ ATC Procedures

☐ Safety Improvements

PRELIM Summary Information - SAFTI

On April 13, 2024, about 2019 Pacific daylight time, a Gulfstream Corporation 695A, N965BC, was destroyed when it was involved in an accident near San Bernardino, California. The pilot was fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

Accident Location - SAFTI



ATC Service Review Summary

Air traffic control (ATC) services were provided by Stockton Airport Traffic Control Tower (SCK ATCT), Norther California Terminal Radar Approach Control (NCT TRACON), Oakland Air Route Traffic Control Center (ZOA ARTCC), Los Angeles (ZLA) ARTCC, and Southern California (SCT) TRACON. All services provided prior to SCT TRACON were unremarkable and were not discussed further in this services review. SCT TRACON was providing services at the time of the accident, and a thorough review of these services is provided. OpsVue track data was used to produce Figures 1-3 below, and was consistent with the STARS radar data provided by the FAA. Altitudes in the figures are from OpsVue track data and not what the controller would have seen on their radar display workstation. ATC radar equipment displays altitude corrected for barometric pressure (altimeter) and rounded to the nearest 100 foot increment. Track data is corrected and presented in 25 foot increments.

Supporting data provided by the FAA as listed in the section below 'ATC Supporting Data' was used to conduct this review.

Upon initial check-in with SCT TRACON, the Pomona radar (POMR) controller provided the pilot with the Ontario (ONT) altimeter, advised that automatic tower information service (ATIS) information victor (V) was current at CNO. Additionally, advised the pilot to expect the Instrument Landing System (ILS) runway 26R approach.

At the time of check-in, the weather at CNO was visual flight rules VFR:

SPECI KCNO 140305Z 28012KT 3SM -RA SCT007 BKN014 OVC025 09/M01 A3007 RMK AO2 P0002 T00941006=

KCNO weather at 2005 PDT, wind from 280° at 12 knots, visibility 3 miles, light rain, scattered clouds at 700 feet above ground level (agl), broken ceiling at 1,400 ft agl, overcast clouds at 2,500 ft agl, temperature of 9° Celsius (C), dew point temperature of -1° C, and an altimeter setting of 30.07 inches of mercury (inHg). Remarks: Automated observation station with a precipitation discriminator, amount of precipitation that has occurred since last METAR 0.02 inches (1 mm) temperature 9.4° C, dew point temperature -0.6° C.

At one point the controller queried the pilot to confirm he was on the ZIGGY Arrival (track data indicated he was not following the published guidance for the ZIGGY Arrival) and the pilot advised that his auto-pilot had turned off after experiencing moderate turbulence earlier, but they were correcting course. The POMR controller offered radar vectors, but the pilot declined and stated he was correcting to re-join the arrival procedure at MAJEK intersection.

As the pilot continued toward CNO, they were provided a PIREP for icing that had been received by a previous flight crew after which, the pilot of N965BC reported moderate rime icing and that the outside air temperature was -8° C. The controller then offered a lower altitude to get them out of icing conditions, and the pilot accepted.

As N965BC continued toward CNO, the POMR controller instructed them to fly heading 185, a vector to intercept the ILS final approach course, and the pilot acknowledged. About a minute later, the POMR controller again provided the ONT altimeter, advised that ATIS information V was still current.

At this time, the weather at CNO was visual flight rules VFR and a new SPECI observation was being reported, however had not been disseminated out nor a new ATIS produced at CNO so the POMR controller would not have been aware yet, but indicated slight improvement.

SPECI KCNO 140318Z 26009KT 10SM -RA SCT007 BKN029 OVC035 09/M01 A3007 RMK AO2 P0002 T00891006=

KCNO weather at 2018 PDT, wind from 260° at 9 knots, visibility 10 miles, light rain, scattered clouds at 700 feet agl, broken ceiling at 2,900 ft agl, overcast clouds at 3,500 ft agl, temperature of 9° C, dew point temperature of -1° C, and an altimeter setting of 30.07 inches of mercury (inHg). Remarks: Automated observation station with a precipitation discriminator, amount of precipitation that has occurred since last METAR 0.02 inches (1 mm) temperature 8.9° C, dew point temperature -0.6° C.

