

WPR21FA143

OPERATIONAL FACTORS/HUMAN PERFORMANCE

Group Chair's Factual Report - Attachment 1

Interview Summaries

October 25, 2022

Interviewee: Aft Passenger 3, N351SH, 3/27/2021¹
Representative: Tracey Knutson, Knutson and Associates

Date/Time: April 7, 2021 / 1745 Alaska daylight time (AKDT)²
Location: via telephone (FaceTime)
Present: Josh Cawthra, Fabian Salazar, Shaun Williams, Katherine Wilson -
National Transportation Safety Board

During the interview Aft Passenger 3 stated the following:

The weather was nice, but that there was “kind of creepy weather” in the mountains that delayed the takeoff for the trip.

At the time of the accident, they had completed “maybe 5 or 6 runs.” He stated that it had been a good day, and everything was fine and perfect. The last run [immediately before the accident] began the same as the others. There were no indications that anything was wrong. The only difficulty with the landing was that the snow was real light and while attempting to land, the whole helicopter was engulfed in a fog which made it appear like a little white room. It was a normal situation, and he was not expecting anything else.

He did not wear a headset during the flight, so he could not hear the communications between the pilot, guides (front left passenger and aft passenger 1) and one passenger (aft passenger 4) that elected to utilize a headset. As the helicopter was setting down, he was checking his gloves and preparing to exit when he heard aft passenger 4 yell “don’t do it, don’t do it, don’t do it” in both English and Czech languages. In this moment was the accident. The helicopter then began going backwards real fast and impacted the rocky mountainsides several times. During the impact sequence, he observed the other occupants hit the rocks and watched as the rocks went “up and down, up and down.” Everything happened quickly and he had never felt that before.

When the helicopter came to rest, he was still inside with his seatbelt secured. The rules were strict that nobody was to take their seatbelt off before the doors were opened and nobody was to move; this was a strict rule by the ski guide seated in the front left seat. He was expecting to be the third person out of the helicopter. He found himself with half of his body in the snow and half of his body between two of the other occupants. The aft passenger 1 was on his right side and aft passenger 2 was on his left. He repeated that he found himself in the middle of the helicopter and there was no roof. He thought it was “crazy” because he saw aft passenger 2 on the left side and aft passenger 1 on the right side, but aft passenger 1 was the guy who always sat

¹ The helicopter was equipped with four passenger seats in the aft of the cabin and an additional passenger seat in the front left side of the cabin. The pilot sat in a seat located in the front right side of the cabin. Aft seating positions were identified as 1-4 from the left side of the helicopter to the right side. The interviewee was seated in aft passenger seat 3.

² All times AKDT unless otherwise noted.

in the door. He tried to push them and get their attention but there was no response. He could not breathe because he had broken ribs. His right hand was stuck, and he could not move much, only with his left hand. When he looked up, he could see the hill up to the place where they were landing.

He saw aft passenger 4 sitting in the snow, as well as the basket and pieces of the helicopter. He only had a small space to move and he would go up, call out to aft passenger 4 and go back down to breathe. When he would go up, he could see that the seat 4 passenger was going down the hill on his butt, not walking. The aft passenger 4 was trying to push centimeter by centimeter. He thought aft passenger 4 was going down to do something, but he did not know what it was. He got up, called to the aft passenger 4 and went back down several times. Initially, aft passenger 4 did not answer, but they eventually spoke together. He could see aft passenger 4's hair and blood on the left side. Aft passenger 4 told him to "be cool, be cool, it's OK, it's OK, wait, wait" in Czech. They were short messages.

He tried to pull the seat belt from the snow to help with his breathing, but it was stuck very tight and he could only use one hand because his other hand was in the snow. His legs were stuck, and he could not move himself. He was unable to tell how much time had passed but estimated maybe 5 to 15 minutes. He could not tell because he was in shock. He initially saw aft passenger 4 over aft passenger 2's body and the rest of the helicopter and then lost sight of him. He went from the left side over the helicopter and that was the last time he saw aft passenger 4.

It was sunny at that moment after the accident, and he was thinking someone would be coming in 20 minutes. He knew that he lived, aft passenger 4 lived, aft passenger 2 was dead, and aft passenger 1 was dead, but from the bottom (while motioning thumping sounds on the table during the interview) "somebody trying to go up," but he could not move. He was trying to warm his left hand and trying to push free his right hand and trying to get out from the bad position. He was trying to get a little more space to do something and thought that the most important thing was to try and breathe. He heard the smashing from the bottom [of the helicopter]. He did not know if it was the pilot or the front left passenger. He knew he was not the only one who survived; there was somebody else there and maybe that person could hear him screaming to aft passenger 4 that they were going to die there. He said "were going to die here, do something."

After some time, his hand started to hurt, and he tried to make a hole to find the seat belt. He was able to move aft passenger 1's body a little bit and found a small walkie talkie and called out for help. That ended up being the final position of his (aft passenger 3's) body. He thought that maybe aft passenger 4 was doing something like looking for the "yellow box" or helping somebody. After a while, he started to get scared because he could smell the jet [fuel] and he thought it could ignite.

He did not know if he had passed out, but his next feeling was that he saw the light of a helicopter. He thought "Oh my God, they found us, everything is good." He screamed out to aft passenger 4 about the helicopter and said, "do something." He

tried using the walkie talkie. The helicopter went away. He tried the walkie talkie again. The helicopter came a second time almost near the spot where they tried landing. He saw the helicopter hovering. He let out a deep breath because they had been located. He believed that was when he lost consciousness.

Before the accident during the day, there were two helicopters going around them when they were skiing, and he did not know how much time had elapsed. But when he saw the one helicopter it was darker, and after that he woke up in the hospital.

When asked about the yellow box, aft passenger 3 said that they had discussions with the pilot and that the yellow box had been in different locations on the helicopter in the past. He made a joke about asking where the yellow box was this year, and the pilot opened the right door and showed him that the yellow box was there.

He saw aft passenger 4 with both hands and both legs, sitting in the middle of the line, the "welly," and he was thinking everything was fine because he did not see injuries. Aft passenger 4 was a very smart guy and maybe he was going to help somebody. Aft passenger 4 was not really answering him in long sentences, but in short statements. He thought that maybe he was thinking about looking for the yellow box, or a bigger walkie talkie, or maybe someone was bleeding and needed help. His good friend was going down the hill and he did not know why.

