

National Transportation Safety Board
Office of Aviation Safety
Washington, DC 20594



CEN25FA019

OPERATIONS GROUP FACTUAL REPORT

July 31, 2025

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A. ACCIDENT

Location: Houston, Texas
Date: October 20, 2024
Time: 1951 central daylight time
0051 Coordinated universal time (October 21, 2024)
Helicopter: N881KE / Robinson R-44 Raven II

B. OPERATIONS GROUP FACTUAL REPORT

Group Chair OPS	Fabian Salazar National Transportation Safety Board Federal Way, WA
Group Member	Brian Rutt National Transportation Safety Board Denver, CO
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C. SUMMARY

On October 20, 2024, about 1951 central daylight time, a Robinson R-44 Raven II, N881KE, was substantially damaged in an accident near Houston, Texas. The pilot and three passengers were fatally injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 aerial tour flight.

On October 21, 2024, the two ASI's from the Denver Regional Office travelled to the accident site and began collecting factual data and contact information for the operator and owner of the radio tower.

On October 22, 2024, the IIC and the Operations Group Chairman travelled to the accident site to begin their respective investigation duties.

On October 23, 2024, the Operations Group Chairman and one ASI from the Denver Office attempted to travel to the Operator's office for an interview of one of the three part-owners of National Helicopter Solutions (NHS); however, the part-owner changed his mind and declined to be interviewed.

On November 5, 2024, the Operations Group conducted an interview with one of the three part-owners, Mr. Robert Adkins.

Multiple attempts to interview the remaining two part-owners and the remaining pilot employed by the operator were unsuccessful. On April 1, 2025, subpoenas were issued for interviews of the remaining two part-owners and the remaining pilot of NHS.

On June 23, 2025, the remaining pilot was interviewed. As of the date of this report the remaining two part-owners have not provided an interview.

D. DETAILS OF THE INVESTIGATION

1.0 History of Flight

1.1 Accident flight

Automatic dependent surveillance-broadcast (ADS-B) data showed the helicopter departed from Ellington Airport (EFD) Houston, Texas, about 1942 from near the Signature Aviation fixed base operator (FBO) parking ramp. The helicopter departed straight-out to the north. When the helicopter was about 4 miles north of EFD, it turned left and continued to the northwest. The helicopter climbed to an altitude of about 850 ft mean sea level (msl). The helicopter passed about 3,300 ft north of the Sidney Sherman Bridge that supported the Interstate 610 freeway (I-610). After passing the bridge, the helicopter turned slightly left and continued northwest toward the east side of the city of Houston at an altitude of about 850 ft. The last ADS-B data point, captured at 1951:19, recorded the helicopter about 850 ft msl, or about 568 ft above ground level (agl), and about 44 ft southeast of a guyed radio tower (figure 1).



Figure 1. Google Earth image showing the accident flight route in red. The red circle indicates the location of the radio tower.

A video camera, located near Daikin Park (formerly Minute Maid Park) recorded the park's rooftop in the foreground and the radio tower in view. The accident helicopter, seen as a bright light, moved toward the radio tower. Two sets of red beacons were seen as they flashed in unison on the radio tower, a top set and an intermediate set. (figure 2). A lower set of intermediate beacons were not seen in the video.

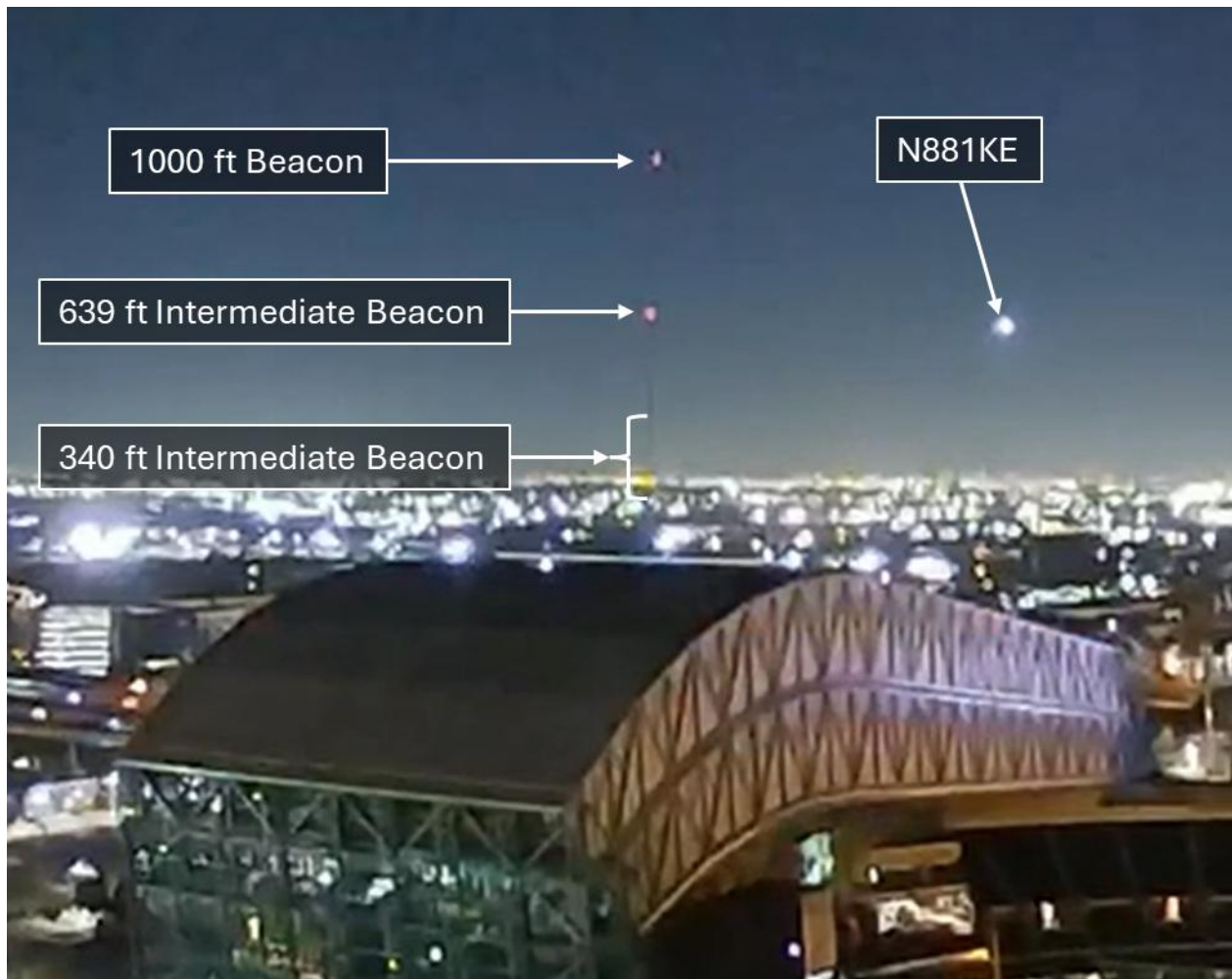


Figure 2. Image captured from a video showing the radio tower, the beacons, and the accident helicopter.