The pilot again stated they were having trouble with the auto pilot. The controller asked if they were ready turn back to the left and the pilot responded "turning." That was the last transmission recorded from the pilot of N965BC. The aircraft then entered a rapid descent until track data was lost approximately coincident with the wreckage location. The POMR controller made multiple attempts to re-establish communication with N965BC with no response.

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PERTINENT INFORMATION:

- The controller provided arrival information for CNO as required.
- Pertinent PIREP for icing was disseminated as required.
- Pilot was provided lower altitude after reporting moderate icing.
- Controller did not ask about the moderate turbulence reported by the pilot.
- Reported weather at CNO at the time of check-in and through time of accident was VFR.
- The POMR controller advised supervisor immediately regarding loss of radar and radio communications.
- ALNOT procedures were initiated as required.

ATC Supporting Data

The following data and documentation was provided by the FAA under KSN request 24-267. These data and documentation were used to conduct this review, and are included in attachments to this review as indicated in the section "Docket Attachments" at the end.

- Certified ATC Audio Recordings
- OpsVue Track Data
- FAA STARS Radar Data
- FAA SCT TRACON Aircraft Accident Package
- FAA SRT Findings

ATC Procedural References

FAA Order JO 7110.65AA, Air Traffic Control, stated in part:

2-6-2. PIREP SOLICITATION AND DISSEMINATION

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

b. Record with the PIREPs:

1. Time.
2. Aircraft position.
3. Type aircraft.
4. Altitude.
5. When the PIREP involves icing include:
 - (a) Icing type and intensity.
 - (b) Air temperature in which icing is occurring.

4-7-10. APPROACH INFORMATION

a. Both en route and terminal approach control sectors must provide current approach information to aircraft destined to airports for which they provide approach control services. This information must be provided on initial contact or as soon as possible thereafter. Approach information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code. For pilots destined to an airport without ATIS, items 3-5 below may be omitted after the pilot advises receipt of the automated weather; otherwise, issue approach information by including the following:

1. Approach clearance or type approach to be expected if two or more approaches are published and the clearance limit does not indicate which will be used.
2. Runway if different from that to which the instrument approach is made.
3. Surface wind.
4. Ceiling and visibility if the reported ceiling at the airport of intended landing is below 1,000 feet or below the highest circling minimum, whichever is greater, or the visibility is less than 3 miles.
5. Altimeter setting for the airport of intended landing.

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10-2-5. EMERGENCY SITUATIONS

Consider that an aircraft emergency exists and inform the RCC or ARTCC if:

