Aviation Investigation Final Report

Location:	Juneau, Alaska	**Accident Number:**	ANC16LA022
Date & Time:	May 5, 2016, 14:05 Local	**Registration:**	N194EH
Aircraft:	Airbus AS350	**Aircraft Damage:**	Substantial
Defining Event:	Loss of visual reference	**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

The instrument-rated commercial pilot was making a visual flight rules internal-cargo company flight in the helicopter. He reported that flat light conditions were present as he made a visual approach for landing at a remote dog camp situated on a glacier. During the approach, the helicopter impacted terrain, coming to rest about 3/4 mile from the dog camp. The pilot reported that there were no preimpact mechanical anomalies with the helicopter and characterized the accident as controlled flight into terrain. It is likely that the pilot failed to maintain terrain clearance due to his inability to distinguish distances and closure rates because of the flat light optical illusion.

The single cargo strap securing a plastic box containing a metal heater to the rear cabin floor remained intact during the accident sequence; however, the plastic box shifted forward due to the momentum of the helicopter impacting terrain, which allowed the metal heater to escape from the lidded box. It is likely that the metal heater struck the pilot and/or the pilot's seat in the accident sequence, contributing to the serious injuries sustained by the pilot. The single cargo strap used to secure the plastic box was installed such that it provided lateral restraint of the box but no forward restraint of the box. If the box had been restrained to prevent forward movement, it is likely that the metal heater would not have escaped from the box. Review of the helicopter's rotorcraft flight manual (RFM) revealed that it provided only a total weight limit for the rear cabin floor and did not provide any guidance about how to properly secure internal cargo in the cabin. Further, although the manufacturer indicated in a systems manual that cargo could be secured to the cabin floor using 11 mooring points embedded into the floor and provided a force limit for each mooring point, the systems manual provided no guidance regarding how the cargo should be attached to the mooring points; for example, no information was provided about the type and number of restraints to be used or how they should be configured. Airbus, the manufacturer of the helicopter, stated that it was the responsibility of the operator "to define an adapted cargo, freight, or baggage securement that is in respect to the limitations permissible force on the floor stowing mooring rings."

The Federal Aviation Administration (FAA) stated that operators do not have certification approval to install cargo in the cabin unless it is mentioned in the RFM or RFM supplement and that, if an FAA-approved cargo configuration has been published for a specific aircraft, the RFM for that aircraft is where information on how and where to install cargo will be found. However, the FAA also stated that it "is not aware of any documentation that would prohibit Part 27 rotorcraft from carrying cargo in the cabin, even if a certification does not exist for that helicopter."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain terrain clearance while on approach to land in flat light conditions. Contributing to the severity of the pilot's injuries was the inadequately restrained internal cargo, which shifted forward during the impact and struck the pilot and/or the pilot's seat.

Findings

Aircraft	Altitude - Not attained/maintained
Personnel issues	Identification/recognition - Pilot
Personnel issues	Monitoring equip/instruments - Pilot
Personnel issues	Visual illusion/disorientation - Pilot
Environmental issues	Flat light - Effect on operation
Environmental issues	(general) - Ability to respond/compensate
Aircraft	Passenger compartment equip - Incorrect use/operation
Aircraft	(general) - Incorrect use/operation

Factual Information

History of Flight

Approach	Other weather encounter
Approach	Loss of visual reference (Defining event)
Approach	Controlled flight into terr/obj (CFIT)

On May 5, 2016, about 1405 Alaska daylight time, an Airbus (formerly Eurocopter) AS 350 B2 helicopter, N194EH, collided with snow-covered mountainous terrain while on approach to a remote landing site on the Norris Glacier about 15 miles northeast of Juneau, Alaska. The commercial pilot received serious injuries, and the helicopter sustained substantial damage. The helicopter was registered to and operated by Era Helicopters, LLC, under the provisions of Title 14 *Code of Federal Regulations (CFR)* Part 91 as a visual flight rules (VFR) internal-cargo company flight. Degraded visual meteorological conditions were reported on the Norris Glacier at the time of the accident, and company flight following procedures were in effect. The flight originated about 1341 from a heliport at the operator's headquarters on Douglas Island in Juneau.

Alaska Heli-Mush, Inc., contracted with Era Helicopters to provide helicopter support for the movement of personnel, dogs, and cargo. The purpose of the flight was to transport camp equipment from Era Helicopters' headquarters in Juneau to a remote dog camp on the Norris Glacier in the Tongass National Forest. Era Helicopters and Alaska Heli-Mush conducted heli-mushing operations for the Alaska tourism industry using a helicopter glacier landing permit issued by the US Forest Service.