The video showed the helicopter moving toward the radio tower. At 0:00:44 video time, the light of the helicopter extinguished followed immediately by a bright flash that occurred below the top beacon. The radio tower and the bright flash then fell out of view behind the rooftop of the park.

2.0 Site Survey

The helicopter impacted terrain on the southeast corner of a level and open field, covered with a short layer of grass. The radio tower and support cables lay strewn on the field. The helicopter came to rest among the fallen structure of the radio tower, near $29^{\circ}45.43' - 95^{\circ}20.3'$ ($29.757248 - 95.338352$) at an elevation of about 36 ft msl. Commercial buildings were located near the southeast and southwest corners of the field. A building, located on the field southwest of the radio tower was connected by wiring to the radio tower (figure 3). Additional information about the radio tower is included later in this report.



Figure 3. Image of the accident site. The red circle identifies the location of the radio tower. The yellow circles identify the anchoring points for the guy wires for the radio tower.

3.0 Pilot Data

3.1 Pilot's History

According to the pilot's husband, she became interested in flying around 2017. The pilot began training to be a helicopter pilot and enrolled in a training program with Glacier Aviation, Tumwater, Washington. The pilot earned a flight instructor rotorcraft-helicopter rating and became employed by Glacier Aviation as a helicopter flight instructor. While working at Glacier Aviation, the pilot met Tylor Olson, who was also an employee. Tylor left Glacier Aviation for a job with NHS. According to Mr. Olson, when he heard that the company had an opening for another pilot, he informed the accident pilot about the opportunity. According to the part owner, the pilot was hired by NHS about two to three months prior to the accident, around August 2024.

Around September 30, 2024, the pilot and family moved to Houston. They rented an apartment near William P. Hobby Airport (HOU) Houston, Texas. When the pilot first reported for work, the helicopter was not ready, so the pilot worked as a boarding assistant for about 1 week. During that time, the pilot went on training flights with Holly Henderson, a certificated flight instructor (CFI), to get familiar with the local area and learn the speaking points for the air tours.

The husband described the first few weeks as tough because they lived in south Houston and the pilot would have to drive to the David Wayne Hooks Memorial Airport (DWH) Houston, Texas, which was a considerable distance away. The operator conducted discovery flights in the mornings. This required the accident pilot to travel to DWH to do discovery flights, then wait until the evening to do the air tour flights. Things got better when the helicopter was moved to HOU. The pilot would then pick up the helicopter from HOU, fly it to the EFD and conduct flights from there, then return the helicopter to HOU at the end of the day.

The husband recalled the scheduling was inconsistent and that the pilot was supposed to have days off and every other weekend off, but that had not happened yet. The husband did not recall the pilot ever mentioning the radio tower to him.

3.2 Pilot's Flight Training

According to the President of Glacier Aviation, the accident pilot had been employed with Glacier Aviation for about five years. The pilot began working at Glacier Aviation at the front desk and trained to receive commercial and instructor certificates. After about three years of working at the front desk, the pilot had accrued about 1,000 flight hours and transitioned to being a helicopter flight instructor.

The President described the pilot as a hardworking, focused employee who was committed to doing the job correctly and professionally. The pilot was trained by the company chief pilot. The President stated that if a candidate wanted to get hired [at Glacier Aviation], they would have to train with the chief pilot. He would watch and train a candidate for about two years before they would hire them. He also stated that the accident pilot had no ego and was very cautious.

3.3 PIC's Logbook Review

A review of the pilot's personal logbooks (figure 4) revealed that the second to last page was completed and all flight hours were tabulated at the bottom of the page. The last page contained 10 entries, none of which were tabulated at the bottom of the page. Figure 4 data, indicated in blue, was calculated for the investigation:

Second to last page in logbook

YEAR	MONTH	DAY	FLIGHT NUMBER	POINTS OF DEPARTURE & ARRIVAL	ACRAFT CATEGORY AND CLASSIFICATION	TYPE OF PILOTING TIME	TIME	CONDITIONS OF FLIGHT	REMARKS
YEAR	MONTH	DAY	FLIGHT NUMBER	POINTS OF DEPARTURE & ARRIVAL	ACRAFT CATEGORY AND CLASSIFICATION	TYPE OF PILOTING TIME	TIME	CONDITIONS OF FLIGHT	REMARKS
8-4	A22		8518W	OLM OLM	R44	15	15	15	15 Jerry
8-5	A22		8518W	OLM OLM	R44	19	19	19	19 Jerry
8-9	A22		63990	OLM OLM	R44	13	13	13	13 Jerry
8-9	A22		63990	OLM OLM	R44	13	13	13	13 Jerry
8-9	A22		8518W	OLM OLM	R44	11	11	11	11 Dale
8-20	A22		8518W	OLM OLM	R44	3	3	3	3 Jan
8-21	A22		63990	OLM OLM	R44	14	14	14	14 Jerry
8-21	A22		63990	OLM OLM	R44	12	12	12	12 Jerry
8-26	A22		63990	OLM OLM	R44	20	20	20	20 Jerry
8-26	A22		63990	OLM OLM	R44	18	18	18	18 Jerry
8-28	A22		63990	OLM OLM	R44	11	11	11	11 Dale
8-28	A44		615A	OLM OLM	R44	20	20	20	20 Alec
PAGE TOTAL						186	20	186	186
AMOUNT FORWARDED						1149.7	40.9	1149.7	1149.7
TOTAL TO DATE						1148.3	62.9	1148.3	1148.3