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

FAA SRT Findings - Released

- The QC Specialist briefed the traffic volume was light with moderate complexity. The CNO weather was wind 250 at 6 knots, visibility 10 miles, and an overcast cloud layer at 3,200 feet. Light precipitation was depicted on the POMR radar display. All controllers received their Pre-Duty weather briefing; however, it was unknown if active AIRMETs for turbulence and icing were included in those briefings. There were no unusual factors which would have caused a distraction.
- In the EMP Area, there were seven controllers and one OS on duty. Three positions were open, with two controllers and one OS on position. The Riverside position was combined with the POMR position, the involved position. Two controllers were available, and three controllers were assigned other duties. The OS position was combined with the Flight Data position while providing general supervision. This configuration was considered normal for the time of day and volume of traffic.
- An uninvolved aircraft at 9,300 feet transitioning in the vicinity of the event reported icing with an outside air temperature of plus five degrees Celsius. The POMR controller queried the type of icing; however, the pilot advised they did not know due to nighttime conditions.
- On initial communication with the POMR controller, N965BC stated they had ATIS V and were issued the current altimeter for the area.
- When N965BC was approaching the FLAVR Waypoint, the controller queried whether they were on the ZIGGY Arrival. N965BC replied affirmative; however, their autopilot had disengaged due to turbulence, and they were correcting. There was no follow-up with N965BC as to the level of turbulence encountered.
- The controller offered N965BC vectors for CNO which they declined.
- A PRB was conducted, and the previous icing report was briefed. The controller being relieved advised that N965BC had an autopilot issue; however, there was no mention of the turbulence report.
- The previously received icing PIREP was issued to N965BC and they immediately reported moderate rime ice at 12,000 feet.
- The controller asked N965BC if they wanted a lower altitude, which they replied in the affirmative, and were assigned a discretionary descent to 8,000 feet.
- N965BC continued descending though 7,700 feet without a clearance and the controller stated the CNO ATIS code and altimeter.
- N965BC asked the controller to repeat the last transmission and advised they were having issues with their autopilot.
- N965BC continued in an unauthorized right turn and the controller asked them if they were able to turn back to the left. N965BC replied with an unintelligible transmission that cut off.
- As N965BC descended through 7,300 ft, the controller advised the MVA was 7,400 ft and they appeared to be losing altitude rapidly.
- The controller issued a Safety Alert to N965BC with no further transmissions received.
- Radar contact was lost when N965BC's altitude indicated 5,800 feet.
- Multiple attempts were made to re-establish communication with N965BC.
- The ATM stated the staffing configuration met facility expectations. An AIRMET forecasting moderate turbulence for the area from the surface to FL180 and an AIRMET forecasting moderate icing were in effect during the event. PIREPs were solicited for icing; however, they were not solicited nor disseminated for turbulence.

OpsVue Data

The below information and included graphics were developed using OpsVue data which is track data only. PASSUR's OpsVue uses NextGen Data which includes flight identification and location data for advisory purposes only. This NextGen Data is a multi-sensor system that aggregates and georeferences FAA data sources including data from FAA ASDE-X and ASSC systems, FAA Terminal and En Route Radars, the FAA certified ADS-B Network and Flight Plan data from the En Route Automation Modernization (ERAM) system. The reported altitude is derived from the reported pressure altitude, adjusted for the local pressure reported with the Rapid Update Cycle (RUC) data within the Continental United States (CONUS). Outside of the CONUS, only pressure altitude is reported. The accuracy of altitude data can vary, sometimes up to several hundred feet, however trend information (ie; rates of climb and descent) is considered accurate and reliable.

FAA Certified Radar Data

The below information and included graphics were developed using certified radar data provided by the FAA. These data may come from STARS, ERAM, or surface radar systems such as ASDE-X/ASSC. Radar systems vary significantly in operation and range. Primary radar referring to the actual "skin paint" target return, and secondary radar being the transponder. Radar data is still a primary means of aircraft tracking used by ATC. These data are provided in various formats, some of which require specialized processing or extraction by ATC specialists. Radar data is subject to coverage limitations like any other system that relies on line-of-sight signal transmission, so there can be portions of a flight track that are unavailable, or will have to be combined with other source data for the most complete flight track.

Flight Track Information

Track data indicates that the accident airplane departed runway (RWY) 11L at Stockton Metro Airport (SCK) in Stockton, CA at about 1903. After departure, the airplane flew straight ahead briefly then turned slight right to a SSE bound heading and climbing to a cruise altitude of FL250. The airplane remained in generally straight and level flight for about 75 nm, then turned slight left to a more SE bound heading and continued for about 135 nm when the airplane began a slow descent until turning right toward Chino Airport (CNO) - the airport of intended landing. As the airplane was flying over West Fork Devil's Canyon, the airplane suddenly began to descend rapidly and losing ground speed until track data was lost at about 2019 and approximately 20 nm NE of CNO.

- First Track Data: 1903:02 PDT | 100 ft msl | 136 kts | H126 | Over RWY 11L @ SCK on departure.
- Last Track Data: 2018:47 PDT | 2600 ft msl | 49 kts | H289 | In rapid descent about 20 nm NE of CNO

The aircraft was transmitting a discrete beacon code of 3323 - consistent with a code assigned by ATC for IFR/flight following and remained on that code for the entire flight.

