NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Washington, D.C. 20594

Date May 28, 2020

Group Chairman's Draft Factual Report

OPERATIONAL FACTORS/HUMAN PERFORMANCE

DCA20MA059

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A. ACCIDENT

Location: Calabasas, California
Date: January 26, 2020
Time: 0945 Pacific standard time (1745 UTC)
Aircraft: Sikorsky S-76B; N72EX

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[1] On February 3, 2020, The Sikorsky Party representative came off the Ops/HP group to assist other groups in the investigation

C. SUMMARY

On January 26, 2020, about 0945 PST, a Sikorsky S-76-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

On January 27, 2020, members of the Operational Factors and Human Performance (Ops/HP) Group traveled to the accident site and attended the NTSB Investigator-in-Charge's organizational meeting in Calabasas, California. The Ops/HP Group was formed and consisted of representatives from Federal Aviation Administration, Sikorsky, and Island Express Helicopters Inc[2]. Documents were requested from the FAA and from Island Express and a visual examination of the accident scene was conducted. Publications and flight planning material were retrieved from the accident site.

On January 28, 2020, The Ops/HP Group relocated to Island Express's main office, located at the Long Beach / Daugherty Field (LGB) airport and met with the vice president of the company and provided an in-briefing to discuss the NTSB's purpose and goals for the investigation. The Ops/HP Group began to collect and review documents and drafted a plan for interviews.

From January 29 to February 3, 2020, The Ops/HP Group conducted interviews of Island Express employees[3] and the next of kin to the pilot. The on-scene phase of the investigation was concluded on February 3, 2020. Additional interviews of individuals not employed by Island Express were conducted on February 11th, 26th, April 6th, and May 6th.

E. FACTUAL INFORMATION

1.0 History of flight[4]

On January 26th, at about 0829, the pilot departed the Island Express hangar at LGB with N72EX, landed at John Wayne-Orange County Airport (SNA), and sent out a group cell phone text message[5] about 0839 stating "Heli at OC standing by." He met with owner of OC Helicopters LLC, a Part 135 operator, who brokered the flight to Island Express and was acting as a transportation coordinator for the movement of the passengers. The two discussed the upcoming charter flight and the weather. The pilot told the coordinator he was going to fly north and east of clouds depicted on the ForeFlight[6] app on his cell phone. The coordinator understood

[2] Hereby referred to as Island Express.
[3] Twenty interviews were conducted throughout the investigation including former employees and others who were not employed by Island Express. A list of individuals interviewed is Attachment 1 to this report. For each interview, a transcript or summary is available in the public docket for this accident.
[4] Times included in the History of flight were derived from Spidertracks flight tracking, text message time stamps and the vice-president's estimates.
[5] The recipients of the group text that day were the vice-president of Island Express, two limousine drivers, the OC Helicopters operations manager, and the owner of OC Helicopters. Attachment 5 details the entire text thread.
[6] ForeFlight is an integrated flight app [application]. According to the website, ForeFlight delivers everything a pilot needs for planning, briefing, filing, and logging flights.

the pilot to mean that his flight route would be via Dodger stadium, around Burbank to take the 118 freeway around the weather. When the eight passengers arrived, the pilot returned to the helicopter and the coordinator escorted the passengers to the helicopter. The helicopter departed SNA at 0906 enroute to the Camarillo airport (CMA). At the same time the coordinator sent out a group cell phone text stating "Wheels up."

According to the Island Express vice-president, about 0949 the operations manager of OC Helicopters contacted her to ask for the pilot's location on Spidertracks[7]. The vice-president noted the Spidertracks had stopped tracking at 0945. She called the company general manager/flight follower, located at the Queensway office in Long Beach, and asked him to try and contact the pilot via the VHF radio. The general manager attempted to but could not establish radio contact with the pilot. At about 0955, the general manager attempted to call CMA for information, but could not get an answer. He had also attempted to call the director of operations but could not get an answer. At 0958, the vice-president directed the general manager to open the Emergency Response Plan and the two reviewed the document.

At 1002, the owner of OC Helicopters sent out a group cell phone text, asking if the pilot was OK. Two minutes later he sent out another text containing the latest ATIS[8] information at CMA.

About 1005, the vice-president directed the general manager to dispatch a company AS-350 helicopter to the site of the last Spidertracks position of N72EX. At 1005, the vice-president was able to establish cell phone contact with the director of operations. He volunteered to drive to the last Spidertracks contact point, near the city of Calabasas, California. About 1022, the AS-350 helicopter departed the Queensway heliport enroute to Calabasas. About 1027, the vice-president contacted the general manager to have the AS-350 return, due to confirmation of a crash near N72EX's last known location.

1.1 Events prior to the accident

On January 25, 2020, the accident pilot conducted a charter flight for the same eight passengers. This flight was the first of two charter flights scheduled by the same customer. Both flights had originally been planned for a 0945-takeoff time and had the same destination of CMA with a return flight to occur after 1400. On January 25th. the pilot departed SNA at 1000, flew direct towards the Los Alamitos airport, then to the 91/605 Interchange VFR Checkpoint, passed south of the City Hall VFR Checkpoint, then turned left to cross north of Sepulveda Pass. The pilot then proceeded west following the 101 freeway to CMA. The pilot returned the passengers to SNA, later in the day. According to the customer's personal assistant, that evening the departure time for the upcoming morning flight changed to 0900, due to a request from the customer. The pilot operated N72EX for the flights conducted on January 25.

[7] Spidertracks, according to the website, is a flight tracking application allowing the user to keep track of a fleet via phone, tablet or laptop.

[8] Automatic Terminal Information Service (ATIS) is the continuous broadcast of recorded non-control information in selected high activity terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information. The information is continuously broadcast over a discrete VHF radio frequency or the voice portion of a local NAVAID.

2.0 Pilot information[9]

The pilot was 50 years old and resided in Huntington Beach, California. His hire date with Island Express was June 14, 2011. According to his resume on file at Island Express, he was employed by Group 3 Aviation, Van Nuys, California from June 17, 2008 until he was hired by Island Express and flew as a helicopter flight instructor in Robinson and Schweizer helicopters. Prior to this position he was a student pilot at Group 3 Aviation, training for his private pilot, commercial pilot, and flight instructor certificates, with a rotorcraft helicopter rating.

A review of the FAA Program Tracking and Reporting Subsystem (PTRS)[10], revealed that on May 11, 2015, the pilot violated Title 14 Code of Federal Regulations (CFR) 91.131(a) (1), Operations in Class B airspace without an Air Traffic Control clearance. The pilot used the Aviation Safety Reporting System (ASRS) to process a safety report with NASA,[11] was counseled by the Principal Operations Inspector (POI) and attended additional company ground and flight training. The FAA did not recommend remedial training. The pilot was counselled on operating in Class B airspace, Special VFR weather minimums, proper planning, reviewing weather, and anticipating required action.

2.1 The Pilot's certification record[12]

Private Pilot – Rotorcraft-Helicopter certificate issued on January 21, 2001
Private Pilot – Instrument Helicopter certificate issued on October 20, 2007
Commercial Pilot – Rotorcraft-Helicopter, Instrument Helicopter issued on December 3, 2007
Flight Instructor – Rotorcraft-Helicopter issued on May 18, 2008
Flight Instructor – Instrument Helicopter issued on August 19, 2008
Ground Instructor – Instrument issued on July 9, 2008
Medical Certificate – Second-class medical certificate issued on July 3, 2019 (Limitations: must have available glasses for near vision)

2.3 The pilot's training and proficiency checks completed[13]

Initial hire ground training	May 2, 2011
Initial hire flight training	June 8, 2011
Recurrent ground and flight training 2012 - 2014	Completed
Recurrent flight training 2015	June 2, 2015
Recurrent ground training 2015	Undetermined
Recurrent training 2016 thru 2019	Completed

[9] The pilot's records are contained in attachment 2 Pilot's Documents
[10] The Program Tracking and Reporting Subsystem (PTRS) is a comprehensive information management and analysis system used in many Flight Standards Service (AFS) job functions. It provides the means for the collection, storage, retrieval, and analysis of data resulting from the many different job functions performed by Aviation Safety.
[11] NASA has established an Aviation Safety Reporting System (ASRS) to identify issues in the aviation system which need to be addressed. The program of which this system is a part is described in detail in FAA Advisory Circular 00-46E.
[12] Source FAA.
[13] Source Island Express.