Last page in logbook

YEAR	MONTH	DAY	FLIGHT NUMBER	POINTS OF DEPARTURE & ARRIVAL	ACRAFT CATEGORY AND CLASSIFICATION	TYPE OF PILOTING TIME	TIME	CONDITIONS OF FLIGHT	REMARKS
YEAR	MONTH	DAY	FLIGHT NUMBER	POINTS OF DEPARTURE & ARRIVAL	ACRAFT CATEGORY AND CLASSIFICATION	TYPE OF PILOTING TIME	TIME	CONDITIONS OF FLIGHT	REMARKS
8-23	R44		23370	KIWS KIWS	R44	4	4	4	4 fog w/ heavy rain, wind, pillars, no down
8-24	R44		23370	KIWS KIWS	R44	2	2	2	2 pattern Tyler
8-25	R44		23370	KIWS KIWS	R44	3	3	3	3 night currency
8-26	R44		23370	KIWS KIWS	R44	12	12	12	12 learning southern routes
8-30	R44		23370	KIWS KIWS	R44	5	5	5	5 woodland 1st tour!
8-31	R44		23370	KIWS KIWS	R44	18	18	18	18 Hooks to Southern routes
8-32	R44		23370	KIWS KIWS	R44	3	3	3	3 ferry to Corcor
8-33	R44		23370	KIWS KIWS	R44	5	5	5	5 Grand ferry to Hooks w/ testing
8-34	R44		23370	KIWS KIWS	R44	5	5	5	5 learn tour
8-35	R44		23370	KIWS KIWS	R44	10	10	10	10 H town solo + made C. Hooks down
PAGE TOTAL						67	67	67	67
AMOUNT FORWARDED						1168.3	62.9	1168.3	1168.3
TOTAL TO DATE						1175.0	69.6	1175.0	1175.0

Figure 4. Photocopies of the last two pages of the pilot's logbook. Calculated flight times are indicated in blue.

The pilot had recorded the following certificate award dates:

Certificates Held

Private Pilot	6-21-2019
Commercial Pilot	8-17-2021
Remote Pilot	5-15-2022
Flight Instructor	3-10-2023

The pilot possessed a logbook entry stating that the pilot met the experience requirements of Special Federal Aviation Regulation (SFAR) 73, section 2(b)(ii)(A-D) for Robinson R44 helicopters. The entry was signed and dated December 14, 2023.

3.4 Pilot's History with NHS

All information about the pilot's history with NHS was gathered through interviews. NHS did not provide records of the pilot, despite stating that they had records and despite multiple requests for the information.

One of the part-owners provided the following information. He described the pilot as a good pilot who never exhibited any flying deficiencies After becoming employed by NHS, the pilot did some boarding assistant duties but was hired primarily as a pilot. NHS did not conduct the accident pilot's initial helicopter flight training.

3.5 Pilot Training for Air Tours

The part-owner reported that the company trained the pilot, and that there was no Part 91 requirement for the operator to do so. NHS did not have a written training program, nor were they required to have one. All the training was on-the-job training. The pilot was trained to conduct the air tours by another pilot, employed by NHS, who, according to the part-owner, had been doing the air tours for years. The company did not employ a dedicated pilot to train the new employees but the pilot that trained the accident pilot was doing most of the NHS training. For this report, this employee is identified as the "flight instructor." The company policy for new pilots was, when they are comfortable with the [air tour] flight, then they are released to conduct the flights themselves.

The flight instructor was the only NHS employed pilot from January 2024 to July 2024. When the second pilot (Tyler Olson) was hired, the flight instructor evaluated the new hire and trained the second pilot for air tour flights. The training consisted of traffic pattern work and autorotations. The flight instructor ensured that the second pilot was a competent PIC, then began the air tour training which included sitting in the opposite pilot seat and allowing the second pilot to fly while the flight instructor gave the tour talking points to the passengers in the back.

The accident pilot was the third pilot hired by NHS, and the flight instructor evaluated and trained the accident pilot in a similar manner to the second pilot. Another component of the training included discussions on operating near high-rise buildings and a 700 ft pole with a tiny light that was near the Houston aquarium.

3.6 Pilot's Recent Activities

According to the pilot's husband, the pilot worked about nine days in a row. On Friday, October 18th, the pilot worked, but the husband did not recall the hours. ADS-B data showed the first flight for October 18th began about 1053 and the last flight ended around 1957. On Saturday, October 19th, the pilot worked from about 0930 until about 2230. On Sunday, October 20, 2024, the day of the accident, the husband drove the pilot to work around 1100.

3.7 Medical and Pathological Information

An autopsy of the pilot was performed by the Harris County Institute of Forensic Science, Houston, Texas. The cause of death was multiple blunt force injuries.

4.0 EFD to Houston Operations

According to the part-owner, market demand prompted NHS to expand their air tour services to the south of Houston. The company assigned the accident pilot and a boarding assistant to EFD. According to the pilot's husband, the pilot was confident

in flying out of EFD. The flight instructor and the second pilot remained at DWH for air tours. The boarding assistant, dedicated to EFD, was also a helicopter pilot but was not employed as a pilot at that time and did not conduct air tours. The flight instructor and the second pilot both reported that they did not fly tours out of EFD.

The accident helicopter, N881KE, was dedicated to supporting EFD operations.

According to the manager of Signature Aviation, located at HOU, NHS leased hangar space and kept the accident helicopter in that hangar. According to the boarding assistant assigned to EFD, he and the accident pilot would pick up the helicopter in the morning, fly it from HOU to the Signature Aviation FBO at EFD and operate out of the FBO during the duty period. At the end of the day, they would return the helicopter to HOU.

4.1 EFD to Houston Route Development

According to the part-owner, the pilots had the most weight [or input] on route development, and the route was plotted with the experience of the other pilots who had been flying downtown for many years. The part-owner reported that under Part 91, it was up to the pilot to know about altitudes and obstructions for flight planning.

The flight instructor was part of a conversation that included one of the part-owners and the second pilot. According to the flight instructor, all agreed that departing EFD and then flying north over Interstate 45 (I-45) would be the most direct route to Houston and it placed the helicopter on the west side of Houston, which was, in the flight instructor's opinion, better than approaching Houston from the east side. The flight instructor stated that the east side was dark and not the most iconic view of Houston. The flight instructor recalled that flight operations out of HOU sometimes prevented operations along I-45 when certain runways were in operation at HOU.

The flight instructor flew a 1.8-hour flight with the accident pilot in the south Houston area but did not discuss nor fly a proposed route. The flight instructor did not recall the date of the 1.8-hour flight with the accident pilot. After this flight, the flight instructor travelled out of the country. This was while the air tours were being conducted from EFD.

According to the second pilot, the air tours from EFD started around October 10, 2024. He did not recall any type of check out procedure needed to operate out of EFD. According to the second pilot, he did not like operating from the east side of Houston because of the accident radio tower and it being dimly lit.

ADS-B data showed the first NHS flights from EFD began on October 12, 2024. Of the multiple flights to Houston, none followed I-45 North. All flights from EFD to Houston followed a similar path to the east side of Houston.

4.2 EFD to Houston History

ADS-B data showed that from October 17, 2024, through October 20, 2024, the accident helicopter made seven flights to Houston and back to EFD. Two were flown on October 17, 2024. Two were flown on October 19, 2024. Three were flown on October 20, 2024, with the last one being the accident flight.

All seven flights generally followed the same path as shown in figure 5.