ATC Communications

Below is an abbreviated history of flight/sequence of events as documented in the FAA Aircraft Accident Package. A partial transcript of pilot/controller communications is included in Attachment 5: ATC Audio Partial Transcript. The following summary covers only the services provided by SCT TRACON.

NOTE: All times are in Pacific daylight time (PDT) and are rounded to the nearest minute, and altitudes are in feet above mean sea level (msl).

- 2008 - N965BC contacted SCT TRACON descending out of 17,500 feet. The Pomona radar (POMR) controller acknowledged, provided the Ontario altimeter setting, advised that Automatic Terminal Information Service (ATIS) information victor (V) was current at CNO and to expect the Instrument Landing System (ILS) runway 26R approach.
- 2011 - The POMR controller queried the pilot of N965BC to confirm he was on the ZIGGY Arrival. The pilot advised the auto-pilot had turned off due to turbulence and that they were correcting. The POMR controller instructed N965BC to descend and maintain 12,500 feet. The pilot acknowledged with a correct read back.
- 2012 - The POMR controller asked the pilot of N965BC if he wanted vectors, and the pilot responded in the negative, and advised they were correcting to join at MAJEK intersection.
- 2014 - The POMR controller disseminated an icing PIREP that had received earlier. The pilot of N965BC confirmed they were in moderate rime icing at that time and reported the outside air temperature was -8° Celsius (C). The controller offered lower and the pilot accepted and was instructed to descend at pilot's discretion and maintain 8,000 feet. The pilot acknowledged with a good read back.
- 2016 - The pilot of N965BC advised that icing was improving since beginning their descent and the POMR controller issued a continued descent to 7,400 feet. The pilot acknowledged with a good read back.

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2018 - The pilot of N965BC advised that their auto pilot was malfunctioning. The POMR controller asked if they were ready to turn back to the left and the pilot replied "turning." The POMR controller then advised the pilot they were descending through 7,200 feet and that the minimum vectoring altitude was 7,400 feet and issued a low altitude alert and advised they appeared to be losing altitude rapidly. There was no response from the pilot.

The POMR continued making multiple attempts to contact N965BC with no response. They attempted to contact on guard and also via relay through a nearby airborne flight crew - all with negative response.

Included Figures

Figure 1: Overview of entire accident flight track.

Figure 2: Profile view of the final segment of the accident flight track.

Figure 3: Overview of final segment of the accident flight track with pertinent flight details.

Docket Attachments

Attachment 1: ATC Audio Recordings

Attachment 2: STARS Radar Data

Attachment 3: OpsVue Track Data

Attachment 4: FAA Aircraft Accident Package

Attachment 5: ATC Audio Partial Transcript

AERONAUTICAL CHART EXCERPT

NOT FOR NAVIGATIONAL USE



ACCIDENT SITE

NOT FOR NAVIGATIONAL USE

NOT FOR NAVIGATIONAL USE

CHINO, CALIFORNIA

AL-5599 (FAA)

25219

LOC I-CNO 111.5	APP CRS 255°	Rwy Ldg 4858 TDZE 636 Apt Elev 650
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ILS or LOC RWY 26R