The operator reported that, at 1307, a weather report from the dog camp indicated a 300-ft ceiling and 5 miles visibility. At 1341, the pilot departed on his first flight of the day from the heliport for the approximate 25-minute flight with an internal cargo load of 850 pounds and no passengers. During an interview with a National Transportation Safety Board (NTSB) investigator on May 11, 2016, the pilot reported that, during the approach to the dog camp over a large, featureless and snow-covered ice field, ceilings were "low," and he observed "a lot of flat light." He stated that, during the approach, he was in radio contact with the dog camp personnel. He reported that he was scanning his radar altimeter, which was showing 200 ft above ground level, and he had visually acquired the landing zone and dog camp when the helicopter struck the snow-covered ice field and rolled over to the right. The pilot reported that there were no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation and characterized the accident as controlled flight into terrain.

After the impact, the pilot released himself from the fiberglass seat's 4-point restraint system and attempted to perform an emergency shutdown. The dog camp personnel immediately responded to the accident site via snowmobile and rendered first aid to the pilot who they found lying on the snow. The accident site was about 3/4 mile from the dog camp landing zone near Guardian Mountain.

Dog camp personnel notified Era's operational control center of the accident at 1405 and Era's Juneau base at 1408. At 1409, the operator's base in Juneau initiated the emergency response plan.

Pilot Information

Certificate:	Commercial	**Age:**	39,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	January 7, 2016
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 30, 2016
Flight Time:	(Estimated) 3428 hours (Total, all aircraft), 2084 hours (Total, this make and model), 3375 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft)		

The pilot, age 39, held a commercial pilot certificate with a rotorcraft-helicopter rating and a helicopter instrument rating. His most recent first-class medical certificate was issued on January 7, 2016, with the limitation that he must wear corrective lenses.

According to the operator, the pilot's total aeronautical experience was about 3,428 hours of which about 2,084 hours were in the accident helicopter make and model. In the 30 days before the accident, the pilot flew a total of 15 hours.

The operator's training records for the pilot showed no deficiencies and indicated that the pilot had completed all required training including a competency check ride on March 30, 2016. The operator reported that flight operations in flat light conditions and inadvertent instrument meteorological conditions (IIMC) recovery are trained and checked annually in the helicopter.

Aircraft and Owner/Operator Information

Aircraft Make:	Airbus	**Registration:**	N194EH
Model/Series:	AS350 B2	**Aircraft Category:**	Helicopter
Year of Manufacture:	1992	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2608
Landing Gear Type:	Emergency float; Skid	**Seats:**	6
Date/Type of Last Inspection:	May 3, 2016 Continuous airworthiness	**Certified Max Gross Wt.:**	4961 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo shaft
Airframe Total Time:	11735.9 Hrs at time of accident	**Engine Manufacturer:**	Safran (formerly Turbomeca)
ELT:	C126 installed, activated, aided in locating accident	**Engine Model/Series:**	Arriel 1D1
Registered Owner:	ERA HELICOPTERS LLC	**Rated Power:**	531 Horsepower
Operator:	ERA HELICOPTERS LLC	**Operating Certificate(s) Held:**	Rotorcraft external load (133), On-demand air taxi (135)

The 1992-model-year helicopter was equipped with a Safran (formerly Turbomeca) Arriel 1D1 turboshaft engine. According to the operator's records, at the time of the accident, the helicopter had accumulated 11,735.9 flight hours, and the engine had accumulated 8,741.90 hours. The most recent inspection of the airframe and engine was completed on May 3, 2016. An examination of the helicopter's maintenance records revealed no evidence of uncorrected mechanical discrepancies with the airframe and engine.

The helicopter was configured to be flown from the right front seat, which was a non-energy attenuating, fiberglass seat. The left front seat was a two-place, non-energy attenuating, fiberglass seat installed via a supplemental type certificate (STC).

The helicopter was equipped with a radar altimeter. The helicopter's attitude indicator displayed the minimum required ± 25° pitch indication. An emergency floatation system was installed on the skid system of the helicopter. Snow/tundra boards were not installed on the skid tubes.