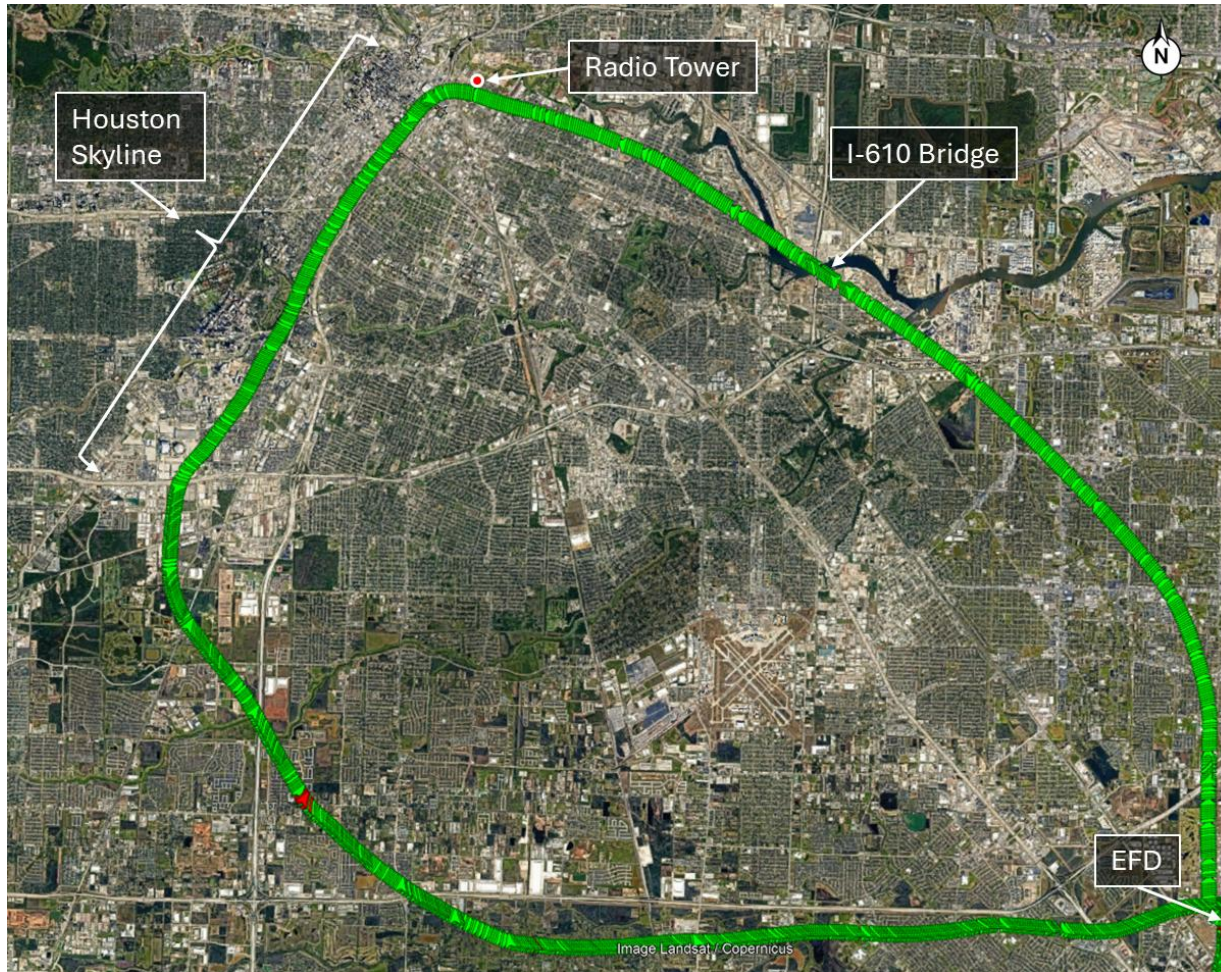


Figure 5. Illustration of the EFD to Houston to EFD local flight known to the NHS pilots as the Downtown Loop.

Flight 1. October 17, 2024. The flight was conducted from about 1211 to 1237 during day conditions. ADS-B data showed the helicopter passed about 2,000 ft south of the I-610 bridge, then passed about 1,900 ft south of the radio tower and about 850 msl and flew along the Houston skyline about 600 to 775 ft.

Flight 2. October 17, 2024. Sunset occurred at 18:48. The flight was conducted from about 18:38 to 19:05 during night conditions. The helicopter passed over the I-610 bridge then passed about 1,900 ft south of the radio tower and about 725 ft. The helicopter then flew along the Houston skyline while about 550 to 625 ft.

Flight 3. October 19, 2024. Sunset occurred at 18:45. The flight was conducted from about 18:44 to 19:08 during night conditions. The helicopter flew over the I-610 bridge then passed about 1,900 ft north of the radio tower and about 625 ft. The helicopter then flew along the Houston skyline while about 500 ft to 575 ft.

Flight 4. October 19, 2024. The flight was conducted from about 20:15 to 20:40 during night conditions. The helicopter flew over the I-610 bridge and then passed about 1,900 ft north of the radio tower and about 825 ft. The helicopter then flew along the Houston skyline while about 625 ft to 725 ft.

Flight 5, October 20, 2024. Sunset occurred at 18:44. The flight was conducted from about 1714 to 17:40 during day conditions. The helicopter flew over the I-610 bridge then passed about 1,000 ft south of the radio tower and about 775 ft. The helicopter then flew along the Houston skyline while about 550 ft to 750 ft.

Flight 6. October 20, 2024. The flight was conducted from about 18:47 to 19:13 during night conditions. The helicopter flew over the south edge of the I-610 bridge then about 580 ft south of the radio tower and about 775 ft. The helicopter then flew along the Houston skyline while about 650 to 775 ft.

Flight 7. The flight was conducted from about 19:42 to 19:51 in night conditions. After departing EFD the helicopter flew a path that was as far as one mile east of the previous six flights to the Houston skyline. The helicopter passed east of the Sidney Sherman bridge then turned to the east side of the Houston skyline. The helicopter was about 825 ft when it struck the radio tower. According to a recorded conversation between the accident pilot and HOU tower controller, the tower controller reported company traffic to the accident pilot, followed by the accident pilot's response and an audible gasp.