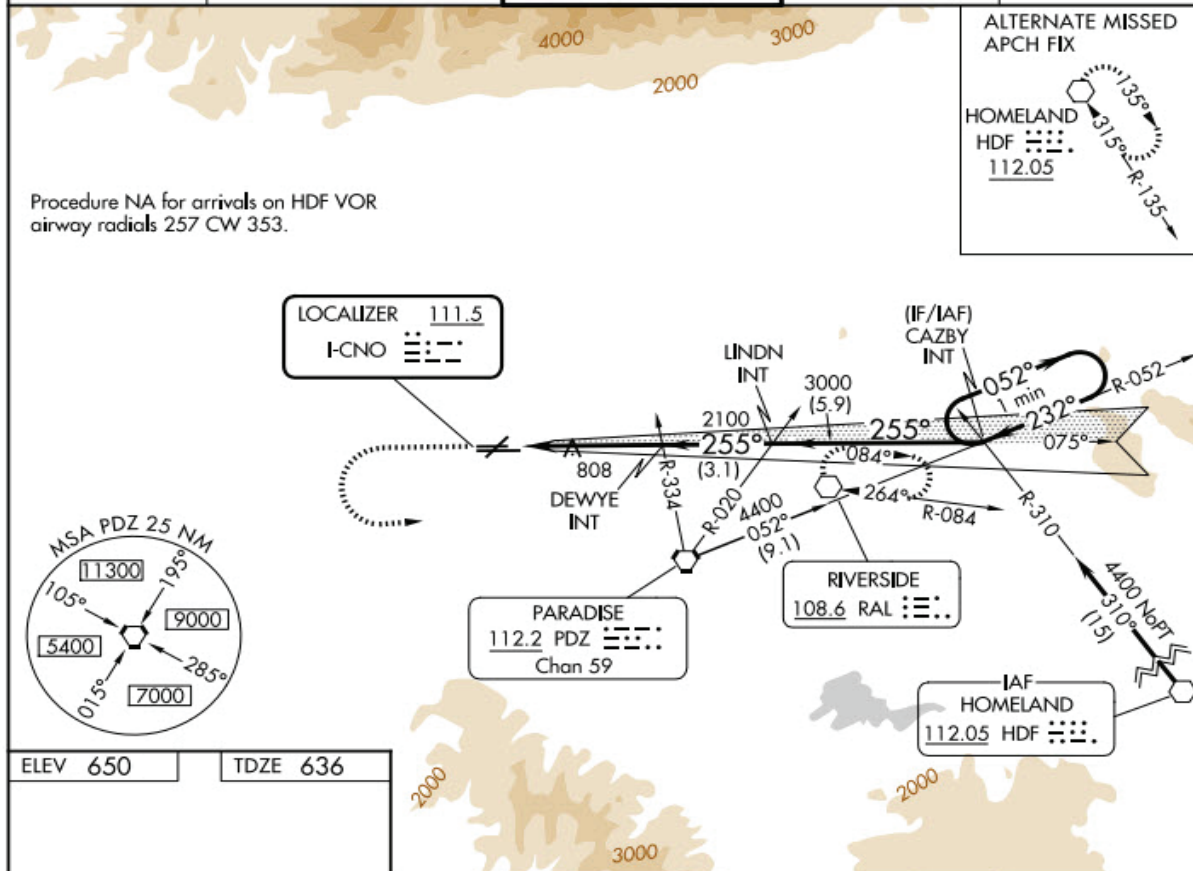
CHINO (CNO)

▼ Helicopter visibility reduction below $\frac{3}{4}$ SM NA.
 ▲ When local altimeter setting not received, use Ontario altimeter setting and increase DA to 940 feet and all visibilities $\frac{1}{4}$ SM; increase all MDAs 60 feet and visibility S-LOC 26R and Circling Cat C and D $\frac{1}{4}$ SM.

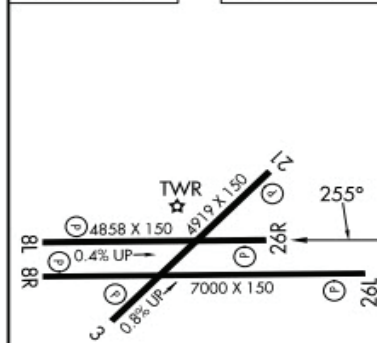
MISSED APPROACH: Climb to 1100 then climbing left turn to 4500 direct RAL VOR and hold, continue climb-in-hold to 4500.

D-ATIS 125.85	SOCAL APP CON 135.4 377.125	CHINO TOWER ★ 118.5 (CTAF)	GND CON 121.6	UNICOM 122.95
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Procedure NA for arrivals on HDF VOR
 airway radials 257 CW 353.