Aft passenger 3 reaffirmed that it was aft passenger 4 that said "don't do that," and that aft passenger 4 was wearing the headset. He repeated that aft passenger 4, both guides, and the pilot had headphones, and he and aft passenger 2 did not, so he did not know what they were discussing. He could see the front left passenger checking the left side and the pilot checking the right side and aft passenger 4 saying "no, no, don't do it!"

When asked to describe the orientation of the helicopter during landing, he stated that it was one skid and then corrected himself that they were setting down normally at first, but then went up to try to get into the right position, and after the movement, aft passenger 4 started screaming.

When asked to describe the seating locations, he said he was in the middle. The seating positions in the back were, from left to right, a guide (aft passenger 1), aft passenger 2, himself, and aft passenger 4. From his position he could see the front left passenger and the pilot. He was preparing to go out and was checking his gloves just before the accident. He did not want to be a problem during the exiting of the helicopter, and that was when aft passenger 4 said "don't do it."

When asked if the door had been opened yet, he said "no."

When asked if he thought the light snow could have been clouds or snow that was kicked up from the rotor, he stated that it was "kicked up from the rotor." The place [landing zone] was good because there were two other helicopters and there was no chance for avalanches. The only thing that was wrong was that when the helicopter was setting down, it was shaking, and snow was going everywhere. He had a bad experience in the past where he threw up, so he was looking at some rocks for a

reference, because it was kind of white in the front and everywhere. He was looking out a little bit farther to see how the helicopter was moving. There was snow everywhere and he never expected something bad to happen.

Aft passenger 3 stated that he had flown with the same pilot the day before. When asked if there were other ski guides the day before, he stated that they had skied with the same ski guides for many years and that they were good friends. He had skied with aft passenger 2 for 11 years and aft passenger 4 for 10 years; the pilot was new.

When asked about any concerns, he stated that he did talk to another guide following the accident and was kind of concerned because each pilot had a different way of landing, and the accident pilot's landings were not absolutely level. It surprised him, but it was normal.

When asked who selected the place to land, he said that they were in a place like a big U and they had multiple pick-ups in that area. At the bottom they would look for other spots, but it was up to the guides. The skiers did not point out areas to go to, but rather, they put their trust in the guides.

When asked if it was the last run of the day, he said he felt that it was, even though nobody said it. He also had decided to not take any photos because the weather was not sunny. The bag with this camera was in the basket.

When asked if the pilot gave a briefing that day, he said the briefing was on the first day, and aft passenger 1 gave them a refresher class on things like the beeper, and operations around the helicopter. He introduced the pilot and the pilot talked about things like not kicking the door. Aft passenger 3 joked with the pilot to let him know they had been doing this for the past 11 years. The pilot also gave them advice like not going near the tail rotor. When he asked where the yellow box was located, the pilot showed him. It was the normal brief about the helicopter that lasted about 7 to 10 minutes.

When asked about what to do with the yellow box, he said that he was told to keep it with him to be found.

When asked, he stated that all their gear was in the basket. A guide was seated in the front left seat.

Aft passenger 3 was then asked to describe what the helicopter was doing right before aft passenger 4 said "No, no, no, don't do it." They were parking the helicopter to stop on the hill, and the helicopter was not level. The front left passenger was looking at the left side and the pilot was looking on the right side. They were preparing to get out of the helicopter. The rules were strict, do not open the [seat] belt before the doors were opened, but you need to be fast. He was watching what was going on, he was not sick, but was looking farther out to see how the helicopter was moving. The helicopter sat for about 5 seconds, then went back up and tried to land one more time. It was at that moment that the helicopter was setting down for a second time that aft passenger 4 started screaming. They were attempting to land on a ridge

and they had landed, the helicopter had some movement, then went up, came back down and afterwards went down the mountain.

Aft passenger 3 stated that he wondered why nobody came to help in a faster mode. He mentioned another place he had skied where he was able to see on a computer screen, another operator's tracking system and he could see all the helicopters and what they were doing. He wondered how this could happen because aft passenger 4 had lived. He asked himself how it could have taken so long because they had seen two helicopters in the same area, and recalled aft passenger 4 asking why there were so many helicopters in the same area.

Interview concluded at 1835.

Interviewee: Brad Cosgrove, Lead Guide, Third Edge Heli
Representative: Declined

Date/Time: April 13, 2021 / 1000 AKDT
Location: via telephone
Present: Katherine Wilson, Shaun Williams - NTSB

During the interview Mr. Cosgrove stated the following:

On March 27, 2021, he believed he received a call about 2000 from Tordrillo Mountain Lodge (TML) wondering if they knew the status of N351SH. At the time, there were three helicopters that he was working with who had passengers who were leaving after being there for 7 days, so the lodge he was at was very busy; they had one group leaving and another group coming in. He found N351SH on flight following and realized the helicopter was overdue for its last lift. The first thing they did was to call Soloy Helicopters, start to mobilize in the direction of the site, call 911 and get the 210th Mountain Division mobilized. It seemed like it was a "good time to pull that trigger." Why "those guys" had not done that already, he did not know, but they brought the situation to their attention and realized nothing was being done so they started calling the parties that should be called in such a situation. He received the initial call from Mike Rheam at TML; he believed the call he received around 2000 was the first call he had with TML regarding the incident.

He was working with Alpha Helicopters and they were operating out of Meyer Lake near Palmer, Alaska. Their helicopters had spent the day flying up near Denali National Park until a little bit after 1800. The passengers were leaving so they were taking care of items related to that (packing, settling the bill). The passengers needed to be flown to their jet in Anchorage, so the helicopters also had to leave by a certain time.

There were a few helicopters in Anchorage that were dropping off passengers and they asked those helicopters to respond to the site. There were two guides in Anchorage that jumped in one helicopter 383, and went directly to the site. Another helicopter flew to Meyer Lake and picked up two guides (helicopter 111) and went to the site. He was in contact with them via inReach and text message. When they got to the site, the accident site was located, and Mr. Cosgrove was sent the GPS coordinates of the accident site and he shared those with the appropriate parties. Due to the nature of the incident but more so due to the diminishing daylight, it was decided that it was unsafe to land and respond to the situation; and they knew that the 210 Mountain Division was in en route. He clarified that he did not know they were en route but that they were mobilizing.

