Aviation Investigation Final Report

Location:	Hesperia, California	**Accident Number:**	LAX07FA056
Date & Time:	December 10, 2006, 17:55 Local	**Registration:**	N410MA
Aircraft:	Bell 412SP	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The emergency medical services (EMS) helicopter was performing a cross-country repositioning flight from a hospital back to its base during dark night conditions back over a routing that the pilot had flown 5 times that day and also earlier in the evening when they had transported a patient to the hospital. Visual meteorological conditions predominantly prevailed along the route of flight; however, analysis of the weather reports disclosed conditions consistent with broken to overcast clouds having bases at 4,000 feet msl in the vicinity of the accident site. An AIRMET had been issued for the area for IFR conditions, with mountain obscuration, precipitation, mist, and fog. The helicopter was equipped with a satellite-based tracking system that reports the helicopter's GPS location to the operator's ground base while the system is in operation, and the data for the accident flight was reviewed. The route of flight proceeded toward the apex of a mountain pass, which is the main transition route from one side of a mountain range to the other, where the helicopter's base is located. The tracking data indicated that the helicopter appeared to follow a major highway in the lower portion of the pass. The highway makes a large "S" shaped path as it gains in elevation toward the top of the pass, which is about 4,200 feet mean sea level (msl). The route along the highway is away from a well-lit major city area that has a well-defined light horizon, toward rising and dark terrain with no ground reference lights other than vehicles on the highway. Once at the top of the pass as the highway turns toward the northeast, the upper desert communities on the other side of the mountain range once again provide a well-lit and clearly defined horizon. Near the upper end of the pass, the helicopter's satellite derived flight track showed that it inexplicably diverged toward the east, away from the highway, instead of continuing to follow the highway into the upper desert valley. The helicopter collided with terrain about 0.7 nautical miles east of the highway at 4,026 feet msl. The accident site was located in a small ravine, near the base of a 100-foot tall electrical transmission tower that was located along the ravine's east ridge. During subsequent examination of the airframe structures, flight control components, and engines, no pre-impact anomalies were found that would have precluded normal operation prior to impact. While the operator was in the process

of equipping its helicopter fleet with night vision goggles, the accident helicopter had not as yet been equipped with any enhanced night vision devices. The helicopter was equipped for instrument flight, including a 3-axis autopilot. The first fire department responders to the accident site reported that the area was covered by what they described as "intermittent waves" of fog that would suddenly form and then dissipate, which made it difficult to locate the wreckage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadvertent encounter with instrument meteorological conditions and subsequent failure to maintain terrain clearance. Contributing to the accident were the dark night conditions, fog, and mountainous terrain.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE

Findings
1. (F) LIGHT CONDITION - DARK NIGHT
2. (F) WEATHER CONDITION - FOG
3. (C) VFR FLIGHT INTO IMC - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE

Findings
4. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY
5. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

"THIS CASE WAS MODIFIED JULY 29, 2008."

HISTORY OF FLIGHT

On December 10, 2006, about 1755 Pacific standard time, a Bell 412SP helicopter, N410MA, call sign "Mercy Air 2," impacted mountainous terrain near Hesperia, California. LifeNet, Inc., d.b.a. Mercy Air Services, Inc., was operating the helicopter under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The commercial pilot and two medical crew members were killed; the helicopter was destroyed as a result of the post impact fire. The cross-country repositioning flight departed Loma Linda University Medical Center (94CL), Loma Linda, California, at 1742, with a planned destination of Southern California Logistics Airport (VCV), Victorville, California. Visual meteorological conditions predominately prevailed along the route of flight, and a company visual flight rules (VFR) flight plan had been filed.

Mercy Air 2 had transported an injured patient from Phelan, California, to Loma Linda, and was returning to their assigned base at the time of the accident. Mercy Air 2 had traversed through the Cajon Pass in the area of the accident site five times previously on the date of the accident. The accident flight was the first flight of the day that was conducted during night conditions.

