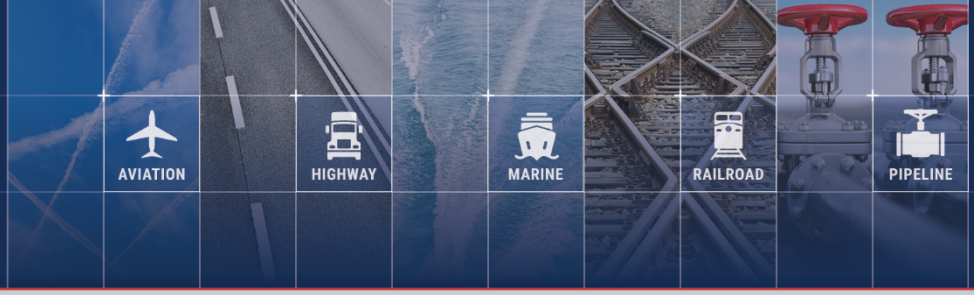

Aviation Investigation Final Report

Location:	Albuquerque, New Mexico	**Accident Number:**	WPR21FA242
Date & Time:	June 26, 2021, 07:07 Local	**Registration:**	N158NM
Aircraft:	CAMERON BALLOONS US O-120	**Aircraft Damage:**	Destroyed
Defining Event:	Collision during takeoff/land	**Injuries:**	5 Fatal
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

The pilot was conducting a sightseeing flight, with four passengers on board the balloon. Near the conclusion of the flight, the pilot maneuvered the balloon to land in an open field across a major intersection. Power lines were orientated nearly perpendicular to the balloon's flight path to the field. The power lines were hung between metal poles that were about 78 ft high.

A review of surveillance video from a local business revealed that the balloon began a climb before the intersection, with the power lines across the road. Video then depicted the balloon descending into the power lines as it crossed about perpendicular to the wires. Shortly thereafter, the balloon contacted a high-tension power line, an arc appeared, and the basket separated from the envelope and subsequently impacted the road.

A postaccident examination of the balloon revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

Postmortem toxicology testing of specimens from the pilot was consistent with the recent use of cannabis (THC) and cocaine. The pilot's cavity blood THC concentration was detected at 5.5 ng/mL, suggesting that usage was within the last few hours. Some impairing effects of THC would likely have been present that would have affected the pilot's ability to successfully operate the balloon. Cocaine was detected in blood and urine at levels that suggested recent use. At the time of the accident, the impairing effects of the pilot's use of THC and cocaine likely contributed to the accident.

Probable Cause and Findings

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

The failure of the pilot to maintain adequate clearance from power lines while maneuvering for landing. Contributing to the accident was the pilot's use of impairing, illicit drugs.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Monitoring environment - Pilot
Personnel issues	Use of equip/system - Pilot
Personnel issues	Illicit drug - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	Wire - Effect on equipment

Factual Information

History of Flight

Approach	Collision during takeoff/land (Defining event)

On June 26, 2021, about 0707 mountain daylight time, a Cameron Balloons US, O-120 Balloon, N158NM, was destroyed when it was involved in an accident in Albuquerque, New Mexico. The pilot and 4 passengers were fatally injured. The balloon was operated as Title 14 *Code of Federal Regulations* Part 91 sightseeing passenger flight.

After about 1 hour of an uneventful flight, the pilot maneuvered the balloon for landing. The landing site was located in an open field near a major road intersection. Power lines were orientated east/west nearly perpendicular to the balloon's flightpath to the field. The power lines were hung between metal poles that were about 78 ft high. The power lines were configured with two noncharged ground lines on each side at the top along with several charged lines below each side.

A review of surveillance video from a local business revealed that the balloon began a climb before the road intersection where the power lines were located across from the road. Video then depicted the balloon descending into the power lines as it crossed about perpendicular to the wires. Shortly thereafter, the balloon contacted a high-tension power line, an arc appeared, and the basket separated from the envelope. The balloon's envelope was later located about 0.6 miles south from the accident site in a private residence.

Figure 1: Road Intersection of Unser Blvd and Central Ave.

Pilot Information

Certificate:	Commercial	**Age:**	62,Male
Airplane Rating(s):	None	**Seat Occupied:**	None
Other Aircraft Rating(s):	Balloon	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	July 28, 2020
Occupational Pilot:		**Last Flight Review or Equivalent:**	March 18, 2021
Flight Time:	(Estimated) 1748 hours (Total, all aircraft), 287 hours (Total, this make and model), 1748 hours (Pilot In Command, all aircraft), 37 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CAMERON BALLOONS US	**Registration:**	N158NM
Model/Series:	O-120	**Aircraft Category:**	Balloon
Year of Manufacture:	2013	**Amateur Built:**	
Airworthiness Certificate:	Balloon	**Serial Number:**	6692
Landing Gear Type:		**Seats:**	
Date/Type of Last Inspection:	June 14, 2021 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:		**Engines:**	0
Airframe Total Time:	286.75 Hrs as of last inspection	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

The balloon envelope and basket were manufactured in June 2013 by Cameron Balloons U.S. The balloon's standard airworthiness certificate was issued on August 7, 2013, and was current until July 31, 2022.