Once the situation was brought to their attention, they knew where N351SH was flying because it was a common area. He was able to pull up Soloy's flight following, he believed through Silver Eye. He did not recall having any communication with the helicopter prior to 2000. The helicopter was operating under TML, not Third Edge Heli.

TML was dispatching but there was a "gentleman's agreement" that the other operators were always be available to help.

One of the guides on the accident helicopter, Greg Harms, was the founder of Third Edge. What Third Edge did traditionally was use a booking agency to bring guests to different operators in Alaska, such as TML and Chugach Powder Guides (CPG). This year, Third Edge started their own operation out of Palmer at Meyer Lake. But they still had groups that they were sending to other operations; these were guest that had packages to fly before COVID hit and they were rolled over to this year. Mr. Harms was also one of the original owners of TML.

He was unaware of any reports prior to the call at 2000 that N351SH was inbound; it was not on his radar. They guides would have been communicating with dispatch from TML. He did not know why TML contacted him rather than Soloy or search and rescue, but perhaps because N351SH was in proximity to their operation. He did not understand why they did not contact him sooner. When he called Soloy, he talked to John Baechler.

When he called 210th Mountain Division, the information he provided was overdue aircraft, GPS coordinates from flight following, and souls on board. Once the accident site had been located and it was determined this was a crash rather than a broken down aircraft with no communications, he passed that information on to the Rescue Coordination Center (RCC) who launched the 210. Helicopter 383 hovered over the site and was able to send him the exact coordinates.

The pilot of 383 reported that he could see a body outside of the helicopter laying on the snow; otherwise, they could not see anyone else. It was getting dark quickly. All who responded deemed the scene was likely unsurvivable; they did not see any movement. He reiterated that they did not land due to the darkness.

Third Edge had a dispatch "just like all heli skiing operations do." They had a dispatcher and he had never worked with a dispatcher who did not have access to the flight following of the heli provider they were working with. Third Edge's policy was for guides to do 1 hour check ins unless they did something like change locations drastically. One hour was the longest between check in but it usually happened more often than that. If they had not heard from a helicopter in an hour and it was not moving on flight following, they would do things like contact Alpha Helicopters and put things in motion. Asked if it was common or uncommon for a helicopter to not move for 30 minutes, he thought it depended on the group. If the helicopter was moving multiple groups, it would likely always be moving. But if it was moving one group, that group might want shut down for a bit to enjoy some soup. Some groups were motivated to ski a lot and other groups were more relaxed; it depended on the situation.

Third Edge used the guides who rotated as a dispatcher or they used a designated dispatcher; it was someone who had been trained and understood the seriousness of the role. Mr. Cosgrove broke his leg in February 2021, so he became the dispatcher every day.

Operators tended to share radio frequencies, but he was only watching the Alpha ships. But there was an occasion where Pathfinder was helping them for a day or two so he also had their flight following up as well. He clarified that he was only flight following the ships that Third Edge was responsible for.

He had dinner with the passengers on the flight on March 25 and March 26. He had known them for a number of years and would have skied with them if he had not broken his leg. They did not mention any concerns they had about the flight with the accident pilot. Mr. Cosgrove and the passenger in the front left seat of the accident helicopter had not flown with the accident pilot before March 26; aft passenger 1³ had flown with the accident pilot previously.

He spent time with the surviving passenger after the accident. The passenger recalled to Mr. Cosgrove something that was not normal to him on previous landings. The passenger said that a lot of the landings were not level, and the passengers would be squishing the passenger next to them when landing, as if the pilot had a hard time finding level. Another thing Mr. Cosgrove found interesting was that the passenger told him was how "whited out" it was when they had the accident. Mr. Cosgrove said because of where the passenger was seated, in the middle back, that was a blind area to be in the helicopter and that was the passenger's perspective. They had had a lot low density light snow in the area without wind, and the passenger made it sound like there was a lot of blowing snow when landing and particularly when they had the accident.

Mr. Cosgrove confirmed that a pilot would "absolutely" try to blow out the snow before landing. When he has flown, the pilot would come in then back up then come in and back up and might even do it a third time to get "rid of the problem" before you come in for a final landing. He thought that worked pretty well to him. He saw other pilots "come in and create that cloud" and then try to outrun it or move forward; he later clarified that it was almost like you were blind for a second when doing this maneuver. He was not a pilot, but he never thought that felt as good or safe as when they come in and back up and come in and back up.

Third Edge used Alpha Aviation's flight following system, and Alpha would also be doing flight following from their offices. Asked about the agreement between Third Edge and Alpha Aviation to do flight tracking, he said the flight following system was a really good tool for them that Alpha had and could share with them. In addition to flight following, he was also following the group all day who would be reporting to him snow conditions, relative avalanche observations, how guests are doing, estimate arrival times, and if a passenger wanted a massage. The check ins were both for safety and guest services. He might also be asked to coordinate logistical matters such as moving a fuel truck to a certain location. The check ins could be with either the pilot or the guide or a combination of both; and it would be of note if he had not heard from the guide nor the pilot in an hour. All of their guides carried an inReach and at least one

³ Aft passenger 1 was seated in the leftmost rear seat.

satellite (sat) phone; the pilots also had their own inReach and would check in with him also.

Mr. Rheam called Mr. Cosgrove's iPhone; he recalled that the call came in at 2000 or 2002 and said it was documented.

He confirmed that Third Edge started their own operation at Meyer Lake this year. No operator had their own helicopters but rather leased them. For example, TML and CPG leased from Soloy. Third Edge leased primarily from Alpha Aviation and a few with Pathfinder which were needed for specific situations. He did not normally have access to Soloy's flight following system but one of the guides on the accident helicopter had told him a few days prior what Soloy's flight following information was; it was a log in and a password.