After departing the Loma Linda University Medical Center Heliport, the flight proceeded toward the Cajon Pass. The Cajon pass is one of the main avenues of transition between the San Bernardino/Riverside basin and the helicopter's base in Victorville. Satellite tracking data from the operator indicated that the helicopter appeared to follow the Interstate 15 (I-15) highway in the lower portion of the Cajon Pass. The highway makes a large "S" shaped route as it gains in elevation toward the top of the pass, which is about 4,200 feet mean sea level (msl). The route along the highway is away from a well-lit residential/industrial area having a well-defined light horizon, toward rising and dark terrain. Once at the top of the pass as the highway turns toward the northeast, the upper desert communities are once again well-lit. Near the upper end of the pass, the helicopter flight track indicated that it proceeded toward the east, away from the highway.

The Safety Board investigator-in-charge (IIC) reviewed the data from the Outerlink system. The satellite data indicated that the helicopter departed from 94CL and flew towards the Cajon Pass in a northwest direction. The flight path then followed the northbound I-15 until it had almost reached the summit of the Cajon Pass. The Satellite tracking system tracked the helicopter as it continued toward the northeast while the Interstate turned toward the north.

At the time of the accident, position data from the helicopter was downloaded to the

company's flight tracking/dispatch center every 30 seconds, but the time reference was only recorded in whole minutes, for each whole minute there would be two position reports. Altitude data was not reported. Airspeed and heading information were derived from the position reports. At the second of two position reports from 1753, the helicopter was over or adjacent to the I-15. At the first position report of 1754, it was slightly southeast of the highway. At the second position report of 1754, the helicopter proceeded on a magnetic heading of 060 degrees, and had traveled about .3 nm from the first 1754 position report, diverging away from the highway to the east-northeast. At the first position report of 1755 (the last received report), the helicopter had traveled about .7 nm, on a magnetic heading of 064 degrees from the previous report, and was about .4 nm east of the Interstate.

The accident occurred before the company's tracking software received a second position report from 1755. The accident location was on a bearing of 110 degrees from the last position report at 1755, having traveled about .4 nm to the crash scene. The helicopter collided with terrain about 4,026 feet msl, about .7 nm east of the Interstate. The accident site was located in a small ravine, near the base of about a 100 foot tall electrical transmission tower. The electrical transmission tower was located along the east ridge of the ravine. The tower was part of a section of electrical support towers oriented north-northeast to south-southwest, east of the Cajon Pass. The power lines supported by the towers were depicted on the Los Angeles area aeronautical navigational charts.

A witness reported that he was in the area of Highway 138, and a side road that crossed the lower Cajon Pass railroad tracks. About 45 minutes after dark, he was looking north and initially saw what appeared to be the glow of a small grass fire, about three-quarters of a mile north of his location. About 5 seconds later he observed a large fireball. The glow of the fire was obscured by waves of fog that would drift over the area in patches. He described the fog as not very thick, but it would "swoop down" and dissipate at an estimated elevation of about 3,500 feet. The witness said that earlier in the day, he had been using a wind gauge to check the local wind conditions near Highway 138. He recalled that the winds averaged about 13 miles per hour (mph), with gusts to 29 mph. At the time of the accident, the wind was blowing toward the northwest.

The post-crash fire was visible from I-15, and 911 call centers began receiving reports of the accident starting at 1800. Callers reported some fog in the area of the accident, obscuring the tops of the power transmission towers and mountain ridges near the top of the pass. The first fire department responders to the accident site reported that the area was covered by intermittent waves of fog, which made it difficult to locate the wreckage.

First Responders reported that upon their arrival the wreckage site was fully engulfed in fire. The post impact fire consumed approximately 2 acres of mountainside.

Weather conditions at the bottom of the pass were VFR, with the upper desert at the destination airport was clear.

PERSONNEL INFORMATION

PILOT

Prior to being hired by the operator, the 46 year old pilot had 21 years of previous military service, 12 years of which were as a military helicopter pilot, and he accrued about 3,094 hours of military rotorcraft experience. He held a Federal Aviation Administration (FAA) issued commercial rotorcraft helicopter certificate, and a rotorcraft helicopter instrument certificate.

The pilot was hired by the operator in December 2005, for the Twentynine Palms, California, base, which at that time, utilized Bell 222U helicopters. The pilot completed the initial hire training syllabus and a check ride with a company check airman. He then had 3 to 4 ride-alongs on Aeromedical flights, and then he began flying medical flights as the pilot-in-command.