The operator configured the helicopter's cabin to facilitate the transportation of internal cargo. The rear seat assembly was folded up against the cabin wall, and a lidded plastic box that contained a metal heater was placed on the cabin floor behind the pilot's seat. A single cargo strap was secured to the rear seatbelt attachment points in front of the aft cabin wall and routed over the top of the plastic box from left to right in the cabin. The configuration of the single cargo strap provided lateral restraint; however, no forward restraint was present. The make and model of the single cargo strap, as well as the strap's maximum load rating, could not be determined. According to cargo paperwork, the box and its contents weighed 50 pounds.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAJN,24 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	21:53 Local	**Direction from Accident Site:**	237°
Lowest Cloud Condition:	Few / 1300 ft AGL	**Visibility**	8 miles
Lowest Ceiling:	Broken / 3900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	7°C / 5°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Juneau, AK	**Type of Flight Plan Filed:**	Company VFR
Destination:	Juneau, AK	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

The closest official weather observation station to the accident site was located at the Juneau International Airport, Juneau, about 16 miles southwest of the accident site. At 1353, the reported weather conditions were wind 120° at 15 knots, visibility 8 statute miles, few clouds at 1,300 ft, broken clouds at 3,900 ft, temperature 45°F, dew point 41°F, and altimeter setting 30.21 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	58.479999,-134.208892(est)

The wreckage was recovered from the accident site and transported to a secure hangar at the Juneau International Airport, Juneau. On May 10, 2016, a wreckage examination and layout were done under the direction of the NTSB investigator-in-charge (IIC). Also present were an aviation safety inspector from the Federal Aviation Administration's Juneau Flight Standards District Office, an air safety investigator from Airbus, an air safety investigator from Safran, and two representatives from Era. The examination revealed damage to the helicopter's fuselage, main rotor system, tailboom, and tail rotor system. During the examination, no preimpact mechanical malfunctions or failures with the airframe and engine were noted.

Postaccident photos submitted by the operator showed that the cargo strap over the plastic box remained intact and that the metal heater had been ejected out of the plastic box during the impact sequence and was lying immediately behind the pilot's seat on the snow. The photos also showed a fracture of the seatback at about shoulder height. Removal of the seat cushion showed a complete transverse fracture of the seatback, lower on the left side than the right side.

Survival Aspects

The pilot was seated in the front right seat and was wearing a 4-point restraint system at the time of the accident. The pilot did not wear and was not required to wear a flight helmet.

Review of the pilot's postaccident medical treatment records indicated that his injuries included fractures of multiple left ribs and the left scapula, multiple left-sided transverse and spinous process fractures, as well as injuries to the left lung, left kidney, and spleen, and an intimal tear in the mid-descending aorta.

Organizational and Management Information

Era Flight Risk Assessment

The Era Operations Manual – Part A General Procedures discusses flight risk assessment and states, in part:

A risk assessment shall be completed at the beginning of each flight day and updated when conditions warrant. Pilots shall not initiate a flight or series of flights until a risk assessment has been performed.

The pilot conducted a formal flight risk assessment before the flight using Risk Assessment Form ERA A-003. The form had sections addressing crew qualifications, crew currency, duty period, flight profile, environment, and aircraft. The completed flight risk assessment form had a total value of 15, and no sections of the flight risk assessment were exceeded (crew qualifications, crew currency, duty period, flight profile, environment, and aircraft). The flight would have been prohibited if the total value was greater than 32 or any section limit was exceeded.

Company VFR Weather Minimums

The Era Operations Manual – Part A General Procedures discusses company VFR weather minimums and states that, for overland day VFR flights, a minimum operating height of 500 ft, a cloud base of 600 ft, and 3 statute miles visibility is required for all aircraft and aircrews. The manual also states that the VFR weather minimum shall be 100 ft of vertical separation from the cloud base, and VFR flights may not depart or continue if the reported weather conditions at departure, en route, or at the destination are below the company VFR weather minimums. The manual further states that a flight in VFR weather conditions that does not meet the company VFR weather minimums may only be made with approval from the Director of Operations, Chief Pilot, or applicable Regional Operations Manager after a risk assessment and deviation request has been documented.

The Era Operations Manual – Part A General Procedures has dedicated sections that address flight operations in deteriorating VFR weather conditions (such as reduced visibility and ceilings), IIMC avoidance procedures, and IIMC recovery procedures.

Flat Light Conditions Operational Procedures

The ERA Operations Manual – Part A General Procedures discusses company operational procedures for flat light conditions and states, in part:

The pilot in command shall use the radar altimeter for altitude reference when flying over large, flat areas, (glaciers, swamps, glassy water, etc.). Monitor airspeed, radar altimeter, and vertical speed more often during approaches in flat light conditions. The pilot in command shall ensure there is a good reference point during approach and landing. Losing sight of the reference point may require a go around. Maintain a good scan without fixating on a point.