Their operation was in closer proximity to the accident location than TML. He had been friends with the two guides on the accident helicopter for 15 years, and one of the guides (aft passenger 1) just happened to provide Soloy's flight following information in case it was needed at some point. He had been text messaging with aft passenger 1 throughout the day and Mr. Cosgrove shared reports he had received about "extremely good" skiing conditions in the Dutch Hills in Denali National Park. He let aft passenger know that he was not trying to steer his decision on where to ski. Mr. Cosgrove knew that they were struggling in the area with clouds where the accident helicopter was operating and as their friend, he wanted to let them know that there was great skiing up that way.

After he was contacted by Mr. Rheam at TML, he tried to reach the guides via text message in case there was a little bit of cell service. At the same, he moved to their dispatch area and quickly realized that things did not look good; that was why they called Soloy and 911, and moved their helicopters towards that area.

He talked to John Baechler at Soloy. He asked Mr. Baechler if he knew anything and that no one had heard from them and as clear as they could tell, the helicopter had been in a similar spot for a long time. In any emergency rescue plan, he knew that in addition to calling 911 and getting people in your company to respond, that they should call the helicopter provider. As near as he could tell, they were the ones who brought this to Soloy's attention. Mr. Baechler got off the phone and started doing whatever he needed to be doing on his end. Mr. Baechler called 911 and RCC about the same time Mr. Cosgrove did because when he called RCC, Mr. Cosgrove was told that they were also talking with Mr. Baechler.

He described the 210th Mountain Division as an elite division of the military that they are lucky to have them as a resource in Alaska because they are able to respond to these types of incidents; but sometimes it could take them a while to respond if they were on another call. Calling the 210th Mountain Division was a part of their emergency response plan and was a part of every emergency response plan that he had worked at in Alaska. They always had to call 911 first because it had to go through the right channels. Ideally there was someone calling RCC at the same time as someone was calling 911. Things start to mobilize and once they get the go ahead from the State

Troopers from the 911 call, then the 210th Mountain Division can go to the site; it had to go through the right channels and be a serious enough incident. In this case, it was an overdue downed aircraft past daylight; that was the kind of situation where that division would go in.

Besides Mr. Cosgrove passing along the skiing conditions, he thought he might have received a text message from aft passenger 1 letting him know the direction or area they were heading to at some point during the day. He reiterated that it was a unique situation because they were friends, but he was not dispatching them.

He believed aft passenger 1 had an inReach device that belonged to TML. The way they had the inReach devices set up was that the messages are sent to an email account that the dispatcher was watching and could respond to the inReach via those messages. Aft passenger 1 could communicate with anyone from the inReach device, not just TML. He received numerous inReach email messages on the day of the accident from the Alpha ships but did not see an email message from aft passenger 1. The accident helicopter was operating on the edge of where there was cell phone coverage and at times you could get a few bars in the helicopter; it was not something that you would depend on for primary communication. The inReach and sat phone was the primary planned means of communication with dispatch; the sat phone would be the back up or for in situations where a phone call was better than a text message. But if you happened look at your phone and you had cell phone reception, you might send a WhatsApp or text message. And they might send a message when they had service to be aware of where coverage was possible in that area for in the future.

Third Edge, like TML, had their own inReach devices.

Alpha Aviation used SpiderTracks and he knew that they had the ability to text message via SpiderTracks. Also, the Alpha pilots had their own inReach devices that they would be using. The idea was that everyone should be able to communicate with anyone, anywhere, at any time; however, sometimes the inReach had a little bit of a delay and sometimes the sat phone would not work for a while.

It was their protocol that if you were out and had an incident, the first thing to be done was to call dispatch and they would do all the communicating for you. Someone would not call 911 from the field; you would call dispatch and dispatch would do that for you.

In a hypothetical situation where a helicopter went down and there were no injuries, the guide would contact dispatch, likely via a sat phone call. What he thought was unique about the accident situation was that the ELT never went off and everyone was compromised so much that they were not able to reach out on the inReach or call from the sat phone. Back to the hypothetical scenario, asked what he would do as the dispatcher who received that call, he thought he would probably work it internally; and of course, he would call the appropriate agencies eventually, and he thought Alpha would help with that, like FAA. If he had other aircraft available to him, he would let them know the situation. If those aircraft had groups with them, they could not ditch them but perhaps could leave them in a spot that was recoverable and then go

respond to the incident and get that group involved out of the mountains. If there was not medical concern, they could handle it internally.

If you had not heard from the helicopter in an hour and the helicopter was not moving, you should be concerned. In that situation, you would call the helicopter provider, call 911 so they could start mobilizing, call other aircraft operating and let them know the situation so they could potentially respond. If he was the dispatcher handling a situation like that, he would get one or two other people in the room with him to record information and make calls. He could then contact other operators to see what resources they had available.

He did not recall having a helicopter out of contact for an hour or more, but he had memories of it being close; say 55 minutes, but then the helicopter starts moving on flight following or you got the inReach message. He had never experienced anything like what happened with the accident flight.

After his initial call to Soloy, he personally did not talk to anyone at Soloy but there were two other people helping him during the situation and they were making calls simultaneously. He thought they might have information to share that was relevant to the investigation.

He did not know of Mr. Rheam being in contact with anyone else at Third Edge as the events unfolded.

As a dispatcher he was "absolutely" pulling up weather information and was sharing that with aircraft; for example, it could be clear in the field, but fog could roll in at base. He would also check weather cameras and would share that information, not to steer their decision making, but to say, "here's the facts" and they can do what they like with it. They could anticipate problems when coming back to base. They were constantly sharing weather observations in heliski operations, with the pilots or the guides. If it was something he was really concerned about, he would likely share it with the guides and the pilots via inReach; if it was more serious, redundancy was always good.

He did not think there were any pictures from the initial response to the accident site from his guides or the Alpha helicopters.

He had nothing else to add to the interview.

Interview concluded at 1459.

Interviewee: Ashley Anne Edmondson, fiancé of N351SH pilot
Representative: Declined

Date/Time: April 29, 2021 / 1715 AKDT

Location: via telephone

Present: Katherine Wilson - NTSB

During the interview Ms. Edmondson stated the following:

She had known the accident pilot for almost 9 years. They met when he was in flight school, but his father was a bush pilot, and he was introduced to aviation from a young age and had always been drawn to helicopters. He wanted to get a fixed wing pilot's license. Aviation had been in his blood since he was born.