S-76A Transitional training	December 8, 2014
S-76 Ground & flight instructor training complete	January 28, 2016
S-76 Check airman ground training complete	July 24, 2016
S-76 Check airman flight training complete	July 26, 2016
Most Recent FAA Part 135.293, proficiency check[14] (S-76)	June 21, 2019
Most Recent FAA Part 135.299, line check[15] (S-76)	June 21, 2019
Most Recent FAA Part 135.339 check airman, aircraft, check[16] (S-76)	August 9, 2018
AS-350 Helicopter Part 135.293 and Part 135.299 checks	2011-2020
Bell 206 helicopter part 135.293 and Part 135.299 checks	2016-2018

A review of flight records revealed all annual ground and flight checks were evaluated as satisfactory

2.4 The pilot's flight times[17]

The pilot's flight logbooks after May 2016, were not available for review. The operator's records revealed the following:

Total pilot flying time	8577 hours[18]
Total S-76	1250 hours
Total flying time last 24 hours	1.5 hours
Total flying time last 30 days	15 hours
Total flying time last 90 days	61 hours
Total flying time last 12 months	542 hours[19]

According to the pilot's annual record, dated July 4, 2019, his flying hour experience included the following:

Cross-Country:	5000 hours
Offshore:	4500 hours
Night:	400 hours
Instruments:	75 hours

[14] Title 14 CFR 135.293 required pilots to pass a written or oral test every 12 calendar months covering topics such as regulations, airplane systems, weight and balance, and weather, and a competency check covering maneuvers and procedures.
[15] Title 14 CFR 135.299 check required a PIC to pass a line check in one of the types of aircraft which that pilot is to fly.
[16] Title 14 CFR 135.339 check required within the preceding 24 calendar months, that person satisfactorily conducts a proficiency or competency check under the observation of an FAA inspector, or an aircrew designated examiner employed by the operator.
[17] Source Island Express
[18] As of January 26, 2020.
[19] From January 26, 2019 to January 26, 2020.

2.5 The pilot's training[20]

Island Express GOM[21], Section A, page 10 stated the following in part:

During all 135 operations all crewmembers will be employees of the certificate holder, all pilots will be current with certificates stating medical, initial and recurrent flight training, and FAA 135 flight checks have been performed satisfactorily.

2.5.1 Initial, new hire training

Island Express had an FAA-approved Part 135 training trogram which was outlined in the Island Express training program manual, dated October 21, 2013, revision 15[22]. Initial new hire pilot-in-command training involved a ground curriculum and a flight curriculum. The ground curriculum had a basic indoctrination, general emergency, aircraft ground, and differences training. The total training time for this block of instruction was 52 hours[23]. The accident pilot initially began his employment operating the AS-350 helicopter and transitioned to the S-76 in 2014, The flight curriculum for the S-76 had preparation ground, takeoff and landings, inflight maneuvers, optional maneuvers, instrument maneuvers, mission training (company specific), landing gear, tail rotor, electrical, single engine failures, governor failures, flight controls, and dual engine failures. The training manual also contained curriculum segments for qualification, instructor ground training, instructor flight training, check airman ground training, check airman flight training.

The accident pilot completed his initial new-hire curriculum on May 2, 2011. He flew 8 flights (7.5 flying hours) with the Island Express check airman.

2.5.2 Check airman training

According to Island Express's training manual, check airman training involved both ground and air curriculum segments. The ground curriculum had a list of prerequisites including basic indoctrination, general emergency, aircraft ground, hazardous material, and helicopter flight. The flight curriculum pre-requisites included the ground check airman pre-requisites and check airman ground.

The accident pilot completed his S-76 check airman ground training on July 24, 2016. He completed his S-76 check airman air training and flight observation check on July 26, 2016. He flew one flight (1.1 flying hours) while evaluating an Island Express pilot, under the observation of a Sacramento Flight Standards District Office (FSDO) representative. He received a letter of approval dated January 12, 2017. This letter incorrectly approved the pilot to perform check airman duties in the AS-350 helicopter. A second letter of approval dated June 8, 2017 was

[20] Training and evaluation documents are contained in attachment 2.

[21] Island Express's FAA-accepted General Operations Manual (Revision 72, dated 06-13-2019) states "*This manual provides company personnel with a single source of policy that will guide and assist them in performing duties pertaining to the operation of this air carrier"*

[22] Most current edition is Revision 16, dated March 6, 2020.

[23] Training times for training curriculums are contained in the training manual and included the attachment 3

written with an effective date of June 8, 2017. This document approved the pilot to perform duties of check airman in the S-76 helicopter.

2.5.3 Recurrent training

Island Express's Training manual states in part:

RECURRENT TRAINING. This category of training is for an employee who has been trained and qualified by the operator, who will continue to serve in the same duty position and aircraft type, and who must receive recurring training and/or checking within an appropriate eligibility period to maintain currency.

2.5.4 Additional ground and flight training

According to the director of operations, Island Express contracted with EuroSafety International (EuroSafety) to provide ground and flight training along with flight examinations for the company pilots to prepare for annual FAA proficiency checks. This training was not a part of Island Express's FAA-approved training program. EuroSafety used company helicopters for the flight training and examinations. According to the EuroSafety S-76 flight instructor, EuroSafety offered an S-76 refresher program that consisted of 2 to 3 days ground training and 2 to 3 flights, depending on the experience of the pilots. EuroSafety did not use an S-76 simulator for training or evaluations. The flight instructor stated that he provided ground training and flight training on inadvertent instrument meteorological conditions (IIMC) avoidance and recovery, to prepare the pilot for FAA check rides that may include those evaluations.

A review of Island Express training records revealed the accident pilot's last EuroSafety training and evaluation occurred on May 8, 2019.

2.5.5 Emergency training

Title 14 CFR 135.293 required pilots to undergo an evaluation for IIMC recovery and stated the following in part:

(c) Each competency check given in a rotorcraft must include a demonstration of the pilot's ability to maneuver the rotorcraft solely by reference to instruments. The check must determine the pilot's ability to safely maneuver the rotorcraft into visual meteorological conditions following an inadvertent encounter with instrument meteorological conditions.

Island Express's Training Manual, Revision 15, Section F, S-76 Maneuvers, listed loss of anti-torque effectiveness, anti-torque failure, and settling with power. Revision 16 dated March 6, 2020, added brownout, whiteout, and or flatlight conditions, unusual attitude recovery, and inadvertent entry to IMC.[24]

The accident pilot was evaluated on unusual attitude recovery and/or inadvertent entry to IMC on:

[24] Instrument meteorological conditions.

S-76 Part 135.293 proficiency check	June 21, 2019
S-76 EuroSafety International check	May 8, 2019
S-76 Part 135.293 proficiency check	August 20, 2018
S-76 EuroSafety International check	May 18, 2018
S-76 Part 135.293 proficiency check	August 18, 2017
S-76 EuroSafety International check	May 12, 2017
S-76 Part 135.293 proficiency check	January 28, 2016
S-76 Part 135.293 proficiency check	December 9, 2014
AS-350 Part 135.293 proficiency check	July 31, 2019

A review of training records revealed the accident pilot met the new hire, recurrent ground, air, and check airman, ground and air, and emergency training requirements. A records review did not reveal non-compliance or deficiencies noted by the evaluators.