Era Internal Cargo Operations

The Era Operations Manual – Part A General Procedures discusses internal cargo carried in passenger compartments and states:

For the purposes of clarity, baggage may be carried in a passenger compartment when properly secured and accompanied by a passenger. Cargo may only be carried in the passenger compartment during cargo only operations. The PIC shall ensure that all cargo, including baggage, on Company aircraft complies with the following: It is carried in an approved cargo rack, bin, or compartment installed in or on the aircraft; It is secured by an approved means.

The manual further discusses how the cargo is carried and states:

Properly secured by a safety belt or other tiedown having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions; It is packaged or covered to avoid possible injury to occupants; It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components;

It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided;

For cargo only operations, this does not apply if the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants of the aircraft a means of unobstructed exit from the aircraft if an emergency occurs; and It is not carried directly above seated occupants.

The operator reported that internal cargo loading is covered in company training and performed by company employees. The operator further reported that the only individuals who have documented cargo training are the pilots, and due to this, all internal cargo loading is supervised and/or approved post-loading by the pilot who has the final authority for airworthiness of the helicopter.

At the time of writing of this report, the operator has sold their Alaska-based business line that supported dog mushing operations on glaciers.

Additional Information

Carriage of Internal Cargo in Airbus AS 350 Series Helicopters

The NTSB IIC submitted multiple inquiries during the investigation to the FAA Office of Accident Investigation and Prevention, Washington, DC, regarding the carriage of internal cargo in the Airbus AS 350 series. On March 28, 2017, the FAA responded, in part:

The FAA does not require original equipment manufacturers (OEMs) to publish information regarding cargo loading. The certification assumption is that the helicopter will be used to carry people, unless indicated otherwise by the applicant. In the case of the AS350, Airbus did not indicate that anything other than passengers will be carried.

In its March 28, 2017, response, the FAA also stated:

Any "approved" cargo installation will be explained in the rotorcraft flight manual (RFM) limitation or supplement section – (what tie-downs are used, what straps are used, etc.); loading instructions (what areas in the cabin get loaded first, second, etc.); and procedures (walk around procedures will mention to verify cargo secured). Operators do not have certification approval to install cargo in the cabin unless it is mentioned in the RFM or [RFM supplement] RFMS (part of the [type certificate] TC or an STC) – installation instructions are provided in the flight manual. It is possible that there may be some operators that have been using existing tie-downs/seat rails to tie down cargo in the cabin, and incorrectly assuming that this is a "certified" installation when in fact it is not. ... The RFM or RFM supplement will be clear as to what is approved regarding internal cargo (if it does not mention how and where to install cargo, then it's not certified).

In a response on August 25, 2017, the FAA stated, "our position is the same as in the other queries from the NTSB regarding cabin cargo – operators should not be securing cargo in areas unless doing so has been FAA approved (basic design, design change, field approval, etc.)." In a letter dated August 29, 2017, the FAA stated, in part:

Also, while a definition for a cargo/baggage compartment in rotorcraft does not exist, the FAA has interpreted this as a compartment (enclosed area) that is separated from the cabin (passenger area). ... Additionally, the FAA is not aware of any documentation that would prohibit Part 27 rotorcraft from carrying cargo in the cabin, even if a certification does not exist for that helicopter.

The NTSB submitted a follow-up question to the FAA asking: From a regulatory aspect: If an aircraft is not certified for a particular task, does it mean that the task is prohibited? The specific example that is being investigated is the carriage of cargo in the main cabin of helicopters certified under Part 27. Most rotorcraft operating manuals don't address the carriage of cargo. Most Part 27 helicopters do not have certification for the carriage of cargo. Does that mean the carriage of cargo in these helicopters is prohibited?

On January 25, 2018, the FAA responded, stating, in part:

The FAA's Aircraft Certification Service (AIR) certificates designs that are compliant with the applicable airworthiness standards. AIR does not approve operations (i.e. particular tasks); operational approvals are issued by the FAA's Flight Standards Service (AFS). When AIR certificates a design for a certain operation, the certification only ensures the design meets the design requirements set forth by the FAA. Approved cabin cargo designs include pertinent safety information such as maximum weight of the cargo, location of the cargo in the cabin, and how the cargo is secured to the airframe. ... As previously stated by FAA, if an FAA-approved cabin cargo configuration has been published for a specific aircraft, the flight manual for that aircraft is where the information will be found.

A review of the Airbus AS 350 B2 RFM found that it discusses required placards in the limitations section and states that a loading instruction placard is to be mounted on the side face of the control pedestal. This placard states the "distributed loads maximum" for the rear cabin floor is 682 pounds. On the accident helicopter, the placard was found mounted on the rear of the control pedestal. No other information regarding the carriage of cargo in the cabin was found in the RFM.