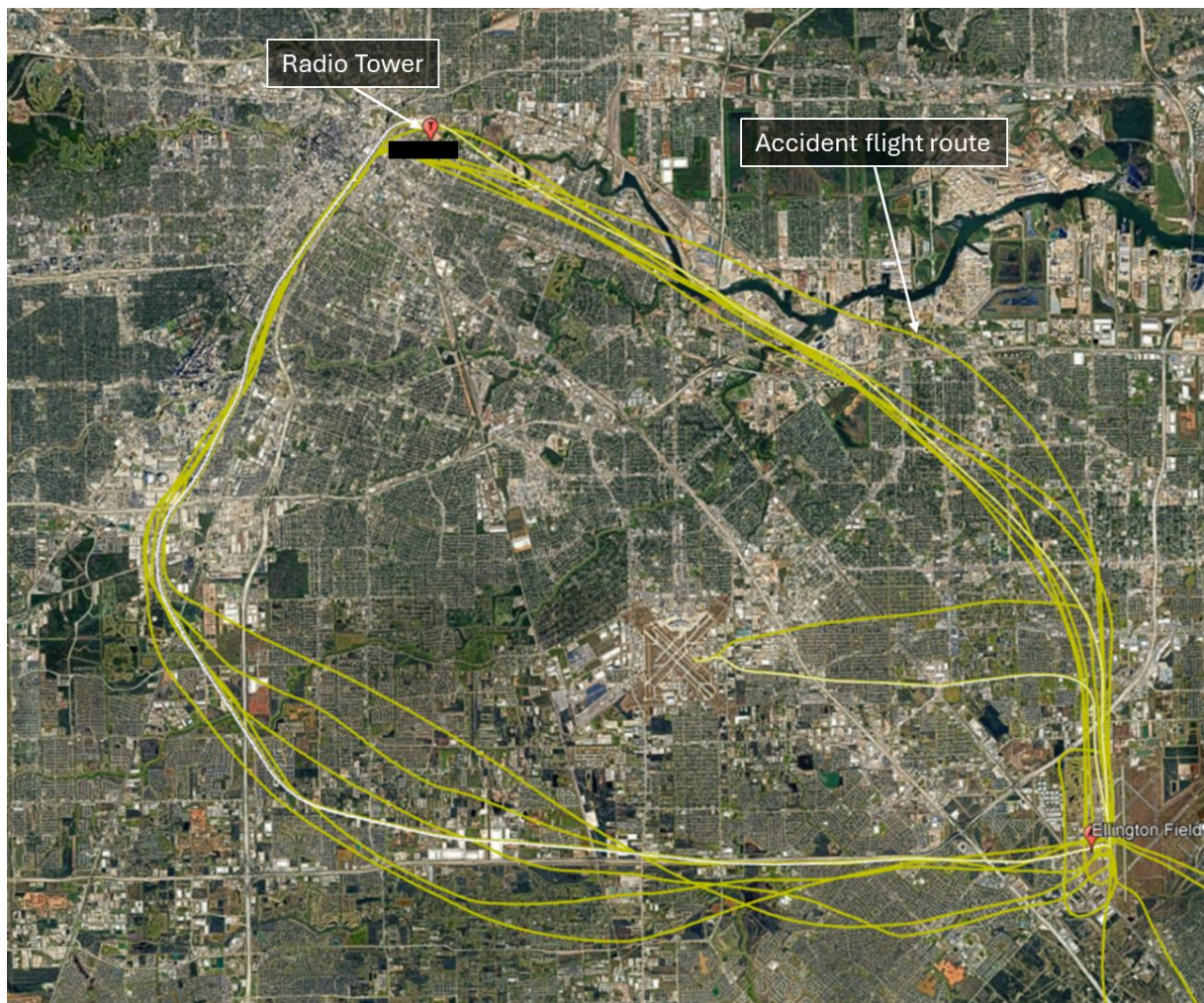


Figure 6. Google image showing the seven flights to Houston made from EFD. The accident flight route is identified.

5.0 NHS Information

The operator of the accident helicopter was NHS. Only one of the three part-owners agreed to an interview. The following information is from this interview.

NHS was purchased as a business around December 2023. The company operated as a Part 91.147 air tour operation. The company employed three pilots and two boarding assistants.

The company's principal base of operations was in Conroe, Texas; however, NHS operated out of two airports, DWH and EFD.

5.1 Letter of Authorization

NHS had a Letter of Authorization (LOA) "Commercial Air Tour Operations Authorization and Drug and Alcohol Testing Program Registration", issued by the Federal Aviation Administration (FAA).

The LOA identified business management was the responsibility of Robert Adkins and the aircraft maintenance was the responsibility of Jarrell Allen.

The LOA listed three Robinson R-44 II helicopters with registration numbers, N233JD, N233TR, and N881KE.

According to the owner of N881KE, the accident helicopter, he purchased the helicopter for personal use, from Express Helicopters, Conroe, Texas, which he reported, was owned by the same owners of NHS. While the helicopter was at the Conroe facility for maintenance, the owner was approached by one of the NHS owners who requested the owner lease the helicopter to NHS, for air tours. The owner agreed to allow NHS to use the helicopter, but he requested a contract in writing. The owner received a contract from Mr. Frank Fults. Upon receipt of the contract, the owner did not agree with the contract's estimated value of the helicopter and would not sign the contract until the value of the helicopter was increased to the purchase value. He later discovered that the helicopter was no longer in the maintenance facility and was conducting air tours for NHS before the contract was signed.

According to the airport manager, NHS began operations from West Houston Airport, (IWS) Houston, Texas. NHS left IWS around September 30, 2024. NHS then began operations at DWS. According to the second pilot, NHS conducted air tours, discovery flights, gender reveal drops and wedding pick-ups.

5.2 NHS Documents and Programs

NHS did not have, nor was it required to have the following documents:

- Operations Specifications
- General Operations Manual
- Training Manual
- Flight Follower program
- Flight Locating program
- Crew Rest documentation
- Emergency Response Plan

- Safety Management Systems (SMS) Program

According to the part-owner, NHS did have an alcohol and drug program. NHS did not provide documentation of their program.

NHS reported that they did keep records on the pilots and that they did have “whatever training records were required by 91.147”; however, no documents were provided to the investigation.

5.3 Mission Planning, Risk Assessment, Flight Following

According to the part-owner, the company used an online program to schedule air tours and to receive the customer weights. According to the flight instructor, the software was PEEK Pro 8.

According to the part-owner, for air tours, the pilots were not required to compute a risk assessment. The pilots were not required to brief management prior to departing on an air tour. The company did keep track of the number of air tour flights the pilots made. NHS did not provide that flight data for the investigation.

The part-owner reported that the pilots had the discretion to file Visual Flight Rules (VFR) flight plans under Part 91 rules. NHS used Flight Aware to keep track of the flights.

NHS did not conduct doors-off air tours.

5.4 Weather and Weather briefings

The part-owner reported that when a pilot prepares for an air tour, they prepare everything that is required per Part 91. The part-owner provided no company policy regarding weather briefs or pilot responsibilities for gathering weather information.

6.0 Radio Tower Data

The guyed radio tower, identified as TX 189B0-A (figure 10 and 11), Federal Communications Commission (FCC) number 1052552, was owned by SBA Communications, LLC, Boca Raton, Florida. According to an email dated October 29, 2024, SBA Communications took possession of the radio tower on September 6, 2024. According to FCC records, the radio tower was constructed on June 1, 1987. According to documents, the recommended markings/lighting were red lights and paint.