2.6 Pilot's responsibilities and duties.

The accident pilot was designated pilot in command (PIC) in the S-76 and AS-350 helicopters. He became chief pilot for the company on May 12, 2016 and was designated a check airman for S-76 aircraft, air, and ground on July 24th and 26th respectively. A records review revealed he operated the S-76 from December 2014 till January 2020. He operated the AS-350 helicopter from May 2011 till January 2020, becoming the Island Express check airman, AS-350 air and ground, in 2017 till 2018. He operated the Bell 206 helicopter from December 2016 until the Bell 206 helicopters were removed from the Island Express certificate in 2018.

2.6.1 Pilot in command

The duties and responsibilities of the PIC were detailed throughout Island Express's General Operating Manual (GOM), and stated in part:

Section A general:

1. Reports to the Chief Pilot. (in his absence reports to Director of Operations)

2. Has Operational Control over each flight being conducted.

3. Report for duty not less than 45 minutes prior to dispatch time. This is for the accomplishment of preflight inspections and paperwork.

4. Determine he or she is legally licensed, adequately rested and in proper dress.

5. Assures that they have in their possession a legal copy of their airman certificate.

6. Assures that they have in their possession a legal copy of their airman medical certificate.

7. Government Issued Identification.

8. Follow all outlined procedures in the IEH, Safety Program.

9. Insures (sic) aircraft is preflighted per the approved inspection checklist.

10. Insure all required items are on board.

11. Obtain a weather briefing from the approved weather sources.

12. Supervises loading and distribution of cargo and passengers.

13. Assures aircraft is within proper weight and balance limitation.

14. Prepares or supervises preparation of flight plan considering such factors as altitude, terrain, weather, range, weight, airport facilities and navigational aids.

15. Files flight plan.

16. Notifies the Director of Operations whenever the pilot may violate any rule due to being dispatched on a flight.

17. Notifies the Director or Operations whenever a medical deficiency exists that would affect the safety of flight.

Section L, stated in part:

Pilot in Command responsibilities:

1. Make sure the flight plan has all information required in a VFR flight plan.

2. Inform company ramp agents within one hour of arrival at a destination or immediately if landing at other than the destination.

3. Provide the location, date and estimated time for re-establishing communications if the flight is going to operate in an area where communication cannot be maintained.

Section N, Enroute Qualifications stated in part:

IEH, INC. is authorized to conduct the following operations:

a) On Demand Charter – Helicopter VFR, Day and Night passengers and cargo (nine passenger or less)

b) Area of Operations – Continental U.S. excluding Alaska.

All flights are to be accomplished in accordance with appropriate FAR's, VFR flight plans, ATC clearance, Ops Specs and other appropriate Company policies and procedures set forth in this manual to include the following:

1. All flights are to be accomplished in accordance with appropriate FAR's, VFR flight plans, ATC clearance, Ops Specs and other appropriate Company policies and procedures set forth in this manual.

2. IEH, INC. pilots will never take an aircraft into IMC (instrument meteorological conditions) weather conditions, or into weather that in their opinion will deteriorate into IMC conditions.

3. Flight Crewmembers will be mindful of the need for continual and vigilant outside watch for other traffic as primary means of collision avoidance.

4. No IEH, INC. pilot will perform any duties or engage in any activity during a critical phase of flight which could distract or interfere with safe operation of the aircraft. (for further reference consult FAR 135.100.

5. Any Pilot, who has not flown over a route and into an airport or off airport landing location within the preceding 90 days, will, before beginning a flight over that route and/or into that airport or off airport landing location:

a. Study the route on a low altitude VFR Chart (sectional, terminal or helicopter route) as appropriate, noting all pertinent information.

b. Study the current Airport Facility Directory (AFD) noting all pertinent information.

Note: All flights must comply with Operations Specifications B050.

2.6.2 Chief Pilot

The duties and responsibilities of the Chief Pilot were detailed in Section A, General, and stated:

1. Reports to the Director of Operations.

2. May be delegated Operational Control from the President of Operations.

3. Can sign for Operational Control on the Al-Pro system.

4. Promotes and encourages safe practices as outlined in the IEH, Safety Program.

5. Supervises all Pilots.

6. Development and revision of the Training Program.

7. Conducts or supervises all training activities of Pilots.

8. Advises the Director of Operations regarding the training of Pilots.

9. Assists the Director of Operations in formulating operations policies, coordinates those policies, and coordinates operations and training.

10. Ensures that all aircraft are properly equipped for applicable operations.

11. Disseminates information to all crewmembers pertaining to routes, airports, NOTAMS, NAVAIDS, company policies, and regulations.

12. Maintains proficiency as Pilot in Command.

13. Schedules Pilots flight duties.

14. Prepares and maintains proficiency records, pilot files, flight schedules, duty time reports, and any correspondence pertaining to flight operations activities.

15. Keeps the aircraft copies of this Operations Manual current.

16. Ensures that all pilots are certified and supervised according to the requirements specified in the Federal Aviation Regulations, Operations Specifications and General Operations Manual.

17. Has the authority to select and recommend pilots for employment.

18. Has the authority to sign for FAA correspondence and operations specifications.

2.6.3 Check airman

The duties and responsibilities for the check airmen was not identified in the Island Express GOM, or training manual.

2.7 Pilot's recent activities

The PIC's pre-accident activities were determined from an interview with PIC's girlfriend and his cellphone records. His normal routine was to wake up at 0600, activities during the day, and was in bed between 2200 and 2230. He occasionally took naps on his days off, but it was not routine.

On January 23, he woke up at 0600, did not fly, met with his girlfriend at Long Beach, California airport, they got dinner, watched television, and the PIC went to bed at his normal time.

On January 24, he woke up at 0600, did not fly, met with his girlfriend, had lunch, went to a store, went to a movie, and was in bed between 2200 and 2230. Cellular telephone activity[25] began at 0747 and ended at 2114 with extended breaks[26] in activity between 1329 and 1527; 1527 and 1651; 1953 and 2114. Text messaging activity began at 0931 and ended at 1953.

On January 25, he woke up at 0600, had a charter flights from 0825 to 1634, and went to bed at approximately 2230. Cellular telephone activity began at 0646 and ended at 0024. He had extended breaks in activity between 0945 and 1059; 1106 and 1753. Text messaging activity began at 0951 and ended at 2117.

On January 26, he woke up at 0600, and had a charter flight from 0906 to 0945. Cellular telephone activity began at 0755 and ended at 0803. Text messaging activity started at 0819 and ended at 0939[27]. Although texts were sent to the pilot's phone during the charter flight, no texts or calls were sent from the pilot's cell phone during the flight.

3.0 Medical and pathological information

Toxicology testing performed by the laboratory at FAA Forensic Science on specimens from the pilot revealed ethanol was not detected in the liver and muscle. Drugs were not detected in the liver, and a note stating: Insufficient blood specimen for analysis of carboxyhemoglobin was noted.

4.0 The weather requirements and weather briefing

The Island Express GOM Section R Policies & Procedures stated in part:

EH pilots will only fly in VFR conditions Day or Night.

[25] Incoming and outgoing phone calls and incoming and outgoing texts.
[26] Cellphone activity (phone calls and texts, incoming and outgoing) gaps greater than an hour.
[27] As the accident occurred at 0945, all text messaging activity after this timeframe was not included.