ELEV 650 TDZE 636



REIL Rwy 3 and 21
 MRL Rwy 3-21 and 8R-26L
 HIRL Rwy 8L-26R

FAF to MAP 4.4 NM					
Knots	60	90	120	150	180
Min:Sec	4:24	2:56	2:12	1:46	1:28

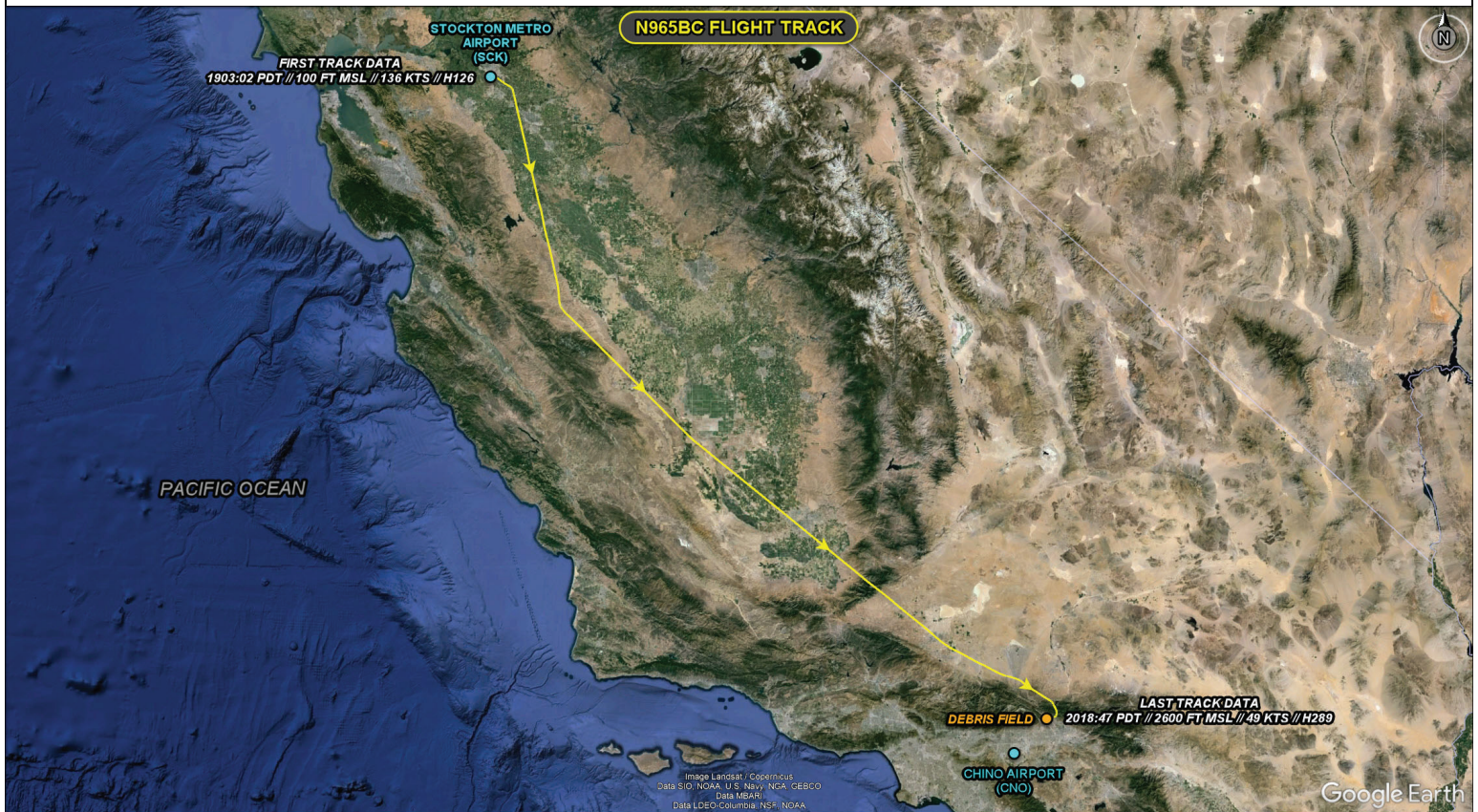
CHINO, CALIFORNIA
 Amdt 8B 07OCT21

33°58'N-117°38'W

CHINO (CNO)