The balloon's last annual inspection was on June 14, 2021, at an airframe time of 286.75 hours. The balloon was registered to a LLC in Albuquerque, New Mexico.

The balloon's flight manual, section 3, Emergency Procedures states:

> *'Contact with electrical power lines by any part or the balloon, by anything attached to the balloon, or by occupants of the balloon, may cause fatal or serious injuries to the occupants and must be avoided. However, if contact with electrical power lines becomes inevitable: pull the parachute or rip line to ensure that the basket is as close to the ground as possible before contact."*

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KABQ,5314 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	06:52 Local	**Direction from Accident Site:**	112°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	20°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	19°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ABQ, NM	**Type of Flight Plan Filed:**	None
Destination:	ABQ, NM	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

The surface analysis chart depicted a high-pressure system over Colorado to the north of the accident site with a ridge extending southward into northern New Mexico. The chart also depicted a low-pressure system extending into southern New Mexico. The accident site was located on the cold air side of the cold front under the influence of the ridge of high pressure. The station models surrounding the accident site indicated winds from the north at 5 knots or less and no significant weather was indicated over New Mexico at the time.

A sounding model indicated that a surface-based temperature inversion was noted to 309 ft above ground level. The wind profile indicated a light surface wind from the east, with wind backing counterclockwise to the north above 2,000 ft. Additionally, the sounding depicted a light potential for low-level wind shear (LLWS) below 300 ft above ground level or 5,597 ft mean sea level.

A couple of witnesses in the area noted the low-level wind shear but there were no reports of other balloon landing accidents in the area that morning.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	4 Fatal	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	5 Fatal	**Latitude, Longitude:**	35.07742,-106.72294(est)

The accident site was located at a major road intersection. Several power lines ran perpendicular to the south/north road and crossed the intersection. The power lines were located on the south side of the road that went east to west. The power lines were hung between metal poles that were about 78 ft in height. Additionally, between the two poles that the power lines crossed the road intersection, there were two static lines that were located on top of all the wires. One static line was missing on the south side. Further, there was a discoloration on a power line above, near where the balloon's basket was located on the road. The basket separated from the balloon's envelope and came to rest on its side.

Electrical arcing damage was found on the envelope support cables and the basket support frame. The location of the arcing damage was consistent with the balloon impacting the power lines at or near the burner support frame and basket, severing enough of the support cables to separate the basket from the burner support frame and envelope. The basket fell about 75 ft to the road after separation from the envelope and burner assembly. The envelope and burner assembly were located about 0.6 miles south of the accident site.

Postaccident examination of the balloon revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Medical and Pathological Information

The New Mexico Office of the Medical Examiner, University of New Mexico, Albuquerque, New Mexico, conducted an autopsy on the pilot. The medical examiner determined that the cause of death was "blunt trauma."

Toxicology testing by FAA Forensic Sciences Laboratory detected marijuana's primary psychoactive compound delta-9-tetrahydrocannabinol (THC) at 19.6 nanograms per milliliter (ng/mL) in the pilot's cavity blood and at 65.4 ng/mL in his urine.

The FAA laboratory identified cocaine at 51 nanograms per milliliter (ng/mL) in the pilot's cavity blood and at 2,083 ng/mL in his urine.

Organizational and Management Information

The accident pilot and his balloon were used as contracted labor by Hot Air Balloonatics, LLC, when they had excess passengers to fly. Hot Air Balloonatics LLC, would refer the passengers to him and he would operate independently, in accordance with his own LLC's procedures.

Additional Information

The Federal Aviation Administration Balloon Flying Handbook, Chapter 7 Inflight Maneuvers. (Page 7-9): "descending over an obstacle give the greatest opportunity to misjudge the clearance over an obstacle." Additionally, in Chapter 8, Landing and Recovery, (Page 8-8): "During the approach one of the pilot's most important observations is watching for power lines."

The Handbook in Chapter 8, Obstacles and Approach angles, (Page 8-6):

"To summarize, if there is an obstacle between the balloon and the landing site, the following are the three safe choices.

1. *Give the obstacle appropriate clearance and drop in from altitude.*
2. *Reject the landing and look for another landing site.*
3. *Fly a low approach to the obstacle, fly over the obstacle allowing plenty of room, and then make the landing.*

The first choice is the most difficult, requiring landing from a high approach and then a fast descent at low altitude. The second choice is the most conservative, but may not be available if the pilot is approaching the last landing site. The third choice is preferable. Flying toward the site at low altitude provides an opportunity to check the surface winds. By clearing the obstacle while ascending—always the safest option—the pilot ends up with a short, but not too high, approach."

Administrative Information

Investigator In Charge (IIC):	Nixon, Albert
Additional Participating Persons:	Raymond Romero; FAA; Albuquerque, NM Andrew Baird; Cameron Balloons US; Dexter, MI
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Last Revision Date:	
Investigation Class:	Class 3
Note:	
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