Only weather sources approved in Operations Specifications A-010 will be used to receive weather data. In the absence of approved weather sources, pilots will utilize whatever sources are available.

Weather Minimums and Flight Altitudes

For all FAR 135 flights (excluding Offshore Oil and Gas (OGP)) Island Express Pilots will adhere to the following altitudes and visibility requirements:

Local Flying Area: (Between Long Beach, Huntington Beach, Palos Verdes, Catalina Island)

• Maintain a recommended flight altitudes between 500' – 1000'agl and not lower than 300' agl.
• Maintain a minimum flight visibility of 1nm.

Uncontrolled Airspace:
• Maintain a recommended flight altitudes between 500' – 1000'agl and not lower than 300' agl.
• Maintain a minimum flight visibility of 1nm.

Controlled Airspace:
• Maintain any Altitude Published or required by the Administrator
• In the absence of a required altitude maintain a recommended flight altitudes between 500' – 1000'agl and not lower than 300' agl.
• Clear of Clouds and visibility of 1nm.
In the interest of Safety both ground and flight staff will closely monitor weather during periods that may lead to weather minimums being less than those outlined above.

If weather is deteriorating or has fallen below any of the above, flight operations will be stopped and not resume until weather has improved.

Evidence of the accident pilot receiving a weather briefing from an approved source could not be determined.

5.0 The pilot's duty and flight time

Island Express Helicopters Section R, Policies and Procedures stated in part:

IEH Inc. considers the pilots duty day as beginning 45 minutes prior to the first flight and ending after the pilots post-flight inspection or, upon landing when the on-duty mechanic begins his daily inspection.

Pilots will not be scheduled for more than 14 hours each day.

Pilots will not be scheduled to fly in excess of 8 hours each day.

Each flight/duty assignment will be followed by a rest period of at least 10 consecutive hours.

Flight and duty times are tracked on the on-line duty time sheets. Pilots are expected to update the sheet at the end of each shift.

A review of records revealed the accident pilot did not exceed the duty day or flight hour limits for January 25th nor January 26th.

6.0 Company information

6.1 Island express's company history

Island Express Helicopters Inc. is a privately owned company operating under certificate number ISHA094F. The on-demand VFR only certificate was issued on January 26, 1998. The company's main office was in Long Beach, California, with satellite offices at the Queensway heliport (CL30), Pebbly beach Heliport (L11), Avalon, and the John-Wayne-Orange County Airport (SNA), Santa Ana, California. The office at SNA provided the pilots a private place to conduct business. According to the vice-president, the company employed 25 employees, including six pilots.

FAA oversight of Island Express's certificate was performed by the FAA Long Beach, FSDO. The FAA had authorized Island Express to conduct rotorcraft on-demand passenger and cargo flights in the Airbus AS-350B2, AS-350BA, Sikorsky S-76A, and S-76B helicopters listed on the FAA Op Spec[28] D085 "Aircraft Listings", in VFR, day/night. The company had one AS-350BA, two AS-350-B2, one S-76A and two S-76B helicopters.

6.2 Organizational structure

Company management consisted of:

1. President
2. Vice president
3. Director of operations
4. Chief pilot
5. Director of maintenance
6. Director of safety[29]
7. General manager

[28] Operations Specifications
[29] Identified as flight safety officer on the organizational chart

6.3 Island express organizational format.

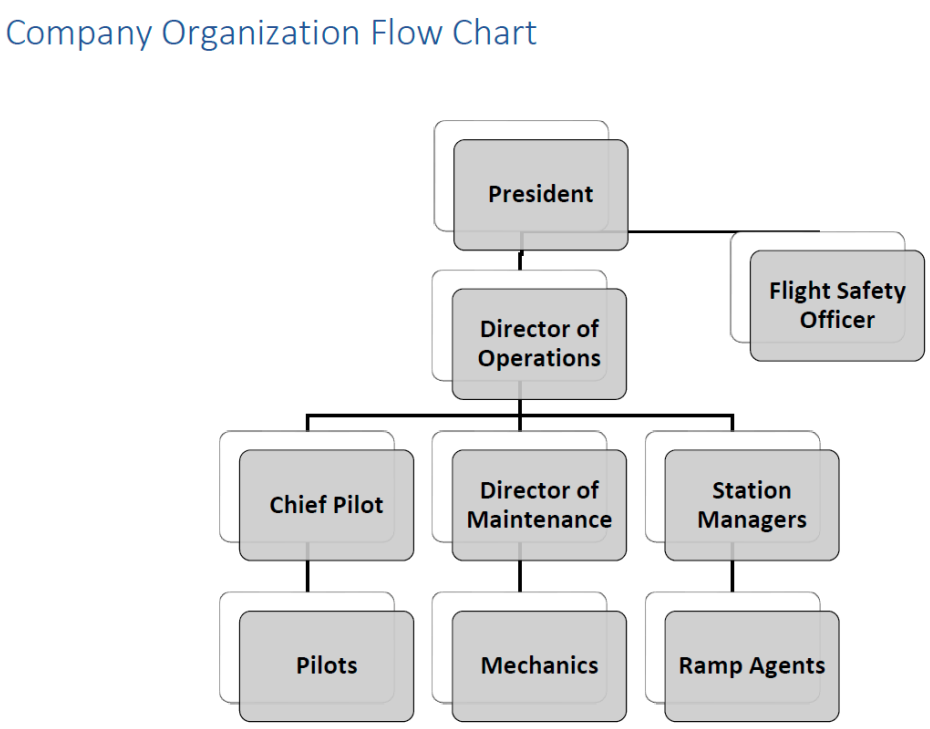


Figure 1. Island Express's Organizational Chart.

6.4 Operational control

Operational control was identified in Ops Spec A006 and A008. Island Express's GOM, Section A General stated:

> *Persons authorized to exercise Operational Control*
>
> *Prior to conducting any Part 135 flight The Director of Operations will determine the following:*
> *Through operations that the pilots assigned are current and eligible for flight status.*
> *Through maintenance which aircraft will be used and that the aircraft is airworthy.*
>
> *Note: If the Director of Operations is not available he will appoint the Chief Pilot, Director of Maintenance, or another employee via telephone to determine the above. The Director of Operations will then send an email to the Chief Pilot, Director of Maintenance and reservations informing them of the appointed.*

According to the Island Express director of operations, Island Express never relinquished operational control to another business or agency.

6.5 Flight locating

According to Island Express's GOM, Section L Flight Locating Procedures [135.230I)][30]:

flights operating in accordance with company flight plans will be monitored in accordance with the provisions of regulations stated in FAR 135.79.

All VFR flights are to be conducted with the appropriate flight plan. A flight plan may either be filed through Company Ramp Agents or thru FSS. All flights between the mainland and Catalina Island are to be filed through Company Ramp Agents. For flights conducted in flight restricted areas, flights will be filed with FSS. (ex. Flights conducted during VIP Presidential TFR's).

A review of records revealed the flight request, flight plan, risk assessment, manifest, and weight and balance for January 25th and 26th[31] were filed in Al-Pro, and available to the director of operations, the vice president, and the flight follower. The flights were followed by IEH's flight follower using the Al-Pro System and Spidertracks. The flight follower was located at the Queensway heliport.

6.5.1 Charter flights and weather cancellations

According to the vice-president, Island Express conducted 495 charter flights, with that number coming from each individual reservation. (e.g. SNA to CMA, stand by, CMA to SNA equals one charter since it was on the same reservation). Of the 495 charter flights, 28 were charters brokered through OC Helicopters. 13 of the 28 brokered charters involved the accident customer.

A review of a 2019 cancellation report revealed Island Express recorded 150 flight cancellations due to weather. There were 13 cancellations due to weather for 2020, all logged on January 24th and 25th.