ILS or LOC RWY 26R**NOT FOR NAVIGATIONAL USE**

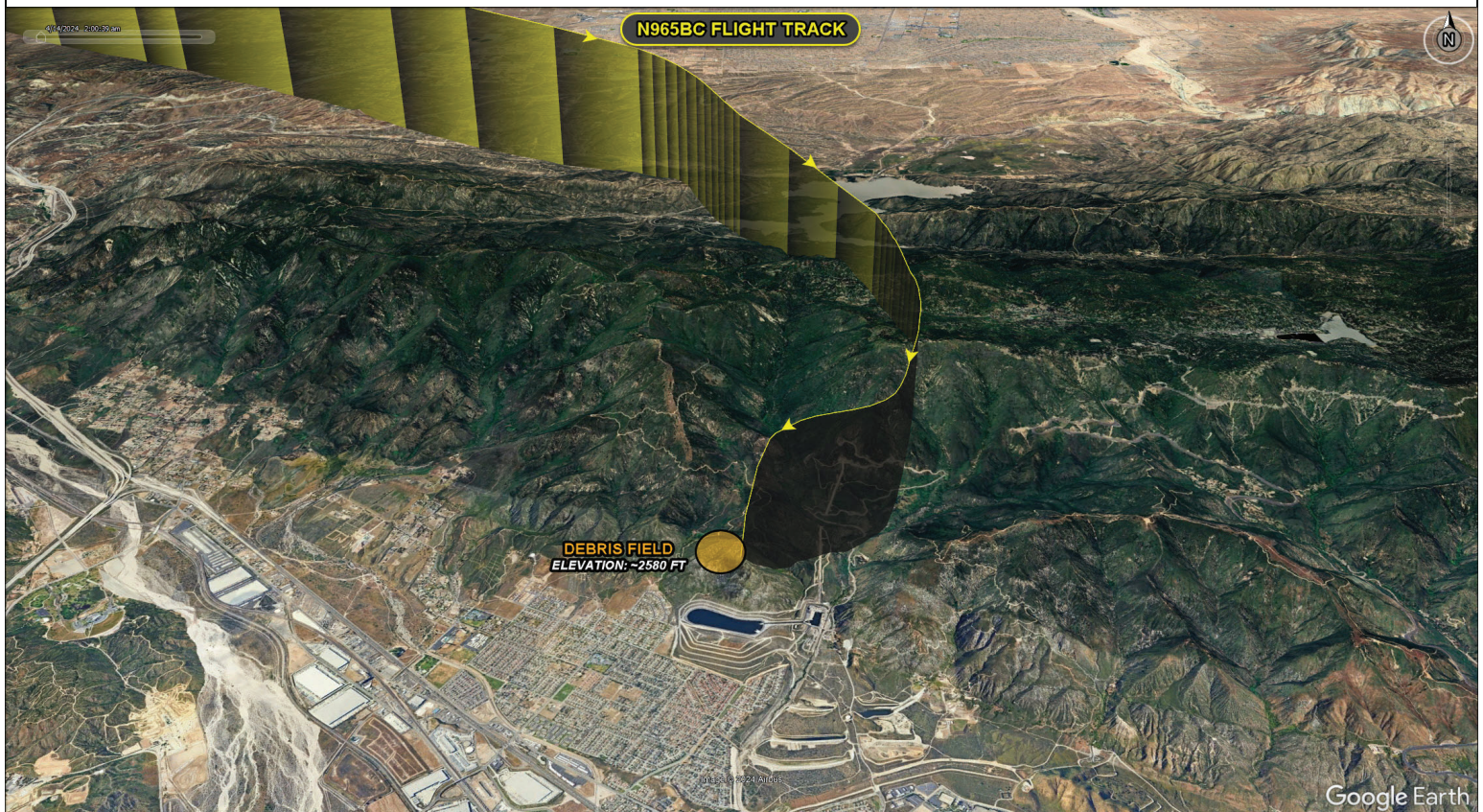
Figure 1



Caption: Overview of entire accident flight track overlaid on satellite imagery in Google Earth.