He moved to the Victorville base in August 2006, and completed the company's transition training for the Bell 412SP helicopters. His most recent Part 135 check ride was August 29, 2006, at the Victorville base, which was conducted by a company check airman. The check ride was 1.5 hours, of which .3 was under an instrument training device (hood). The check ride form noted that the pilot was not authorized the use of an autopilot under instrument flight rules (IFR) flights The pilot was not IFR current, and not authorized by his company to conduct medical flights under IFR conditions, or the use of night vision goggles under any flight conditions. Between his date of hire and the accident, he accrued about 220 flight hours, for a total of about 3,371 hours, which included about 57 hours in airplanes.

The Victorville pilots work a 7-day on, 7-day off rotation, and work either a 0800 to 2000 or a 2000 to 0800 shift during their 7-day rotation. The pilot began a 7-day rotation on December 8, 2006, and worked 0800 to 2130. On December 9, he worked 0800 to 2030. On December 10, the day of the accident, he began work at 0800.

At the beginning of the day of the accident, the Victorville base received a mission request for a hospital transfer from Apple Valley, California. After checking the weather at 0753, the pilot declined the flight due to poor weather conditions in the Cajon Pass. The pilot then conducted three medical flights during the afternoon. The accident occurred during the positioning flight back to Victorville, at the conclusion of the third mission.

A company check airman, who gave the pilot his initial training at the Twentynine Palms base, reported that he taught the pilot, and those who flew in the area, a VFR route up the Cajon Pass from Loma Linda to Victorville. The route, generally used for night operations, consisted of the following:

Fly from Loma Linda to the I-15/I-215 interchange "the split"; if the weather/visibility was good, fly along I-15 to "windy point," which is a prominent bend in the highway to the right; if the weather/visibility was good, proceed to the I-15/Hwy 138 interchange, which is well-lit at night;

if the weather/visibility was good, proceed along I-15 until the lights of Oak Hill, California, (at the top of the pass) were visible, and proceed to the top on about a 340 to 350 degree heading.

AIRCRAFT INFORMATION

The helicopter was a Bell 412SP, serial number 33125. The operator reported that the helicopter had a total airframe time of 9,978 hours at the last inspection.

The left engine was a Pratt & Whitney Canada; model PT6T-3B, serial number CPPS-60169. Total time recorded on the engine at the last inspection was 17,799 hours, and time since major overhaul was 4,528 hours.

The right engine was a Pratt & Whitney Canada; model PT6T-3B, serial number CPPS-63543. Total time recorded on the engine at the inspection was 5,521 hours, and time since major overhaul was 5,521 hours.

The helicopter was configured for air ambulance operations. Among other equipment, it contained communications equipment, seating for the medical crew, stretchers for patients, medical monitors, medical equipment, and on-board oxygen.

The helicopter was certified for day/night VFR flight by one pilot. It had standard instrumentation for instrument flight, and was certified for single-pilot instrument operations. The FAA approved company operations specifications indicated that the Bell 412SP helicopter was authorized to conduct IFR/VFR flights during day/night operations, but as it was assigned to a VFR base, it was only utilized for VFR flights. The helicopter had an Argus 5000 moving map, which did not contain any enhanced terrain contour information, a panel mounted global positioning system (GPS) receiver, 3 axis autopilot with a stability augmentation system (SAS), force trim, radar altimeter, a Spectrolab SX-5 search light, directional/controllable landing light, and full flight controls and anti-torque pedals installed at the left cockpit seat position.

The helicopter was maintained on a Bell factory approved aircraft inspection program (AAIP). The most recent maintenance was on December 7, 2006, when the number 1 engine oil was changed, along with a change of the left hydraulic servo due to a leak.

The most recent airframe inspection was a 25 hour inspection performed on December 8, 2006, at 9,978.0 hours. The inspection intervals are 25-, 100-, 300- and 600-hour or 12 month inspections The most recent 600 hour/annual was on September 27, 2006, at 9,738.6 hours.

The engines have an inspection cycle of 25-, 50-, 100-, 150 hours or 12 months, 300-, 600-, and 1,200 hour inspections. An annual inspection on the engines is required every 600 hours or 12 months which ever occurs first.