According to a Maintenance Inspection Report (MIR), dated August 5, 2024, the radio tower was 920 ft tall, and an overall height of 1003 ft with top appurtenance. Two sets of guy wires extended from the radio tower. The inner set extended out from the

radio tower about 100 ft. The outer set extended out from the radio tower about 340 ft. The radio tower appeared to be painted in alternating colors of white and aviation orange. Figure 7.



Figure 7. Image of the accident radio tower, courtesy of the owner.



Figure 8. Postaccident image of the radio tower.

6.1 Radio Tower and NHS History

According to the part-owner, the accident pilot did not mention the radio tower to him, but the second pilot mentioned his concern about the radio tower to the part-owner. The second pilot stated that he did not like flying in that area because the radio tower was hard to see and that the lights were dim. The part-owner also mentioned that the radio tower was dimly lit.

6.2 Radio Tower Maintenance Inspection Reports (MIR)

According to an SBA Communications Site Inspection Report, dated September 24, 2024, there were two entries that addressed the radio tower beacon:

Item 62. Is the SBA radio tower light beacon in good working condition? [78]

Answer: N/A

Item 108. Is the radio tower beacon operational? [122]

Answer: N/A

The SBA ANSI/TIA-222-H MIR, dated August 5, 2024, stated, in part, *“At the request of SBA Communications Corporation, Radio tower Engineering Professionals carried out a maintenance field review of Radio tower TX189B0-A, in accordance with ANSI/TIA-222-H standard: Structural standards for steel radio towers and radio tower supporting structures. (Annex J.1: Maintenance and Conditions Assessment).”* Regarding the lighting of the radio tower, Section C of the report identified all areas examined as acceptable (figure 9).

C	LIGHTING	Acceptable	Unacceptable	Not Applicable	COMMENTS
C1	Conduit, junction boxes, and fasteners (weather tight and secure)	X			
C2	Drain and vent openings (unobstructed)	X			
C3	Wiring condition	X			
C4	Light Lenses	X			
C5	Bulb Condition	X			
C6 a	Controllers Functioning – Flasher	X			
C6 b	Controllers Functioning – Photo control	X			
C6 c	Controllers Functioning – Alarms			X	Alarms not in scope of work
C7	Obstructions to the lighting system	X			

Figure 9. Excerpt from the Maintenance Inspection Report.

6.3 FAA Marking and Lighting Requirements

Criteria for the marking and lighting of radio towers is found in FAA Advisory Circular AC70/7460-1M, which stated, in part:

Paragraph 4.3 *“Radio towers are typically marked with flashing red lights.”*

Paragraph 5.2 Standards. *“The red obstruction light system is composed of flashing omnidirectional lights (L-864) and/or steady-burning or flashing (L-810/L-810 (F)) lights. When one or more levels are comprised of flashing lights, the lights should flash simultaneously. To determine the number of light levels needed, refer to Figure A-6.”*

A review of FAA Figure A-6 revealed that radio towers above 700 ft -1050 ft fall under the A3 section of the chart and would require a top light and two sets of intermediate lights. All lights would be L-864 (flashing red lights) configured to flash at a rate of 30 flashes per minute (FPM) (+/- 3 FPM) (figure 10).

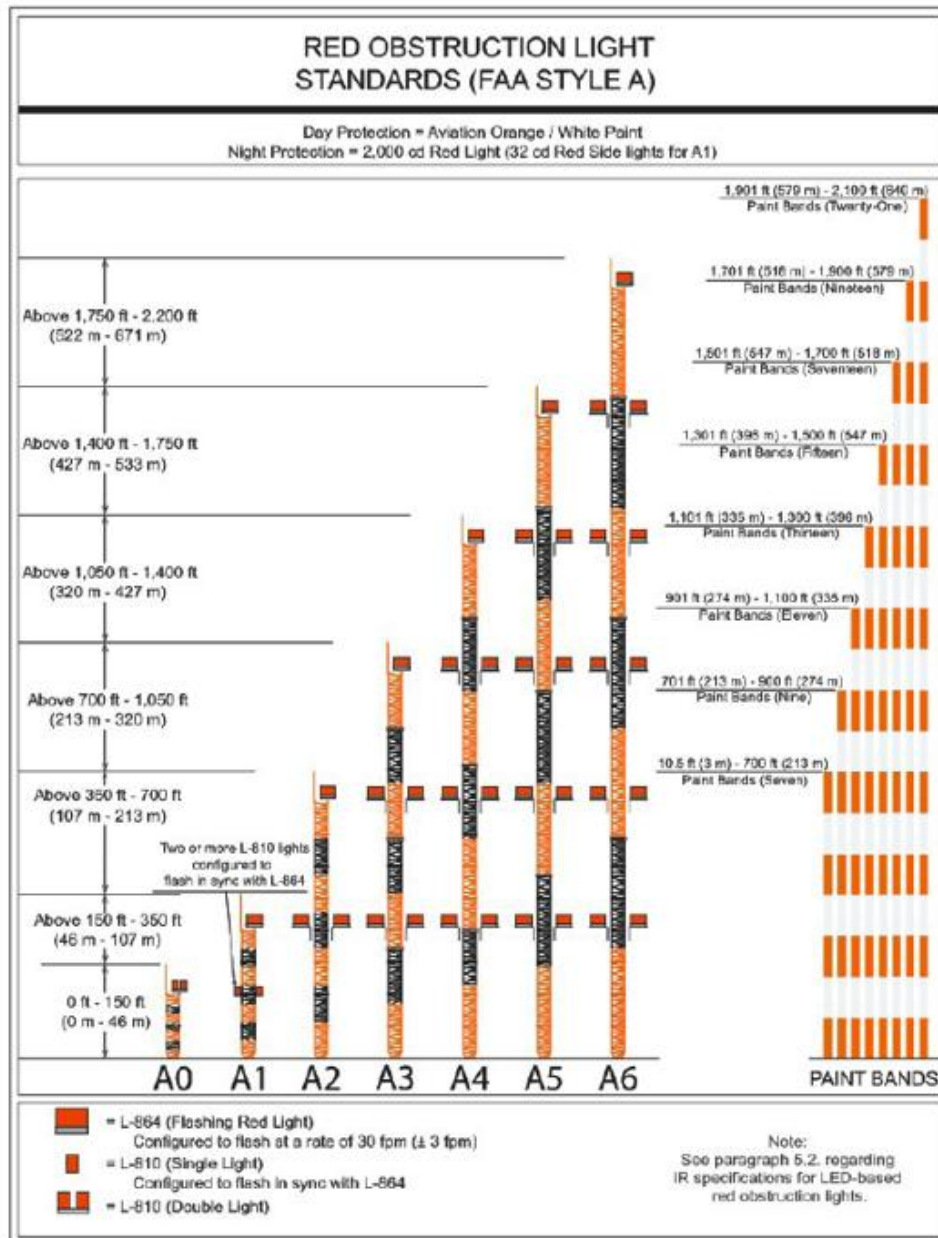


Figure 10. Excerpt from FAA Advisory Circular AC70/7460-1M

According to the MIR, the radio tower had beacons at 340 ft, 639 ft, and 1,000 ft levels. The lights were Hughey & Phillips, type: L-864 Flash Head. Examination of the radio tower debris revealed shattered red and white glass debris but no intact lamps. Multiple videos revealed that the top beacon at 1,000 ft, and the intermediate beacon at 639 ft, illuminated and flashed red, in unison, at a rate of about 30 times per minute. The intermediate beacon at 340 ft was not seen in the videos.