6.5.2 OC helicopters

According to the owner, OC Helicopters LLC (OCH), Santa Ana, California, was formed in 2007. OC Helicopters is a Part 135, on-demand, day, and night VFR only, helicopter charter operation with no written business affiliation with Island Express. The FAA had authorized OCH to conduct rotorcraft on-demand passenger and cargo flights in the Airbus EC-120 in VFR, day/night. The company had one EC-120 helicopter. OCH's office is located inside the Atlantic Aviation FBO,[32] at the John Wayne-Orange County Airport. The company is comprised of two employees, the owner/pilot, and the operations manager. OCH initially provided tour flights under Part 91 with a letter of agreement, then received their Part 135 certificate in 2016.

FAA oversight of OCH's certificate was performed by the FAA Long Beach FSDO.

[30] See Attachment 3 GOM, training and ops spec excerpts
[31] Records of flight request, flight plan, manifest, weight and balance are in attachment 4
[32] Fixed Base Operator.

According to the OCH operations manager, she would sometimes receive requests for helicopter flights that OCH could not support[33]. When this would happen, OCH brokered the flights through other helicopter operators. Beginning in about 2014, Island Express began receiving some of these brokered flights and developed a good relationship with OCH.

According to the owner and the OCH operations manager, in about 2012 or 2013, the charter customer for the accident flight began discussions with them regarding OCH providing helicopter charter flight support. In 2015, OCH began receiving flight requests from this customer's company. Stipulations for the flights included the use of a dual-engine helicopter, and a security vetting process for pilots. Once vetted and approved, a pilot was placed on a list of pilots who could operate charter flights for this customer. The operations manager stated a pilot could be removed from the approved list by Island express, OC Helicopters, or by the customer. One Island express pilot was removed by OC helicopters for beginning a flight without adequate fuel for the flight, and another Island Express pilot was removed by OC helicopters due to being disliked by the customer. According to the operations coordinator, the accident pilot was the preferred pilot for this customer and was requested almost exclusively.

OCH's EC-120 was a single-engine helicopter and prevented the company from providing this customer's charter flights under their Part 135 certificate. OCH then brokered the flights to Island Express. Island Express had pilots who had passed the vetting process, were on the list of approved pilots, and possessed a dual-engine helicopter. Once the flight was brokered to Island Express, the owner and the operations manager for OCH acted as transportation coordinators,[34] which included communicating with various agencies, depending on the type of trip the client was embarking on. According to the OCH operations manager, personal charter flights and business charter flights involved interaction with different agencies,[35] all desiring updates on the progress on the movement of the client. The OCH operations manager used FlightAware[36] to track the progress of the flight and cell phone group text messaging to gather and relay information to the appropriate agencies. Awareness of the progress of the flights aided in the future transportation events that were to occur after the flight ended. According to the owner, OCH never assumed operational control of the flight.

6.6 Safety Management Systems (SMS)

Island Express Helicopters (IEH) had a voluntary SMS, established on July 15, 2013, and they were responsible for managing their SMS program. The company SMS was developed and designed in coordination with professional resources in systems management (PRISM), a contracted company to IEH to help facilitate development of their SMS program[37].

[33] Aircraft availability, size of the client's party, helicopter performance, were examples of the reasons OCH would decline a flight request.
[34] According to the operations manager, she managed the logistics of moving the client from the start of the trip to the destination and return.
[35] Personal assistants, security, catering, wardrobe, etc.
[36] According to the website, FlightAware is a digital aviation company operating the world's largest flight tracking and data platform.
[37] PRISM is a service of ARGUS. Company SMS was written under guidelines of ICAO's safety management manual and FAA AC-120-92A. The POI was aware that IEH had a SMS, but he was not involved with the development, execution, and modification of the SMS, or its oversight.

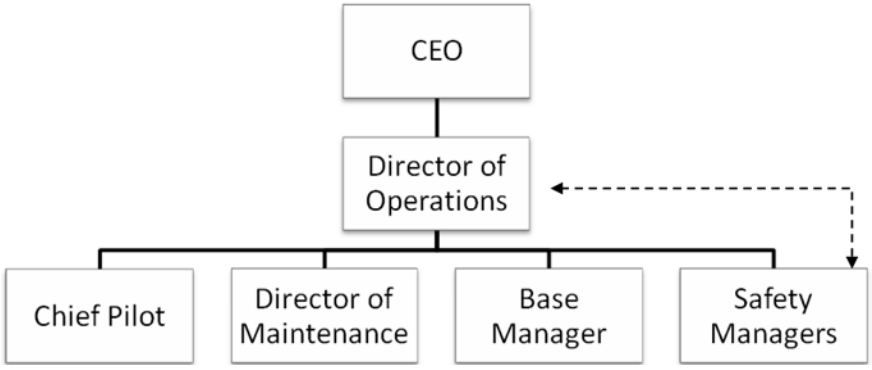
IEH revised their SMS manual on September 26, 2018 and it was revision 2. The manual did not provide information in the 'revision control' section of the document regarding personnel that revised the manual.

6.6.1 SMS structure

According to the IEH SMS manual, the structure of the SMS included safety policy, safety risk management[38], safety assurance, and safety promotion. Safety policy included employee training and complying with regulations. Safety risk management was the identification of risks, hazards, and documenting them for management review. Safety assurance was monitoring[39] safety performance[40] and providing feedback, while safety promotion included communication of safety objectives and safety awards.

6.6.2 Personnel responsibilities for SMS

According to IEH's SMS manual, the director of operations[41] was the accountable executive, and reported to the president of the company. The director of operations had overall responsibility for safety and provided resources to implement, manage, and maintain the SMS. During a company interview, director of operations stated that the company SMS was established before he became director of operations. The safety manager, who was also referred to as the safety officer, monitored all aspects of the SMS, including maintaining all documentation related to risk management. The president[42] said he was involved with purchasing, bills, and reviewed procedures, but he was not involved in the day-to-day operation at IEH. The director of operations was involved with day-to-day operations at IEH, and the president interfaced with him via email, phone calls, and meetings throughout the year. Meeting topics consisted of pilot hiring, general operations meetings, potential projects, and bidding contracts. The president was not involved with the SMS but was aware of it, and how it was structured. Other management staff at the company were accountable for the following: a) actively supporting SMS; b) ensuring employees were trained and participated in SMS; c) monitored conditions to ensure safe operations of company aircraft. Below is a pictorial overview of IEH's safety organization chart.



[38] See section 3.0 for further details on safety hazards and risk management.
[39] IEH did not have a flight data monitoring program and was not required to.
[40] IEH SMS noted that a safety performance report was prepared quarterly for the director of operations, but the director of operations said he did not have quarterly reports.
[41] Director of operations role started at IEH in August 2018.
[42] Was president since calendar year 2011.

6.6.3 SMS training and formal on-the-job training

PRISM's online computer-based training curriculum was provided to IEH employees and included the following: a) principles of SMS; b) safety policy; c) safety personnel; d) safety committee; e) safety documentation; f) reporting hazards; g) safety risk management; h) flight risk analysis; i) internal evaluation; j) change management; k) SMS improvement; l) training and education; m) safety culture; n) quiz. IEH employees received initial computer-based training for SMS when they were hired. The company trained pilots, mechanics, and ground crew on SMS. According to company records, 14 employees (including the accident pilot) completed SMS training between calendar years 2018 and 2019. The accident pilot successfully completed SMS training on June 5, 2018. The safety manager said that he received SMS training when he joined[43] the company during calendar years 2017 and 2018. From calendar years 2018 to 2019, PRISM management[44] said the safety manager was trained over 3 sessions, which included training on ARMOR tools in IEH's SMS, and an overview of SMS.