The helicopter was equipped with the OuterLink Automatic Flight Following System, a satellite-

based tracking system that reports the helicopter's location to the ground base while it is in operation. The unit installed in the accident helicopter reported the following parameters every 30 seconds: date, time, latitude, and longitude. The installed system was capable of recording the altitude and airspeed, but Mercy Air had not yet installed the software upgrade required to make those parameters functional.

METEOROLOGICAL INFORMATION

Reported weather conditions from Victorville (VCV), 15 nautical miles (nm) northeast of the accident site, were visibility 10 statute miles; a broken cloud layer at 3,800 feet, and an overcast cloud layer at 4,900 feet; temperature 11 degrees Celsius; dew point 03 degrees Celsius; altimeter 30.17 inHg.

Weather conditions at Ontario International Airport, Ontario, California, 19 nm southwest of the accident site, were visibility 10 statute miles; a broken cloud layer at 3,800 feet, and an overcast cloud layer at 5,500 feet; temperature 13 degrees Celsius; dew point 06 degrees Celsius; altimeter 30.19 inHg.

Following notification that an accident had likely occurred in the Cajon Pass, the Victorville base safety officer began to check the weather conditions at the San Bernardino, Riverside, and Ontario airports. He learned that the weather conditions in the area were generally about 4,000 feet broken to overcast.

An NTSB senior meteorologist prepared a factual report that included an amended area forecast for southern California, issued December 10, 2006, at 1324, which stated, in part: Clouds and weather, valid until 0100 on December 11: Coastline, south of Los Angeles International Airport: 4,000 feet scattered. From 1800, sky clear. From 2100, 2,000 feet broken, tops at 3,000 feet.

Inland sections: 4,000 to 5,000 feet scattered to broken, tops at 8,000 feet. Between 1900 and 2100, 4,000 to 5,000 feet scattered.

Interior mountains: 800 to 10,000 feet broken, tops at 13,000 feet with isolated light rain showers. Between 1900 and 2100, 10,000 feet scattered to broken.

Deserts: Sky clear, occasionally, 10,000 feet scattered. Westerly winds at 20 knots, gusts to 30 knots. Between 1900 to 2100, sky clear. Northwest winds at 15 knots, gusts to 25 knots.

Additionally, the area forecast included an airmen's meteorological information notice (AIRMET). AIRMET Sierra, update Three, was issued at 1245 for IFR and mountain obscuration, which was valid until 1900. It noted mountains obscured by clouds, precipitation, mist and fog. AIRMET Tango, update Four, also issued at 1245 and valid until 1900, noted moderate turbulence.

See the meteorological factual report for complete details.

COMMUNICATIONS

No communications were received from the helicopter after departure from Loma Linda University Medical Center.

WRECKAGE AND IMPACT INFORMATION

The wreckage site was located on mountainous terrain in a ravine on a 45-degree slope at an elevation between 4,000 to 4,300 feet above mean sea level (msl). The first identified point of impact was near the base of the ravine with the debris path emanating upslope.

The first identified impact point (FIPC) was a ground scar located next to the separated tail boom and the left skid. The debris path consisted of the tail boom, both skids, both engines, the main rotor assembly, and various other fuselage panels. The energy path was measured on a 155-degree magnetic bearing from the first identified impact point. The debris field was about 170 feet from the FIPC.

MEDICAL AND PATHOLOGICAL INFORMATION

The San Bernardino County Sheriff's Coroners Office completed an autopsy on the pilot and the two crew members. The cause of death for the pilot and the two crew members was listed as "blunt injuries causing immediate death."

The FAA Bioaeronautical Sciences Research Laboratory Forensic Toxicology Research Team, Oklahoma City, Oklahoma, performed toxicological testing of specimens of the pilot.

Analysis of the specimens for the pilot contained no findings for volatiles or tested drugs. They did not perform tests for carbon monoxide or cyanide.

TESTS AND RESEARCH

The wreckage had been subjected to post impact thermal damage. Examination of the airframe structures, flight control components, and engines that were not destroyed by fire displayed no pre-impact anomalies.

The representative for the airframe manufacturer identified the damage as being consistent with an accident involving a high energy impact with terrain, and a post-impact fire.

The representative for the engine manufacturer reported that both engine power sections' internal components displayed strong rotational signatures characteristic of the engines developing significant power at the time of impact.

The engines displayed no indication of any pre-impact anomalies or distress that would have precluded normal operation prior to impact.