According to the MIR, the photograph shown in figure 11 is a beacon from the 639 ft elevation.



Figure 11. Image of one of the beacons attached to the radio tower. Photo courtesy of the owner.

An image captured from a video taken near the accident site showed the top beacon and the 639 ft intermediate beacons as they flashed in unison (figure 12).

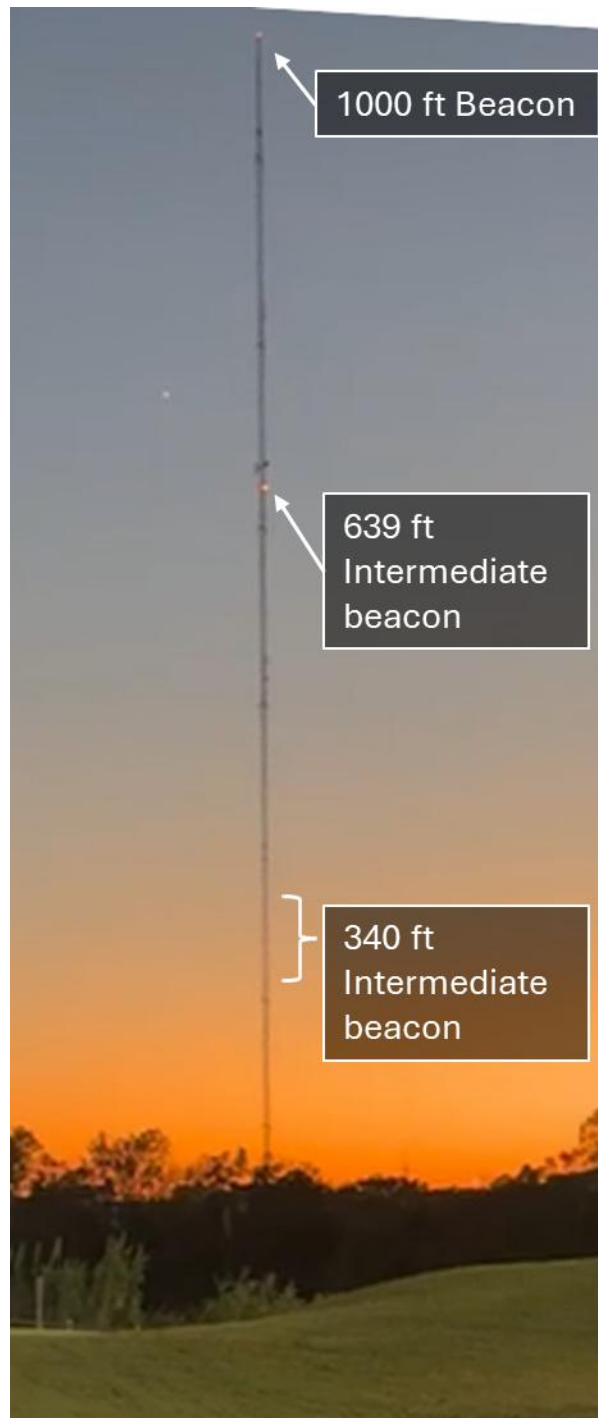


Figure 12. Image captured from a video showing the radio tower with the top beacon and 639 ft intermediate beacons illuminated. Courtesy of a witness.

Calculations from the video mentioned in paragraph 1.2 revealed that the beacons flashed in unison at a rate of about 30 flashes per minute.

6.4 Radio Tower Notice to Airmen (NOTAM)

In the email dated October 29, 2024, the owner of the radio tower explained that the company posted a NOTAM while integrating the site into their Network Operations Center (NOC). The incident report showed “all lights out” awaiting delivery to the NOC. The NOC used “All lights out” when a site is not communicating with the NOC, and they do not have the ability to electronically monitor the lighting.

6.5 FAA Charts Depictions of Radio Tower

The accident radio tower was illustrated on both the Houston VFR Sectional (figure 13) and the Houston Terminal Area Chart (figure 14).