6.6.4 Internal evaluation program and continuous monitoring

According to IEH's SMS manual, they had an internal evaluation program, which included continuous monitoring and internal audits. The director of operations was responsible for all facets of the internal evaluation program and associated documentation. The company internal evaluation program included the following: a) assessed conformity with internal and external requirements b) measured the effectiveness of safety risk controls; c) monitored products and services received from vendors and contractors; d) assessed company system and process performance; e) identified hazards and deficiencies.

According to company records, they did not measure effectiveness of safety risk controls and did not conduct internal audits. The company did assess conformity with internal and external requirements, monitored products and services received from vendors and contractors, and identified hazards and deficiencies.

6.6.5 External audits

According to the IEH SMS manual, external audits[45] were conducted periodically. Findings from external audits followed procedures that were listed in the internal evaluation program. External audit results were combined with internal evaluation results in establishing trends and evaluating the organization.

IEH had three external audits from calendar years 2018 to 2019. Two were performed by Chevron Aviation Assurance[46] and one by Southern California Edison.

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[43] During an interview, the safety manager said, when he joined the company, he did not receive classes for his safety manager position, rather he learned from magazines, help from staff and coaching.
[44] Vice President, Helicopter Aviation and Unmanned Services.

[45] IEH had Chevron external audits during calendar years 2011, 2013, and 2015.
[46] Audits may be conducted by industry associations or other third parties selected by the service provider. These external audits enhance the internal audit system as well as provide independent oversight.

The first audit was conducted in August 2018 by Chevron. Chevron reported the following: a) IEH was being managed by a newly appointed safety officer who lacked formal SMS training; b) recent management changes have necessitated a restructuring of the safety committee, resulting in a lack of properly structured safety meetings, as outlined by the SMS; c) no meetings had been conducted under the new safety committee membership; d) an emergency response plan was in place, but no exercises of the plan on an annual basis were evident; e) a management of change process and formal tools to measure the effectiveness of SMS were available through PRISM, but were not fully utilized.

The second audit was conducted in October 2019 and Chevron Aviation Assurance reported the following: a) the safety manager had been in the role for about two years but has never received formal safety training. The workforce receives a one-time safety training through PRISM; b) training for all the aircraft they operate is conducted in the aircraft and pilots do not attend simulator training; c) no evidence of internal evaluation as detailed in the SMS manual; d) emergency response plan drill was conducted in July 2019. Training items were listed, but there were no lessons learned or action items listed; e) IEH fills a flight risk assessment before every flight, but there is no proactive hazard analysis.

During the August 2018 audit, Chevron noted that IEH was approved for ad-hoc[47] use contingent of closure to the audit findings within 90 days. Chevron provided results of the external audit to IEH management. IEH was not required to respond to the results. The out-briefing between Chevron and IEH was a verbal discussion and there was no record of a response, if any, to the findings.

During the October 2019 audit, IEH was approved for Day VFR onshore helicopter operations using appropriately rated pilots in AS350s or selected pilots[48]. IEH's offshore operations were also reviewed as part of the audit. IEH was approved for day VFR offshore operations within 10 nm of the coast using a float equipped AS350, where all passengers have life vests. IEH could also provide day VFR offshore using an offshore equipped S-76 with only selected pilots[49].

The third audit, performed by Southern California Edison in November 2019, was not shared with IEH. However, the vendor stated that IEH was approved for passenger transport to Catalina island. The vendor did not find anything discoverable, which would preclude them from using IEH's services. They also stated that IEH was really moving the organization in the right direction and to keep up the good work.

IEH did not establish trends and evaluate the organization based on external audit results combined with internal evaluation results.

[47] This audit approval was based on occasional use: VFR overland, single pilot for the H-350; and VFR overland and offshore with two pilots for the S-76.
[48] Accident pilot, director of operations, and a line pilot.
[49] Accident pilot, director of operations, and a line pilot.

6.6.6 Safety committees

According to IEH's SMS manual, pilot safety committee membership consisted of the safety manager who was the chairman, a pilot representative, and ground operations supervisor. The safety committee had several responsibilities including, a) overseeing safety promotion; b) review hazard reports[50] and trends analysis; c) review and update the company risk profile at scheduled meetings; d) assess impacts on operational changes on safety. The safety committee met bi-yearly, or more often, if deemed necessary by the chairman. The chairman ensured an agenda was prepared and distributed to committee members prior to the meeting. Meetings were held via conference call and lasted approximately 20 to 30 minutes. From calendar years 2018 to 2019, company records stated that the director of operations, mechanics, line pilots, and the accident pilot participated in safety committee meetings. From calendar years 2018 to 2019 IEH had 34 company safety committee meetings; the pilots safety committee had 13 meetings, maintenance safety committee had 17 meetings, and the ramp agent safety committee had 6 meetings. During all safety committee meetings, committee members discussed hazards, safety topics, company best practices, and new procedures.

Safety committee meeting minutes were prepared by the safety manager and consisted of the following: a) safety topics[51]; b) hazard reviews; c) new procedures covered during the safety committee meeting. All meeting minutes were available to pilots via posting in the office, and via email.

Previously mentioned, from calendar years 2018 to 2019, the pilot safety committee had 13 meetings. Meeting minutes from calendar years 2018 to 2019 were reviewed by NTSB investigators, and two of the meeting minutes contained information relevant to the accident flight circumstances. On May 24, 2019 and on October 30, 2019, the accident pilot was present at both safety committee meetings, and meeting minutes noted the following:

May 24, 2019

- Reviewed article from HAI[52] 'land that dam helicopter[53]'
- The director of operations talked about weather deviation with passengers on board. If you must divert, then do it. Land that dam helicopter call a taxi for passengers.
- If the pilot has to get a hotel room then get that room.

[50] Safety committee ensured corrective action for hazards discovered because of SMS activities, were handled in a timely manner.
[51] Safety videos were discussed during safety committee meetings along with safety topics, and NTSB reports.
[52] Helicopter Association International (HAI).
[53] An August 1, 2013 article by Matt Zuccaro HAI president discussing precautionary landings. https://www.helicoptersmagazine.com/land-the-damn-helicopter-hais-zuccaro-4235/

October 30, 2019

- At any time if you feel the flight cannot be flown safely and professionally then NOGO.

Previously mentioned, the safety committee was responsible for trend analysis, however the safety committee did not have any records on hazard trends. The committee was also responsible for reviewing and updating the company risk profile at scheduled meetings. According to the SMS manual, the company risk profile was utilized to document and track prominent risk exposure to the company. IEH did not develop a company risk profile and did not have any current or historical risk profiles in the PRISM risk profile tool, although a template was available to them. There was no evidence of 'company risk profile' discussions at scheduled safety committee meetings. According to the SMS manual, it the safety manager was responsible for maintaining the risk profile.

6.6.7 Safety culture

Safety culture was discussed in the company SMS and during interviews. According to the company SMS, safety culture was non-punitive, and the company encouraged personnel to communicate risks and hazards. During company interviews, the following statements were made by 4 company line pilots and a former line pilot, regarding IEH's safety culture:

- Company safety culture was considered a 'just culture', and when the line pilot discussed mistakes he had made, he did it without fear of reprisal.

- When the line pilot discussed a policy/procedure that needed to be changed, 'management supported' him and made changes to the policy/procedure. If he had a safety concern, director of operations and chief pilot supported his decision.

- Company culture was 'strong and supportive', and if the line pilot decided to cancel a flight, his decision was supported.

- Safety culture could have been better with regards to communication of company weather minimums, versus pilots' personal weather minimums. The line pilot would have expected his direct supervisor (chief pilot[54]) to communicate weather minimums, but the chief pilot did not discuss weather minimums or safety policy.