ADDITIONAL INFORMATION

COMPANY INFORMATION

At the time of the accident, LifeNet Inc. was a subsidiary of Air Methods Corporation, which is based in Englewood, Colorado. The operator was Mercy Air Services Inc., which operated as LifeNet, d.b.a. Mercy Air.

Air Methods employs about 700 pilots, which included about 335 pilots under LifeNet, and about 50 pilots under Mercy Air. Air Methods has about 200 helicopters across the nation. The company operates air ambulance bases throughout the country, which are divided into regions. The Victorville base is one of five bases in Region 1.

Some bases, such as Victorville, are designated as VFR only bases. This means that the pilots operate under VFR flight rules. The pilots hold an instrument rotorcraft certificate, but normally are not IFR current.

The base pilot staffing includes a lead pilot, a safety pilot, and two line pilots. All four pilots fly a regular rotation of air ambulance flights. The staffing for the helicopter at Victorville is a single pilot, and usually two medical crewmembers. The pilots have numerous tools to conduct their flight operations, including computer access to weather data, hazard maps, inadvertent IMC procedures, the pilot's base book, a safety "read me" book, and company operations specifications, and procedures.

The company maintains an internal, intranet-based reporting system to disseminate "Accident Incident Damage Malfunction Operations Reports" (AIDMOR) information. The company has an on-line computer training system (CTS), which has, among other items, safety information, training topics for recurrency that include tutorials, lessons, and exams, and a reading file.

RISK ASSESSMENT

At the time of the accident, the LifeNet Operations Manual contained an operational risk assessment matrix to assist pilots in identifying, assessing, and managing risks. The operations manual noted that a risk assessment matrix (one for day operations and one for night operations) was to be utilized for each flight assignment/mission. The results of the pilot's risk assessment were then recorded on the LifeNet flight manifest form (trip sheet) along with any comments as appropriate.

On the trip sheet for the first two mission flights on the day of the accident, the pilot noted a risk assessment of: "RA=G [green]. The trip sheet for the last mission was not recovered. At the time of the accident, the company did not require the pilot to record a risk assessment for

non-mission flights.

USE OF AUTOPILOT

According to the FAA approved company operations specifications, in lieu of a second pilot the company is authorized the use of specific aircraft and its autopilot system in IFR conditions. This is provided that the pilot has satisfactorily completed the proficiency check requirements of Part 135.297(g) and the autopilot is operational. Pilots assigned to a VFR base, are not authorized by the company to conduct IFR medical ambulance flights.

The check airman also reported that some pilots configured the helicopter's autopilot with appropriate features and headings for a quick engagement if necessary. Others used the autopilot regularly, and others do not.

According to company personnel, the use of the autopilot during night VFR operations or marginal conditions at a VFR base such as Victorville was encouraged, but not required. At the time of the accident, the company operations manual did not contain a requirement for the use, nor the configuration of the autopilot for immediate use during night VFR flights.

INADVERTENT INSTRUMENT METEOROLOGICAL CONDITION (IIMC)

Pilots receive an annual Part 135 check ride, and annual safety training. The company encouraged pilots to participate in additional training every six months in addition to their annual Part 135 check ride. These additional training periods were voluntary, and necessitated scheduling an aircraft and an instructor pilot. The training was geared to unusual attitude recovery, and inadvertent IMC procedures.

The Victorville base is a VFR only base. Company personnel reported that when flying up the Cajon Pass, if the pass had obscurations, flights would "hug" the east or west sides of the canyon away from the obscurations.

At the time of the accident, the company operations manual stated that when inadvertent IFR was encountered, the pilot's primary responsibility was to maintain attitude control (level the helicopter), heading control (turn to avoid known obstacles), add climb power, and attain climb airspeed. The pilot should then climb to the area's minimum safe altitude, make no turns greater than a standard rate turn, contact air traffic control (ATC) and squawk 7700 [emergency code setting on the transponder].

At the time of the accident, the company operations manual contained an inadvertent instrument meteorological conditions (IIMC) procedure template that specified pilot actions for IIMC. For the Victorville base, the template had a 40 nm radius, and included a minimum safe altitude (MSA) of 6,000 feet, for recovery to the Palmdale Regional Airport, Palmdale, California; a MSA of 7,500 feet for recovery to the Barstow-Daggett Airport, Barstow, California; a MSA of 12,500 feet for recovery to the Ontario International Airport, Ontario, California; and a

MSA of 12,500 feet for recovery to the San Bernardino International Airport, San Bernardino, California. The Victorville Airport has ILS, VOR/DME, and GPS approaches to runway 17.