ADD

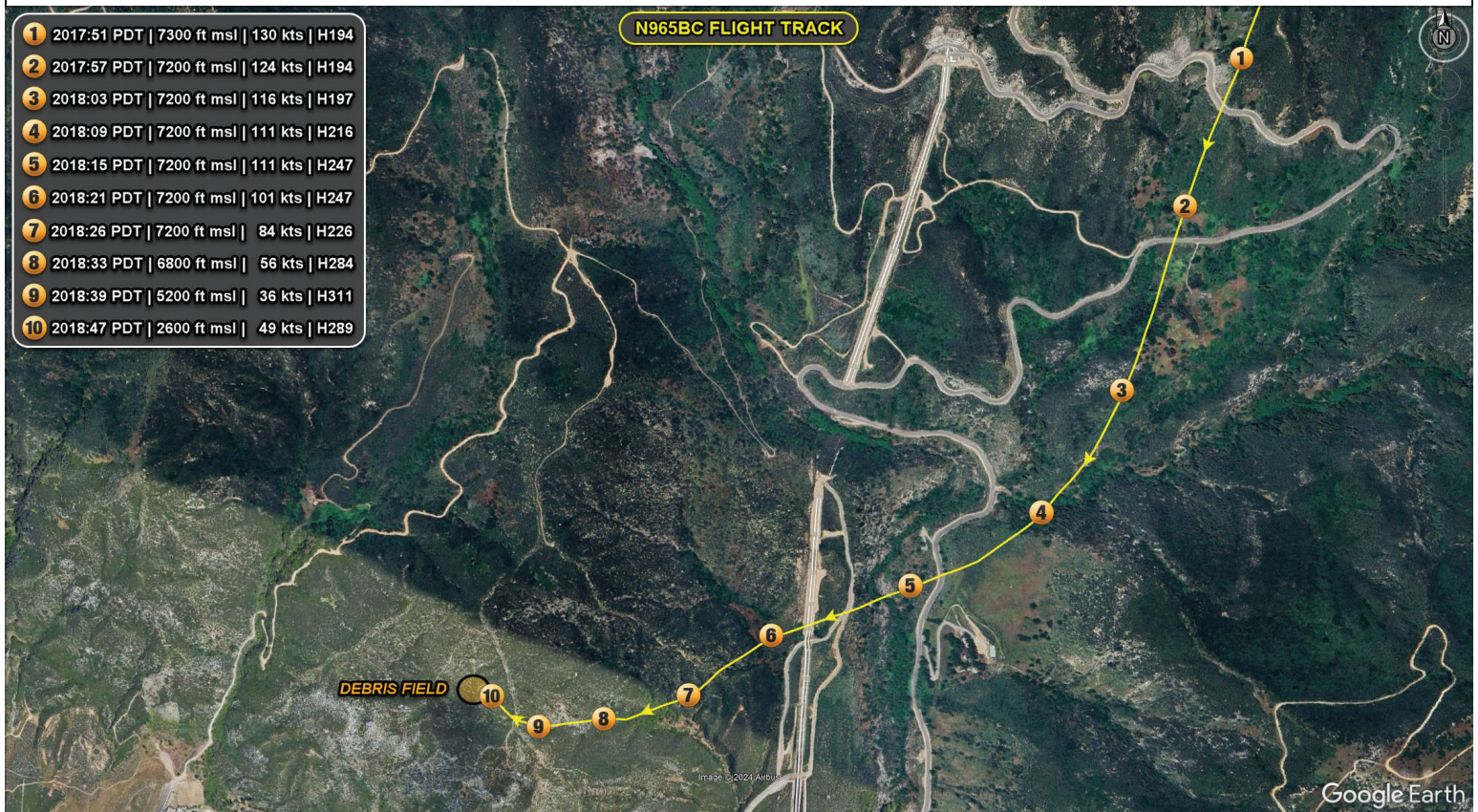
Figure 2



Caption: Profile view of the final segment of the accident flight track overlaid on satellite imagery in Google Earth.

ADD

Figure 3



Caption: Overview of final segment of the accident flight track with pertinent flight details overlaid on satellite imagery in Google Earth.

ADD