- There is a 'real culture' and 'window dressing'. In the line pilot's opinion, the company said they had a safety program, but it was not, by any means a real SMS or how is should be run[55].

[54] Accident pilot

[55] The former line pilot asked to be interviewed without the operations/human performance group party member (director of operations) present. Worked for island express from calendar years 2015-2017.

6.6.8 Safety surveys

IEH's SMS manual stated that safety surveys of all personnel, related to safety climate and awareness was to be conducted upon annual SMS management review. The director of operations said he was not aware of any safety surveys conducted by IEH between calendar years 2016 and 2019.

7.0 Safety Hazards and Risk Management

7.1 Safety hazard process

According to IEH's SMS manual, the hazard analysis process consisted of a four-step process that was used to format the hazard analysis, a) identify the generic hazard, or top level hazard, to simplify tracking and trending; b) break down the generic hazard into specific components that will likely have a different set of causal factors; c) determine and document the root cause of the hazard or deficiency prior to implementing long term corrective action; d) link specific hazards to specific consequences for risk management decision making and corrective action assignment. The manual stated that the director of operations, president, and chief pilot assisted the safety manager with assessment of hazards. The safety manager reviewed all corrective actions, verified application, and evaluated any risk remaining after corrective action was taken.

7.1.2 Safety hazard reporting and evaluation overview

According to the IEH SMS manual and during interviews, employees in a safety role were required to report any hazards prior to their daily activities. PRISM's online hazard reporting tool was the preferred method for reporting hazards at IEH. According to a hazard report form in the company SMS, anonymous reporting by an employee was accepted, but it inhibited follow-up action. PRISM's online tool provided a hazard reporting form which included the following: a) date submitted; b) date due; c) date completed; d) assigned to; e) event date and time; f) name/optional; g) detailed description of hazard/event/concern; h) severity; i) location/aircraft type; j) category; k) flight phase; l) weather factors; m) event details; n) corrective action; o) root cause; p) risk level; q) risk status.

7.1.3 Safety hazard initial reporting and evaluation

According to IEH's SMS manual, employees that submitted hazard reports through PRISM, their reports were routed to the safety manager for corrective action. The safety manager could assign other employees to assist in the analysis of the hazard, or he would be completely responsible for conducting the analysis. Reported hazards were evaluated[56] by the safety manager or a designated representative within 72 hours. If the report contained an employee name, the safety manager notified the submitter at the earliest practical opportunity that the report had been received and was being evaluated. Reported hazards were reviewed by management and action was taken to resolve hazards.

[56] An initial review of the hazard, not analysis of the hazard. Initial notification period was 72 hours.

7.1.4 Safety hazard tracking and communication

According to the IEH SMS manual, the safety manager tracked hazards through PRISM and ensured resolution of the hazard was communicated to an employee that identified the hazard. The SMS manual did not provide a time frame when action should be taken to resolve hazards, including corrective action. Hazards that were considered 'completed status' were discussed at monthly safety committee meetings[57]. From calendar years 2019 to 2020, employees reported 5 hazards[58] through the PRISM system, 2 of them were anonymous reports[59] regarding the same hazard.

- Hazard Reports #1 and #2 were submitted anonymously. These anonymous reports were not assigned to anyone for review. The hazard severity level was considered catastrophic[60]. The employee that filled out the hazard report form documented corrective action, but did not include information related to root cause, and risk level. All other fields on the hazard report form were filled out. Both anonymous hazards were discussed over 4 safety committee meetings, and the meeting minutes noted that a new procedure was developed with committee members' inputs[61].

- Hazard Report #3 was not assigned to anyone for review. The hazard[62] severity level was not assigned, risk status, risk level, and root cause were not provided on the hazard form, but corrective action was provided. All other fields on the hazard report form were filled out. This hazard was considered 'completed status' but was not discussed in the safety committee meeting minutes.

- Hazard Report #4 was assigned to an employee for review, and it contained a hazard[63] severity level, but it did not contain risk status, risk level, and root cause. The report provided corrective action. All other fields on the hazard report form were filled out. This hazard was considered 'completed status' but was not discussed in safety committee meeting minutes.

- Hazard #5 was assigned to an employee, contained a hazard[64] severity level, and contained corrective action. The report did not contain a risk status, risk level, and root cause on the hazard form. All other fields on the hazard report form were filled out. This hazard was considered 'completed status' but was not discussed in the

[57] Safety committee meetings from calendar years 2019 to 2020.

[58] Hazard #'s 1 and 2 were related to safety concerns of leaving the FFCL in the flight position versus in the idle position. Hazard#3: employee found part of a bright blue trash bag on the compressor guard on Engine; Hazard #4: pilot was flying an AS-350 when he noticed a green boat pulling the multicolored parasail was turning to head directly towards his flight path; Hazard#5: Helicopter N317EX still no air conditioning, vent was inefficient and aircraft was very hot with afternoon sun in your face. Passengers were complaining.

[59] Anonymous hazard reports were submitted to the PRISM system on 4/2/2019, and was due on 4/2/2019, completed on 11/27/2019.

[60] The SMS noted that for reports of a severe nature, it was expected that employees would notify managers so that immediate action may be required.

[61] 3/25/2019, 4/26/2019, 5/13/2029, 11/27/2019 safety committee meetings.

[62] Hazard #3 was submitted 8/22/2019, was due 8/22/2019, and completed 10/30/2019.

[63] Hazard #4 was submitted 11/3/2019 was due on 11/14/2019 and completed 11/14/2019.

[64] Hazard #5 was submitted 1/12/2020 was due on 3/31/2020 and completed on 4/1/2020.

safety committee because IEH suspended operations from January 26, 2020 to March 1, 2020.

None of the 5 hazards contained information relevant to the accident flight circumstances.

8.0 Risk Analysis Tools

IEH had several tools that enabled them to manage risk exposure at the company[65]. PRISM provided IEH with the ability to document and track risks throughout the company. The PRISM online tool provided IEH with forms that could be filled out by employees. An employee that filled out a form was identified by their name, and there was no anonymous reporting. The following risk analysis tools were provided by PRISM: a) flight risk analysis tool; b) ground risk analysis tool.

The flight risk analysis form was utilized by pilots to assess pre-flight risks. A ramp agent risk assessment form was utilized by ground crew to assess risks on the airport ramp area. A maintenance risk assessment form was utilized by mechanics to assess aircraft maintenance related risk. The flight risk form contained a timestamp after the accident flight, and ground risk forms did not contain a time stamp. A time stamp was provided by PRISM so that the company could determine when the risk form was filled out.

According to company interviews, ground crew, mechanics, and pilots were required to fill out a risk assessment prior to their daily activity.

All risk analysis forms contained criteria, questions, and pre-populated numbering scheme that was weighted based on the criteria. According to post accident interviews, form criteria was developed by the director of operations and safety manager, alongside input from PRISM. IEH employees were responsible for assessing criteria that was related to their daily activities[66]. Employees answered a series of questions related to their activity, which contained several criteria. An employee checked a box related to the criteria, and a numerical risk score was provided. Criteria on risk forms contained a total factor score, which was utilized to assess the total risk for a set of criteria. After all criteria were assessed, an overall risk score was provided, which enabled employees to determine if they could begin or cancel their activity. Overall risk scores had 3 criteria, a) low risk-ok to proceed with the activity; b) elevated risk-must be mitigated, and concurrence provided by management; c) high risk-must be mitigated, and concurrence provided by management, and if it could not be mitigated, then No-Go[67]. If an overall risk score was elevated or high, the risk form noted that the employee calls a member of IEH management, to discuss the risk. Employees contacted the director of operations, safety manager, ramp manager, or chief pilot, and a system generated email was sent to the managers as well.