WEATHER MINIMUMS

Under helicopter emergency medical services (HEMS) standards the accident flight, a positioning flight, was not required to comply with 14 CFR Part 135 weather minimums. At the time of the accident, the company operations manual did not contain increased night, ceiling, or visibility requirements above the FAA's minimums, for flights conducted under Part 91.

The FAA's weather minimums for helicopter flights conducted under 14 CFR Part 91 in Class G airspace, are as follows:

Less than 1,200 feet above the surface, are clear of clouds, and operated at an airspeed that allows the pilot adequate opportunity to see any air traffic or obstruction in time to avoid a collision.

The FAA has minimum ceiling and visibility requirements for 14 CFR Part 135 HEMS/air ambulance operations in Class G airspace. The FAA's weather ceiling and visibility minimums for night, low lighting operations during HEMS flights are listed below. At the time of the accident, these were included in the company operations specifications.

Non-mountainous local flights - 800 feet and 3 miles visibility.

Mountainous local flights - 1,000 feet and 3 miles visibility.

For operations in Class G airspace under high lighting conditions, the FAA's HEMS minimums are:

Non-mountainous local flights - 500 feet and 2 miles visibility.

Mountainous local flights - 500 feet and 3 miles visibility.

At the time of the accident, the company had increased their ceiling and visibility minimums for local night, high lighting operations above those of the FAA for flights conducted under Part 135 HEMS operations to:

Non-Mountainous local flights - 800 feet and 2 miles visibility.

Mountainous local flights - 800 feet and 3 miles visibility.

The FAA considers the local area as identified in the company operations specifications for the Victorville base, is a radius of 35 nautical miles.

FAA FSDO INFORMATION

At the time of the accident, LifeNet's certificate was supervised by the St. Louis, Missouri, Flight Standards District Office (FSDO). LifeNet's air carrier certificate was previously handled by the Riverside FSDO, Riverside, California, but was in the process of being moved to the Denver, Colorado, FSDO. FAA geographic certificate oversight for the Victorville base is handled by the Riverside FSDO.

HEMS OPERATIONS vs. POSITIONING FLIGHTS

Following several Aeromedical accidents, the NTSB conducted an aviation special investigation, "Special Investigation Report on Emergency Medical Services (EMS) Operations," NTSB/SIR-06/01. The report examined Part 135 vs. Part 91 regulations for positioning flights without patients on board, risk evaluation programs, flight dispatch procedures, and the use of technology, such as terrain awareness and warning systems, and night vision imaging systems. The full report is available on the Safety Board website

Pilot Information

Certificate:	Commercial	**Age:**	46,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	August 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 1, 2006
Flight Time:	3162 hours (Total, all aircraft), 104 hours (Total, this make and model), 87 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N410MA
Model/Series:	412SP	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	33125
Landing Gear Type:	Skid	**Seats:**	6
Date/Type of Last Inspection:	December 1, 2006 AAIP	**Certified Max Gross Wt.:**	11900 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo shaft
Airframe Total Time:	9978 Hrs as of last inspection	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6T-3B
Registered Owner:	Vesey Air, LLC GECC	**Rated Power:**	
Operator:	Lifenet, Inc.	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:	Mercy Air Service, Inc.	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	VCV,2885 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	17:50 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:	3800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 4900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	11°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LOMA LINDA, CA (94CL)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Victorville, CA (VCV)	**Type of Clearance:**	None
Departure Time:	17:42 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	3 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	3 Fatal	**Latitude, Longitude:**	34.342224,-117.431388

Administrative Information

Investigator In Charge (IIC):	Jones, Patrick
Additional Participating Persons:	Robert Drake; Federal Aviation Administration- AAI-100; Washington , DC Ed Stockhausen; Air Methods; Englewood, CO Thomas Berthe; Pratt & Whitney Canada; South Burlington, VT Harold R Barrentine; Bell Helicopter; Fort Worth, TX
Original Publish Date:	July 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64991