At the time of the accident, they lived together in Alaska, but they had met in Oregon. They had lived together about 8 years. His only employment at the time of the accident was with Soloy Helicopters; he was contracted through Soloy to work with CPG in Girdwood. When they first met, he mentioned that working for Soloy was his "dream". He liked their safety standards; it was a very respected company in Alaska and in the US. Soloy did the types of work he wanted to do, specifically heliski operations. It was his "dream job" when he was able to get hired by Soloy. He also like how Soloy managed the company; it was like a big family. He was big on wanting to learn and improve; he set big goals for himself and she thought he saw heliski operations as "the pinnacle thing that you could do with a helicopter and not just using the machine as a machine but as a really awesome way to take people around to places that nobody else gets to see." He liked to be challenged and was very good at what he did. She also thought it was the terrain as he was from Alaska and it was extremely beautiful to be flying back in the mountains. He also liked the people he worked with.

She flew with him many times; it was always with other passengers. She would come along on his flights in the Grand Canyon or Juneau if there was an extra seat. He was always wanting to involve her in his work. They never rented a helicopter to fly outside of his work.

He was in flight school when they met, at Leading Edge Aviation and then became a flight instructor there for a couple of years. Then they moved to Las Vegas where he did Grand Canyon, city light tours, and odd jobs like flying to Monument Valley; he did this for Sundance Helicopters from 2015 or 2016 until 2018. After that he flew for Northstar Helicopters in Juneau for one summer doing glacier tours and river boat tours; these trips were mostly working with the cruise lines, but they did do some of their own operations. Then they moved to Anchorage and he was hired by Soloy. He did not hold any other jobs in Anchorage either before being hired by Soloy or while working at Soloy.

He had flown with the two guides that were on the accident helicopter before, but she did not think it was through Third Edge. He had flown with them the season

before and when he found out that he would be taking the accident contract, he had said he really liked those guys. She thought it was his first time flying a contract with TML. It was confusing to her because the passengers were supposed to be staying at TML but some people got sick and she believed they were staying at a house on Wasilla Lake. He had a house in Girdwood that he would stay at if he did not want to come home late or because of weather. But the night before the accident, Soloy got him a hotel in Wasilla because he was going to be there for a few days. It was not atypical for Soloy to get a hotel room for pilots; Soloy was always very generous with getting pilots a place to stay. For her fiancé, it was about an hour to an hour and 20 minute drive from Wasilla to their house.

She talked to him the night before the accident. He went to dinner at the hotel restaurant. They video chatted after dinner when he was back in his room. The next morning, the day of the accident, he was on a weather hold so he asked her if she would spend the day with him at the hangar until he left. He had been invited to stay the night at the house where the passengers were staying but he had to fly the helicopter back before dark, so he turned their dinner offer down.

He did not have any concerns about working for Soloy. The only negative about working for Soloy was the schedule; he did not like to be away from home and there would be long stints when he was not home. Regarding how long he was gone from home, she recall that last season, he was at Unga Island for 1.5 to 2 months and was gone for Thanksgiving; this was after he had been gone for another job with a short break in between. It was not anything that Soloy did; it was just part of the job where they had to make the most of the summer and daylight.

He had no concerns about flying the A-Star; he loved flying it.

He really enjoyed how CPG had things set up. The type of flying was more challenging and had stressors associated with it, but as far as operations, she did not think he had any concerns.

Asked if there was any pressure from guides or passengers, she thought the guides he flew with were excellent and knew the terrain and the capabilities of the helicopter. She thought he and the guides had a mutual respect; but if there ever were any pressures, she believed he was cautious and if not comfortable he would not fly there. He did not have a hard time saying no.

She had not flown with him at Soloy. The last time she flew with him was in Juneau because he did tours. There was not that opportunity at Soloy.

She watched him take off the day of the accident.

She did not know of any unusual situations or emergencies that he had while flying for Soloy. She recalled a situation when he was a flight instructor where he had to take over from a student.

He did not have any children. They were planning to get married in Fall 2021.

On March 22, 2021, he was working with CPG and she had stayed with him in Girdwood. It was while he was there that he got the call about the job which included flying the accident flight. He had to get a COVID test, so he was home on March 25, and possibly March 24. She was not sure what time he would have woken up on March 25, but she did have a text message from him at 0810. That day, he got the COVID test and then they spent the day together running errands; there was nothing unusual about their activities that day. She thought he probably went to bed early because he had to drive to Wasilla in the morning, 2130-2200.

On March 26, he had sent her a message at 0800 so she thought he must have already been in Wasilla. She thought he would have gotten up by 0600, showered and had breakfast before making the drive to Soloy which was over an hour. He was time sensitive and wanted to get there early although she did not think there was a specific time, he had to be there by but just in enough time to preflight the helicopter. She did not have another message from him until almost 1300. At 2016 that night, he sent her a message that he was leaving work and going to his hotel room. Later that evening they called, and video chatted. She last talked to him at 2215 for about 4 minutes and he told her he was in bed.

On March 27, 2021, she thought he was at Soloy around 0700 because he sent her a message. He had also sent her a "good morning" message at 0707; she was not sure whether he was already at Soloy but if not thought he would have been close. They talked on the phone many times that day. He called at 0811 and asked if she would come hang out that day because they were on a weather hold; he had already preflighted the aircraft. They sat in the break room at the hangar, looking at honeymoon spots. He talked back and forth with the guides about the weather that day; he would check the weather on his phone, and she thought there was also a computer in the break room. There was nothing unusual about her fiancé that day. He was happy and they had a great day. She was not sure when he was expected to be back. She believed Soloy mentioned he was scheduled to be back around 2000. He told her that that night he was going to drop the passengers, fly the helicopter back to base, do a post flight check and then drive back to the house where they were staying.

On March 27, she received a call from him when he was on the glacier; she thought he must have been down at the bottom because it sounded "a bit windy". Their house alarm had gone off and the alarm company had called and left a message for him while he was flying. She was in Wasilla still, waiting for him at a coffee shop. He called at 1743 asking if she could go home to check on it; he called her back a few minutes later after speaking to the alarm company. Both calls were short and were just before 1800; she later clarified that the calls were at 1748 and 1750. He did not mention anything about the flight specifically, just that he could not go home because he was on the glacier.