Risk analysis form criteria were updated by company management alongside PRISM on an as needed basis, and any modification to the form was provided to employees through the PRISM system.

[65] FAA Long Beach Flight Standards District Office (FSDO) Principal Operations Inspector (POI) was not involved with flight, ground, maintenance risk analysis tool development and execution at IEH.
[66] Flight, ground, and maintenance.
[67] Could not engage in activity and was cancelled.

4.1 Flight Risk Analysis

Previously mentioned, IEH's flight risk analysis tool (FRA) contained a form[68] for pilots to assess pre-flight risks. Pilots could also access the FRA form on their personal phone via mobile application named PRISM. The FRA form was comprised of the following criteria: a) mission and operation; b) duty day and qualifications; c) weather; d) equipment; e) personal.

According to IEH's SMS manual, if a PIC filled out a FRA form that was considered an elevated[69] risk, the base manager, who reported to the director of operations was informed. Concurrence was required by the director of operations, safety manager, or chief pilot, before the flight could proceed without risk mitigation controls lowering the score. The director of operations and safety manager were contacted via email if the overall score on the FRA form was elevated. The PIC was required to call the director of operations, safety manager, or chief pilot to discuss circumstances related to the elevated score, then concurrence was provided. If a PIC filled out a FRA form that was considered an overall high[70] risk, director of operations and manager of safety received an email, and the risk required concurrence from the director of operations, safety manager, or chief pilot[71]. High risks could not be mitigated by pilots to lower the overall risk score, and they could not approve their own flight. If a high risk could not be mitigated, then the flight was a 'No-Go' and subsequently cancelled. If the overall risk to the flight was low, the PIC did not need concurrence from IEH management, and the director of operations and safety manager did not receive an email. The accident pilot's overall FRA score on January 26, 2020 was '12' which means that the overall risk to the flight was 'low' and did not require management approval, therefore he was approved to fly. The PIC started filling out the FRA at 06:55 and completed it at 06:57.

During an interview with IEH's director of operations, pilots were required to fill out a FRA form prior to their flight and if there was a significant change (weather, or schedule changes) in the day, they were required to fill out a new FRA. The director of operations stated that the accident pilot would check the weather and part of his pre-flight activities would consist of filling out a FRA. The director of operations and safety officer stated that pilots do not always fill out FRA forms prior to a flight. The director of operations said that pilots forgetting to fill out the FRA forms occurred 3 to 4 times in calendar year 2019. The director of operations said he occasionally did spot checks on FRA forms to determine if pilots filled them out. He would call or text pilots that did not fill out FRA forms. During an interview, the safety manager said he did not know why pilots did not fill out a FRA form prior to their flight. A pilot that did not fill out a FRA form had

[68] Form was updated 11/29/2019 to include changes to risk criteria, scoring values, and included verbiage related to scoring values. Changes were made to risk criteria when topics in the safety committee led to a need to update criteria. IEH's ops spec A010 (aviation weather information) described weather facilities that IEH was approved to use for obtaining weather data. IEH's GOM stated, in the absence of approved weather sources, pilots will utilize whatever sources are available.

[69] From November 2019-January 2020 there were no elevated risks. Elevated risks were overall scores >45. Chief pilot could not approve his own fight if the FRA form noted an overall elevated risk score. The director of operations or safety manager would have to provide concurrence. PRISM online system sends a computer-generated email to director of operations and safety manager.

[70] PRISM online system sends a computer-generated email to director of operations and safety manager. From November 2019-January 2020 there were no high risks. High risks were overall scores >60. The director of operations was not aware of any pilot that had a FRA form with risk of >60.

[71] Chief pilot could not approve his own fight if the FRA form noted an overall high-risk score. The director of operations or safety manager would have to provide concurrence.

a discussion with the director of operations or manager of safety, which included reiterating to the pilot the need to fill out a FRA form; the pilot subsequently filled a FRA form out on a computer. A company line pilot said that he would fill out a FRA form once a day if he had multiple flights and when he knew the weather was bad. Two company line pilots said they were not aware of any guidance on when to fill out a FRA form.

IEH did not have records pertaining to how management documented changes to the FRA form criteria, and how they communicated changes to personnel. During an interview, a company line pilot stated that when changes were made to the FRA form (risk criteria questions), it was not communicated to him, the changes just showed up one morning. Between calendar year 2018 and 2019, two safety committee meetings discussed the FRA form. The first meeting sought input from employees regarding new risk assessment questions, while the second meeting noted there would be new updates to FRA questions[72]. During both safety committee meetings, the minutes did not provide description of which questions would be updated and why they would be updated. The director of operations said that the FRA form was continuously monitored and updated as needed.

IEH documented and tracked flight risk assessments via PRISM, but they did not have a method by which they conveyed trends in those assessments to personnel at IEH, and overall effects on operational safety.

According to the IEH SMS manual, the FRA program and FRA risk form were discussed, but the company did not provide information related to risk analysis form criteria and numerical scheme. The company SMS manual did not provide explanation regarding timeframe that the form should be filled out by pilots. During an interview with the director of operations and safety manager, they said the form should be filled out prior to a flight.

4.2 Ground Risk Analysis Tool

The ground risk analysis tool[73] was utilized by ground crew and mechanics to assess risk prior to their activity for the day. The tool contained two forms: a) ramp agent risk assessment form; b) maintenance risk assessment form.

The following criteria was provided on the ramp agent risk assessment form: a) environment; b) PPE and materials; c) activity; d) personnel. The ramp agent risk assessment form contained score criteria. If an overall score was considered elevated or high[74], the safety manager or ramp manager had to assess, which may have included No-Go—cancellation of the activity based on the overall score.

The following criteria was provided on the maintenance risk assessment form: a) general outlook; b) human factors; c) general conditions/activity; d) aircraft maintenance activity; e) ramp, hangar, and tools. The maintenance risk assessment form contained score criteria. If an overall

[72] First meeting: Pilot safety committee meeting held on 8/1/2019; Second meeting: Pilot safety committee meeting held on 10-30-2019.
[73] See section 4.0 for a general overview of the online PRISM risk analysis tool, online risk format, and human-computer interface.
[74] Elevated-overall numerical score > 35; high-overall numerical score > 45.

score was considered elevated or high[75], the safety manager and director of operations had to assess, which may have included No-Go—cancellation of the activity based on the overall score.

According to IEH records, from calendar years 2019 to 2020 there was 1 elevated maintenance risk assessment form[76] and there were no high risks.

From calendar years 2019 to 2020, IEH company records noted that all ground crew and mechanics filled out risk assessment forms.

There was no record of how IEH management documented changes to the ramp agent and maintenance risk assessment form criteria, and how they communicated changes to personnel.

According to the IEH SMS manual, the company did not provide explanation of how employees would utilize ramp agent and maintenance risk assessment forms. The company SMS manual did not provide a timeframe regarding filling out risk assessment forms. Ground crew and mechanics said they fill out forms out prior to their daily activity.

IEH documented and tracked ramp agent and maintenance risk assessment forms via PRISM, but they did not have a method by which they conveyed trends in those assessments to personnel at IEH, and overall effects on operational safety.

F. LIST OF ATTACHMENTS

Attachment 1-Interview table of contents and official transcripts

Attachment 2- Accident pilot documents

Attachment 3-Island express helicopters documentation

Attachment 4-Flight Planning documentation

Attachment 5-Text Messages

Attachment 6-SMS and related documents

Attachment 7-Emails and Records of Conversation

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[75] Elevated-overall numerical score > 81; high-over numerical score > 100.
[76] 8/30/2019 Maintenance Risk Assessment score was 93.