Regarding internal cargo, the Airbus AS 350 Systems and Descriptions Manual states, "further to removing the front [left seat] and folding back the rear benches, the cabin floor can be used to transport cargo. The eleven mooring points are embedded into the floor and are also used to attach the seatbelts." The manual also lists the "limit permissible force on a mooring ring" as 620 dekanewtons or 1,393.7 pound-force.

On April 21, 2017, Airbus stated in an email to the NTSB IIC that "it is the responsibility of the operator to define an adapted cargo, freight, or baggage securement that is in respect to the limitations permissible force on the floor stowing mooring rings." On June 26, 2018, the Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile reported to the NTSB IIC that Airbus has developed a "cargo installation in cabin" procedure for the Airbus AS 350 series, which is currently in the certification process.

Helicopter Internal Cargo Securement

The US Army's Training Circular 3-04.4, Fundamentals of Flight, discusses the securement of internal cargo in helicopters and states:

Aircraft are subjected to G-forces resulting from air turbulence, acceleration, rough or crash landings, and aerial maneuvers. Since the cargo is moving at the same rate of speed as the aircraft, forward movement is the strongest force likely to act on cargo if the aircraft is suddenly slowed or stopped. Other forces which tend to shift cargo aft, laterally, or vertically will be less severe. Restraining or tie-down devices prevent cargo movement that could result in injury to occupants, damage to the aircraft or cargo, or cause the aircraft center of gravity to move out of limits. The amount of restraint required to keep cargo from moving in any direction is called restraint criteria and is expressed in Gs. The *maximum force exerted by an item of cargo is equal to its normal weight times the number of Gs specified in restraint criteria. Restraint criteria are normally different for each type of aircraft and provided in the operator's manual. To prevent cargo movement, the amount of restraint applied should equal or exceed the amount of restraint required. Restraint is referred to by the direction in which it keeps cargo from moving. For example, forward restraint keeps cargo from moving forward and aft restraint keeps cargo from moving aft.*

A search did not identify any regulatory guidance, advisory material, or best practices available from the FAA regarding the securement of internal cargo in helicopters or the care, inspection, and maintenance of cargo straps used for internal cargo operations with helicopters.

Flat Light Conditions and Glacier Flight Operations

The FAA's publication "Flying in Flat Light and White Out Conditions" states:

Flat light is an optical illusion, also known as "sector or partial white out." It is not as severe as "white out" but the condition causes pilots to lose their depth-of-field and contrast in vision. Flat light conditions are usually accompanied by overcast skies inhibiting any good visual clues. Such conditions can occur anywhere in the world, primarily in snow covered areas but can occur in dust, sand, mud flats, or on glassy water. Flat light can completely obscure features of the terrain, creating an inability to distinguish distances and closure rates. As a result of this reflected light, it can give pilots the illusion of ascending or descending when actually flying level. However, with good judgment and proper training and planning, it is possible to safely operate an aircraft in flat light conditions.

This document further discusses precautions when conducting flight operations over glaciers and states, "be conscious of your altitude when flying over glaciers."

Training Device and Simulator Usage

The operator was asked by the NTSB IIC if any aviation training devices (ATD), flight training devices (FTD), or full flight simulators (FFS) for training Airbus AS 350 pilots in Alaska in areas such as flight operations in flat light conditions, flight operations in degraded visual meteorological conditions, and IIMC recovery were utilized. The operator reported that a level 6 FTD is used for initial training in the Airbus AS 350, but not for recurrent training.

The NTSB has published Safety Alert SA-031, "Safety Through Helicopters Simulators." This document discusses the benefits of using helicopter simulators and states in part:

Through simulator training, operators can provide pilots a valuable tool to ensure proficiency in emergency procedures, including autorotations, use of night vision goggles, recognition of degraded visual conditions, and recovery from unusual attitudes. Consistent, standardized simulator training will help prepare pilots for the unexpected and will decrease the risk of an accident. Simulators can be a helpful tool for operators to provide pilot training on degraded visual conditions, safe decision-making skills, and IIMC encounters. By practicing potential emergencies, pilots will be better equipped to handle emergency situations.

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Dwayne Edwards ; FAA Juneau FSDO ; Juneau, AK Romain Bevillard; Bureau d'Enquêtes et d'Analyses; Le Bourget Seth Buttner; Airbus (Technical Advisor); Grand Prairie , TX Bryan Larimore; Safran (Technical Advisor); Grand Prairie , TX Cory Theriot; Era Helicopters ; Lake Charles , LA Larry Lippert; Era Helicopters ; Lake Charles, LA David Zaworksi; Era Helicopters; Lake Charles, LA
Original Publish Date:	November 6, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93111