In general, he was usually up between 0630 and 0700. He set an alarm, but she thought he preferred to sleep in. They had a 0700 meeting at CPG that he would call in for. She thought he would wake up naturally but also set an alarm on his phone and

Garmin GPS watch. He always slept very well, but he sometimes snored when he was really tired. He did not have a sleep disorder and had never talked to a doctor about sleep problems. He always woke up feeling well rested; there was never a concern with his sleep. He did not take naps and did not have daytime sleepiness.

He did not work a set schedule; he would work the contract until it was done. His contract with CPG started in late February 2021 and worked consistently; he would get a day off "here and there" and would come home on weather days. He was usually in bed by 2200 and was able to fall asleep within 5-10 minutes of getting in bed. He would sometimes read his Bible in bed, but he never watched TV. The latest he would have gone to bed would have been 2230 but it was usually closer to 2200.

He had never been in any previous accidents or incidents. He received a speeding ticket in February 2021 for going 64 MPH in a 60 MPH zone; the sign was covered in snow. He was never disciplined by an employer for his performance; he was very frequently praised for his performance. He had a great attitude, people loved working with him and really trusted him, and he was good with clients; he was a "really good guy". He was well loved at Soloy.

He had not had any changes good or bad in the previous 12 months in his health or personal life. His financial situation changed in the previous 12 months; he got a raise at Soloy, and they were saving to buy a house. He was at the "prime of his life"; he was doing exactly what he wanted to be doing. They had been engaged for 2 years. Everything was really good.

He was in very good health, never got sick and did not have any underlying health conditions. He was always extremely happy; he was "well off in all aspects of his life." He liked weight lifting with dumbbells and bike riding. When he had a contract with Conoco while at Soloy, there was a gym that he used. He took good care of himself and tried to eat well when he was out on contracts. He had no issues with his vision or hearing. He did not take any prescription medications but did take Vitamin C and a supplement for hair, skin and nails. He would have a beer maybe once or twice a month and she thought the last time was probably when they were in Girdwood. He did not use any tobacco products. He did not smoke marijuana or use illicit drugs. He drank coffee in the mornings; he did not need the caffeine but liked the taste of it. In the 72 hours before the accident, he did not take any prescription or nonprescription medication that might have impacted his performance. On March 27, about 1300, they went to a coffee shop where he had a sandwich and coffee. He would usually take snacks with him on flights.

She did not think there were any pressures from Soloy to take a flight he did not feel comfortable with or that he was ever put in a position that he made him uncomfortable. The job came with high risks because of the terrain they were flying in; she did not think he would take risks he was not comfortable with nor did she think Soloy would have given him a hard time about it. There were no external pressures in his personal life that might have impacted his performance. He was very cautious. If there was ever any concern, she did not think he would have done it.

Her fiancé was “very well loved and very well respected”, and people requested to have him back on jobs. He was very likeable, smart, competent and extremely calm; people felt safe when with him. She thought Soloy were “really wonderful people”, a great company and great family; it was a really good atmosphere.

Sam Soloy had called her brother-in-law who then called her to let her know that the helicopter was missing sometime after 2200; she then called Mr. Soloy. He told her that the helicopter was missing but she did not think they knew it had crashed. Mr. Soloy told her the National Guard had the helicopter’s exact location and knew where they were going but she did not really know what that meant. She called Mr. Soloy back about 20 minutes later and told him she had talked to her fiancé at 1752; that was when she learned the helicopter had crashed but they did not know anything else. She did not know much until the next morning. She heard from her brother-in-law around 0130 that someone was being medevac’d but they did not know who it was; about 0800 she found out that her fiancé was not the survivor.

She had nothing else to add to the interview.

Interview concluded at 1831.

Interviewee: Cassie Venna McCraw, Manager, Third Edge Heli
Representative: Declined

Date/Time: June 29, 2021 / 0905 AKDT

Location: via telephone

Present: Katherine Wilson - NTSB

During the interview Ms. McCraw stated the following:

She previously worked at TML for 3 seasons. She started working for Third Edge Heli as a manager this season. As a manager, she was responsible for the logistics for operations and hospitality. She would attend the morning guide meetings to understand the happenings of the days and everyone's roles such as the guides working with guests and the day plans; she would deliver this information to the other employees who needed to know. She also managed guest service needs and employees, and sometimes dispatched aircraft, expedited, and prepped lunches. At the end of the day, she would make sure all aircraft were "down and done" for the day, and make sure all needs were turned over to the hospitality manager who handled hospitality for the remainder of the evening.

On the day of the accident, she was just managing that day. The two Third Edge guides on the accident helicopter attended the morning guide meeting in person. Even though they were not operating as Third Edge guides, the house where they were staying with the TML guests was nearby. The guides confirmed their plan with them which would be in the same area of other Third Edge operations, discussed where they thought they would be skiing that day and also said that TML would be dispatching them. After the meeting, they went their separate ways; Third Edge had a large group and had 3 helicopters flying.

The day before the accident, the accident guides were being dispatched but Third Edge held their manifest.

Throughout the day (on March 27), Third Edge was doing check ins with their team. At the end of the day, their guests were flying to Anchorage via helicopter to depart. The Third Edge team realized that it was later in the evening and were thinking about the Third Edge staff that had been moved to the Meyer Lake station to assist with the guests on the accident helicopter, and they wondered if the accident helicopter had returned. They had not heard from the Third Edge guides on the accident helicopter, who usually told them when they were back, so they reached out to them via inReach and WhatsApp. They also reached out to TML who told them that they had not heard from the accident helicopter since 1830-1835 timeframe; it was about 2000 at this time. She could not remember if they [Third Edge] called Soloy or Soloy called them about that time. She said they panicked and pulled up Soloy's flight following, which she thought was Skytracker, and saw the accident helicopter had not moved; she clarified that they had access to the system but was not dispatching them. They knew the area really well and that where the accident helicopter's last data point was

not an area that they would hang out at. Third Edge started deploying their helicopters; they were closest because they were operating out of Wasilla. The first helicopter departed with 2 guides; a second helicopter departed a short time later with guides and rescue gear.