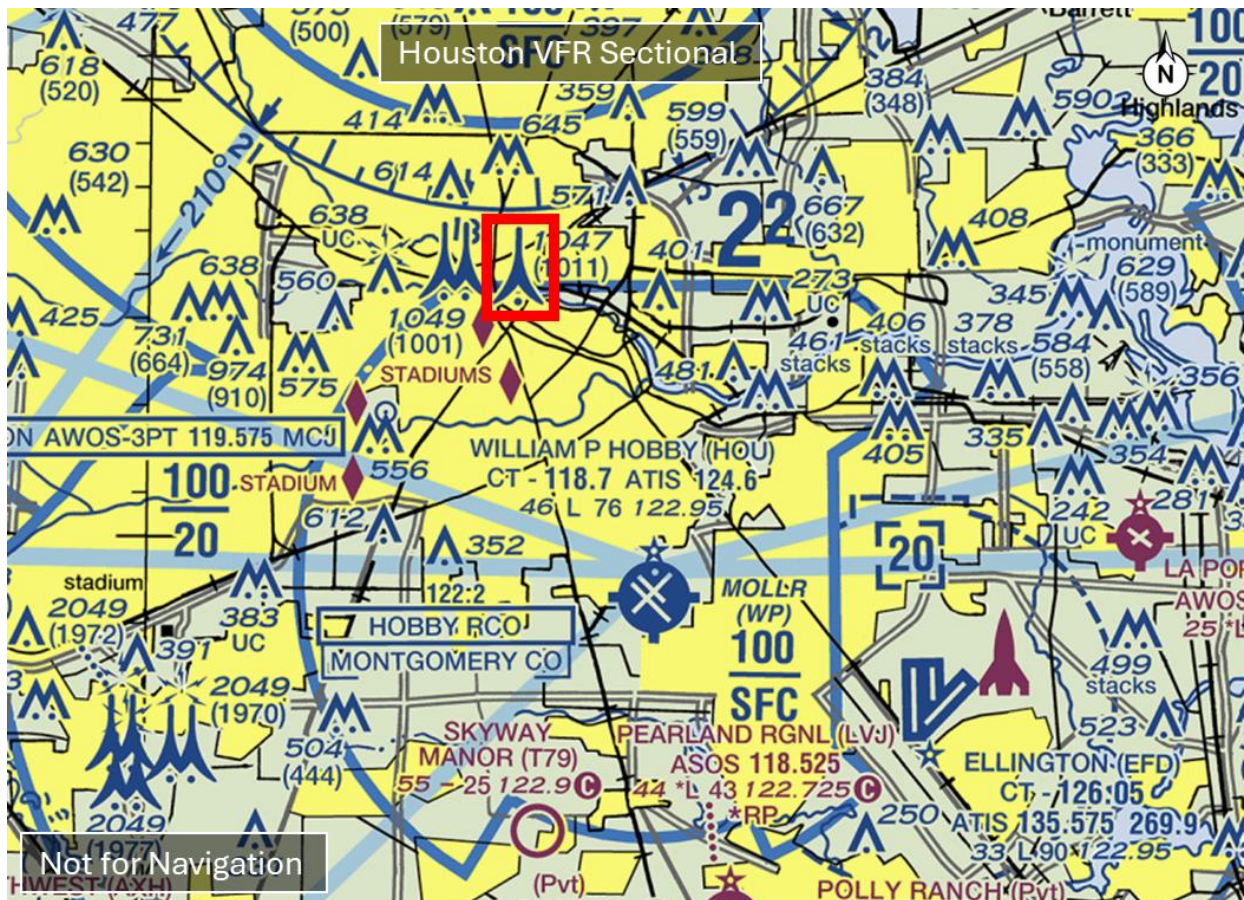


Figure 13. Excerpt from the Houston VFR Sectional showing the accident radio tower.

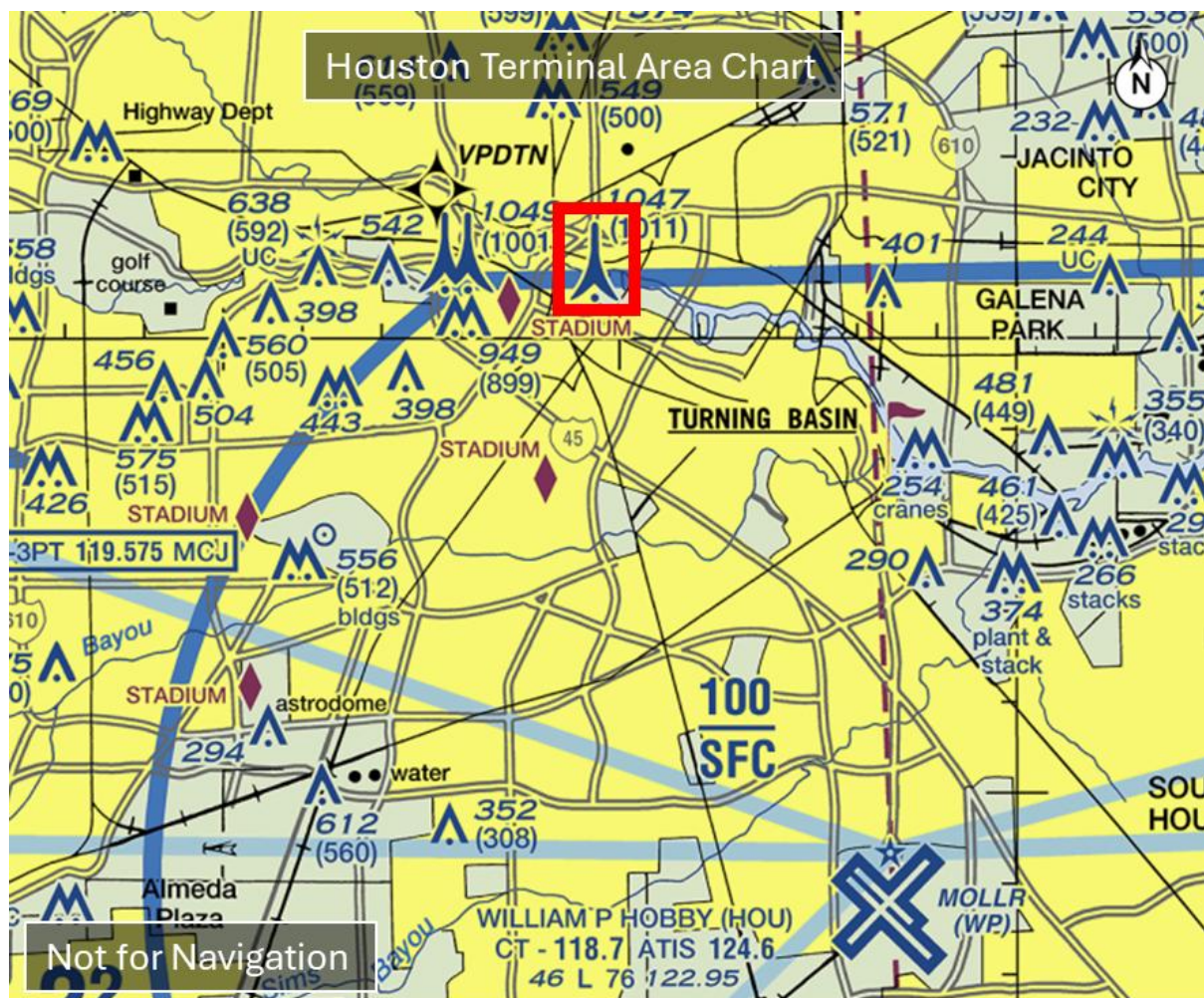


Figure 14. Excerpt from the Houston Terminal Area Chart showing the accident radio tower.

Both the VFR sectional and the terminal area chart identified the radio tower as an obstruction, 1,000 ft or higher above ground level (agl) that may be lit or unlit. Both charts indicated that the radio tower was 1,047 ft mean sea level (msl) and 1011 ft agl.

6.6 Radio Tower Examination

Postaccident visual examination of the radio tower revealed bending and deformation of the entire structure. Some thermal damage was evident on some of the structure. Sections of the helicopter were trapped within the bends of the radio tower. A significant impact mark was observed about 100 ft from the top of the radio tower, consistent with an impact from an object.

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Attachments

1. Interviews
2. ADS-B KML Data
3. ADS-B Excel Data
4. ADS-B Memo for Record
5. Video #1 Daikin Park
6. Pilot's Logbook Excerpts
7. Letter of Authorization
8. Radio Tower Data