She and Brad Cosgrove were in dispatch dispatching the rescue helicopters. They called Soloy, RCC and TML to let them know what they were doing. Third Edge had a "strict policy" to deploy immediately if they did not hear from a ship by a check in time. The first helicopter deployed reported that they found the wreckage, but it was not safe to land because they were losing daylight and were low on fuel. The 2nd helicopter deployed had full fuel but agreed not to land because it was getting dark. The helicopters hovered over the sight but did not see any signs of life; they returned to their base and left the rescue to the RCC. Then Third Edge went into grieving mode. They felt "let down and betrayed" by the dispatch at TML; there was no time to question an overdue aircraft. If they saw the helicopter had not moved and there was no check in, "you just deploy". They were also upset that TML did not reach out to them sooner, and that they were not alerted by the emergency equipment on the accident helicopter.

The day before the accident at the morning meeting, there were questions raised about the accident pilot being assigned to the trip. He was a new, younger pilot and the accident guides were asking if anyone had flown with him; does he know what he was in for. One of the guides at the meeting had flown with the pilot the year before at CPG but he had not flown a job like this one. Because of that there was a little apprehension around the pilot assignment. Asked to clarify what this "job" was like, she said that it was a private tour versus a public group of people. The accident guests had been flying together for years and would want to go to more steep terrain. The group was also flying together multiple days versus public groups which would typically just fly one day. With private groups, each day they might want to progress to more aggressive terrain. The guides were not sure what the pilot's experience was in more aggressive terrain and with a private group.

The guides at Third Edge had met years ago at TML so they were familiar with another pilot originally assigned to the guests involved in the accident; but because of a COVID incident, it was reassigned to the accident pilot.

She clarified that the guests filled out liability paperwork. Third Edge was hosting the guests, but they were flying through TML, so they filled out TML paperwork. All guests had signed waivers which Third Edge had at the time of the accident; TML called them after the accident to ask for the paperwork. The paperwork was going to be delivered to TML when the COVID cases cleared.

She discussed that guides might work for different companies throughout the season. There were a lot of moving parts.

Third Edge's policy was if they had not heard from a ship in 1 hour to deploy rescue. But there was also some common sense involved; if they were dispatching and the ship was moving but they could not get in contact with them, they would contact

the helicopter operator dispatch to see if they had contact. Using the flight tracker system there would be obvious signs that operations were okay. If they contacted a ship that had not checked in, they usually responded back quickly.

A manager should also reach out to dispatch during the day to relieve them if they need a break and to make sure all was okay.

She thought most heliski operators had similar emergency procedures. For Third Edge, as a dispatcher, if she was watching flight following and the helicopter had not moved and there was no comms, she would send rescue. She would ask another helicopter in the area to fly by or deploy rescue. To her, if she had not heard from a ship, she would go to flight following and see where they were. She would call RCC immediately. She did not know if the TML dispatcher had to get approval to call RCC. She did not think there was a consequence of calling RCC if it turned out there was not an accident but that there might be some heckling from other guides that they did not check in and rescue was deployed. For private groups, a lot of times there were two ships flying together but in the case of the accident flight, there was only one ship. In the case where there were two ships flying together, they could call the other ship and ask if they had seen the other ship that had not checked in.

She was very familiar with Soloy as a company; she thought it was a "lovely company" that was great and responsible. She did not think about this until she went to Third Edge and worked with Alpha Aviation and Pathfinder, but both of those operators had their own dispatch at their base; she did not realize Soloy not having a dispatch was unusual until she went to Third Edge. Alpha and Pathfinder pilots had to check in with their company dispatcher as well as Third Edge. There were multiple check ins every hour. She never had a contact number for dispatch at Soloy when working at TML. At Third Edge, she had had instances where she had heard from a guide, but Pathfinder had not heard from the pilot, so Pathfinder called her; there was a good line of communications between Third Edge dispatch and theirs. When she worked at TML and what she knew of the accident flight, she was not aware of any Soloy dispatch like that. She thought if Soloy had a dispatch they should have known the ship did not move.

She received training at TML to serve in the dispatch role from another guide. It was minimal and the guide sat down with her for 1-2 hours, showed the flight following system, how to use radios, emergency rescue, sat phone calls, and how to log calls/check ins. TML was just transitioning to use inReach for comms; when she was there it was more radio comms for check ins.

Most of the time, dispatchers were guides in training. They were very experienced in the field. At Third Edge, the purpose of dispatching was safety first. She got the impression that TML was dispatching for safety and liability.

Guides and pilots would fly recon missions. For example, after big storms or weather events, they would go up to look at snow conditions. Or after getting fuel, they might take the helicopter up to check out the weather conditions.

Her experience was that TML did not have a lot of integrity and did not treat their employees with respect; they also did not handle COVID well. She thought things were more of a "check the box" at TML, it never felt grounded and solid. At Third Edge, everyone was seen as equals. TML would be secretive about dispatch whereas at Third Edge, it was all very transparent. She also thought there was a power trip at TML.

Interview concluded at 1005.

Interviewee: Mike Rheam, co-owner Tordrillo Mountain Lodge, President Heli-Ski US Association
Representative: Declined
Date/Time: August 22, 2022 / 1500 AKDT
Location: The Lakefront Anchorage, Anchorage, Alaska
Present: Katherine Wilson, Shaun Williams - NTSB

During the interview Mr. Rheam stated the following:

Hugh Barnard, Director of Winter Operations at Tordrillo Mountain Lodge (TML), was the HSUS safety officer for the lodge. He was responsible for safety of all aspects of operations.

HSUS conducted audits of its members at least every 5 years; the audits were a part of the performance review process. The audits used to be conducted by HSUS auditors, but HSUS now partnered with HeliCat Canada who had a much larger organization with qualified auditors that did not require any training by HSUS. The auditors used the HSUS checklist that details essential items as well as other things with more leeway; the checklist followed the HSUS guidelines. Some outfitters had been denied HSUS membership because they did not have a "team aspect".

Membership involved more than just passing the audit and had to be approved by the board. The outfitter had to be "in it for the industry" and have the highest standards. It was harder to become a member than to maintain membership. He also thought there was a probation period. If a member was deficient in an audit, they would get called on it and there would be a meeting with the executive committee to decide how to handle it. HSUS did not conduct any audits in 2020 because of COVID; they conducted 2 audits in 2021 and planned for 4 audits in 2022.

HSUS held an in-person meeting in spring and a virtual meeting in fall. Members were expected to attend the spring and fall meetings as well as volunteer for committees. For example, two member volunteers reviewed the Heli-Ski Operating Guidelines (HSOG); another member did their social media. The biggest obligation for members was the audit. There was also a committee of member volunteers that developed the audit checklist which they presented to the HSUS board for approval.

He hoped that operators contracted by outfitters were training their pilots to HSUS standards. At TML, they would ask for specific pilots to fly for them. Outfitters could not control how the operator operated or what their standards were so TML would ask questions of the operator to make sure pilots met the standards they were looking for. If there was a new pilot assigned to them, TML would schedule time for the pilot to come to the lodge and learn a bit of their operation. TML would provide some training for new pilots and also had them fly with TML's director of operations; the cost was covered by TML. However, the director of operations did not fly with the accident

pilot before the accident. TML talked with the lead guide on the accident helicopter⁴ about whether he was comfortable flying with the pilot and he was; the accident pilot had previously flown with CPG. He assumed an operator met the FAA requirements.

He knew that Soloy Helicopters worked a lot with Chugach Powder Guides (CPG). He did not know if Soloy was specifically aware of the HSUS HSOG, but TML did share their procedures with Soloy which paralleled the HSOG.

HSUS members shared best practices at dinners and member meetings. The best practices would be documented in the meeting minutes which would be shared with all members. Best practices could be an outfitter discussing how they did something which maybe another outfitter had not thought to do. HSUS also invited insurance companies and HeliCat Canada to come talk at the member meetings to share information.

If an outfitter got new ownership, HSUS would do an audit "right away". HSUS paid the auditors' wages, and the outfitter paid the auditors' room and board.

He thought the audits kept members on their toes because they did not want to do bad on an audit. He personally thought the sharing of best practices was more valuable than the audits.

TML was last audited by HSUS in 2020; nothing of substance was found by the audit.

HSUS had asked an outfitter to give up its membership before, and not all outfitters were given membership. There was one company that had tried to obtain membership twice, but they did not have a successful audit.

Membership fees vary from year to year; in 2022, membership was \$2000.

He thought the HSUS requirement for a lead pilot meant that if a group of pilots were contracted with the outfitter that one of those pilots acted as the lead for that group; it did not necessarily mean it was the operator's lead pilot (or chief pilot). TML would ask who the lead pilot of the contracted pilots was; he wanted to make sure that the lead pilot had heliski experience. There would also be a pilot representative at the morning meetings during heliski season.

An outfitter's flight following procedures and emergency response plan (ERP) were included in the HSUS audits. Mr. Rheam shared a recent photo of the flight follower's workstation that showed TML's and Soloy's ERP located right next to the desk where the flight follower worked. TML required hourly check ins with the guides and/or pilot but they tried to do it more frequently. On the day of the accident, the flight follower would have been responsible for initiating the ERP but instead came to Mr. Rheam because there was conflicting information - the tracking software indicated the helicopter had landed and inReach showed the helicopter at the top of the mountain;

⁴ Front left passenger.

there was also no ELT [emergency locating transmitter] alert. The flight follower had also had difficulty tracking other aircraft that day.

The area where the accident helicopter crashed was not the normal ski area for TML. There were discussions between the TML and Third Edge prior to TML agreeing to take on the contract that included the accident flight. The lead guide had requested to do the ski run where the accident occurred several times, but it had always been denied. TML agreed to allow its helicopter to fly in that area because Third Edge was going to have other helicopters operating in that area and the Third Edge base was closer than TML. He was upset because when the accident occurred, the Third Edge helicopters were not nearby.

On the day of the accident, Hugh Barnard was the safety officer but was stationed in the building next to where the flight following station and Mr. Rheam were.

He was not sure if the accident helicopter had the instrument meteorological conditions (IMC) instrumentation installed as outlined in the HSOG to recover from inadvertent IMC.

When asked about no written drug and alcohol policy in the HSOG for guides, he said it "just seems so blatantly obvious to not be under the influence."

TML talked about how to handle emergencies. There were three classes - class 1 was something that one person could handle, class 2 required TML resources, and class 3 required outside resources.

HSUS did not perform any review or audit of TML since the accident. Since the accident, TML made sure they had better documentation of dispatcher and other training. They also tightened operational times to ensure helicopters were not out as late as in prior years; they now had to return 1 hour before sunset.

Although mapping software was utilized on some helicopters for the selection of ski runs, there was no mapping software on the accident helicopter; the runs were a pilot's choice.

TML never interacted with the FAA.

He had nothing else to add to the interview.

Interview concluded at 1645.

In an email dated September 22, 2022, Mr. Rheam clarified how the decision was made to operate in the Knik area on the day of the accident. The email stated, in part:

This decision was made over several phone calls and texts between March 21st and March 24th. There were several communications between [left front passenger] (who was a lead guide for TML but also was operating his company, Third Edge Heli, in Alaska in the spring of 21), [aft passenger 1], Myself, Hugh Barnard (TML), and Brad Cosgrove (TEH). Mike Overcast was also involved as was Soloy management. TEH operations were based in Wasilla and although it was their first season operating in AK they had 3 helicopters booked that week. (they operate in Chili as well). The fact that TEH was now operating in the area and agreed to assist in monitoring, communications, and backing up the Soloy helicopter was a major factor in the decision to operate in this area on those specific days. In short the Knik area is somewhat far from our lodge and is very close to TEH operations. We have many communications lining up this operations between all the mentioned parties (including the pilot) such as this text [image provided via email] which shows the sharing of frequencies and flight following information. Brad was TEH guide and running base operations for TEH at the time due to injury.

As far as the specific run goes, [front left passenger] was a senior lead guide with the experience, ability, and authority to make run specific decisions in the field. The run that we believe he was intending to ski at the time of the accident was a run that was appropriate for the avalanche and weather conditions that day. It matches with the runs the group had just skied. We had received multiple updates from [aft passenger 1] via inreach as the day progressed. It was also a good run choice for that time of day as it is well lit by the sun given its aspect and terrain features.