Aviation Investigation Final Report

Location:	Philadelphia, Pennsylvania	**Incident Number:**	DCA18IA265
Date & Time:	August 10, 2018, 20:50 Local	**Registration:**	N619A
Aircraft:	Gulfstream G IV	**Aircraft Damage:**	None
Defining Event:	Course deviation	**Injuries:**	10 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

Pegasus Elite Aviation flight 19 was on final approach to runway 35 at Philadelphia International Airport, Philadelphia, Pennsylvania. The airplane deviated from the runway 35 centerline about 2.4 miles from the runway 35 threshold and aligned with taxiway E shortly thereafter. The flight crew initiated a low-altitude go-around, arrested the airplane's descent, and started to climb the airplane about 0.1 mile from the south end of taxiway E. The airplane flew past four airplanes that were on taxiway E.

The captain stated that he was flying a visual approach to runway 35 with the area navigation (RNAV) approach for backup. Both flight crewmembers stated that the RNAV needle showed that the airplane was centered during the approach. The captain stated that, as the flight proceeded inbound, the airport lights blended together, and he lost visual contact with the runway at a distance of about 1 to 2 miles out and at an altitude of 500 ft above ground level (agl). The first officer stated that he did not see the approach lights or the runway, and that the captain initiated the go-around 1 mile from the airport while the airplane was at 500 ft agl.

Flight data recorder (FDR) and Federal Aviation Administration (FAA) radar data showed that, during go-around procedure, the airplane moved to the right from aligned with the taxiway to between the taxiway and runway, and reached a minimum altitude of 125 ft agl when it was 0.1 mile from the runway 35 threshold, at which point the airplane stopped descending and began climbing. FAA radar data showed that the closest the incident airplane came to the first airplane it passed was about 200 ft vertically. The airplane then flew past the three other airplanes that were on taxiway E while continuing to climb.

The flight crewmembers initiated a low-altitude go-around because they did not recognize that the airplane was misaligned with the runway until late in the final approach. As a result, safety margins were severely reduced given the incident airplane's proximity to the ground

before the airplane began climbing and the minimal distance between the incident airplane and the airplanes on taxiway E.

The high-intensity runway lights (HIRLs) for runway 35 were on step 1, the same level as the taxiway lights. Both flight crewmembers reported that they called the air traffic control tower to request that the runway light setting be increased, but their request was not heard on the ATC audio recording. The reduced visual cues could have contributed to the flight crew's delay in identifying the airplane's misalignment with the intended landing surface. However, sufficient visual cues should have been available to the flight crew to indicate the need for a go-around earlier in the approach, including the presence of four airplanes on a taxiway that was 400 ft to the left of runway 35.

Probable Cause and Findings

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

The flight crew's misalignment of the airplane with a taxiway instead of the assigned runway, resulting in a low-altitude go-around late in the final approach and reduced separation with the airplanes on the taxiway.

Findings

Personnel issues	Delayed action - Flight crew
Personnel issues	Identification/recognition - Flight crew

Factual Information

History of Flight

Approach-VFR pattern final	Course deviation (Defining event)
Approach-VFR pattern final	Wrong surface or wrong airport
Approach-VFR pattern final	Loss of visual reference
Approach-VFR go-around	Near midair/TCAS alert/loss of separation

On August 10, 2018, about 2050 eastern daylight time, a Gulfstream IV airplane, N619A, operated by Pegasus Elite Aviation as PEGJET flight 19, aligned with a taxiway instead of runway 35 at Philadelphia International Airport (PHL), Philadelphia, Pennsylvania. The flight crew initiated a go-around, and the airplane flew past four air carrier airplanes on the taxiway during the go-around climb. The incident airplane came within about 200 ft of the first airplane on the taxiway. The seven passengers and three crewmembers were not injured, and the airplane was not damaged. The airplane was operating under Title 14 *Code of Federal Regulation* Part 135 as a charter flight. Night visual meteorological conditions prevailed at the time of the incident.

The flight departed Los Cabos International Airport (SJD), San José del Cabo, Mexico, at 1611 (1311 local time). The captain was the pilot flying, and the first officer was the pilot monitoring. The approach to PHL began about 2046.

The captain stated that he was flying a visual approach to runway 35 with the area navigation (RNAV) approach for backup and both flight crewmembers stated that the RNAV needle showed that the airplane was centered during the approach. The crewmembers stated that the turn to final approach occurred about 7 or 8 miles from the runway. When the airplane was about 5 miles from the runway, ATC cleared the flight for a visual approach. When the airplane was about 3.5 miles from the runway, ATC cleared the flight to land on runway 35. The captain stated that all the lights, including the taxiway lights, runway lights, and lights on the sides of runways 35 and 27R blended together. Both the captain and first officer stated that the first officer called the tower to turn up the lights for runway 35, but that call was not heard on the ATC audio recording.

Federal Aviation Administration (FAA) radar data showed that, as the airplane descended through 800 feet agl, about 2.4 miles from runway 35 threshold, the airplane began to deviate slightly to the left. The deviation was arrested as the airplane aligned with taxiway E, which was parallel to runway 35, about 2 miles from the runway threshold. The first officer stated he never saw the approach lights to runway 35, and never saw the runway. The captain stated that, when the airplane was about 1 to 2 miles from the runway and 500 ft above ground level, he lost visual of runway 35 and initiated a go-around. Radar data also showed that, about 0.5 mile from the paved surface, the airplane moved to the right of the taxiway, to between the

extended centerlines of the runway and taxiway. The captain did not recall the airplane's position over the airport at the time of the go-around but did recall not seeing the runway or taxiway. The first officer stated that he did not see the runway.

Data from the airplane's flight data recorder (FDR) and FAA radar data showed that, during the go-around procedure, the airplane reached a minimum altitude of 125 ft agl when it was 0.1 mile from the paved surface. FDR data showed that both engines' fan speed advanced to 80% and that airplane's pitch and altitude increased as the airplane passed over the south end of taxiway E. At that time, four airplanes were on taxiway E heading south for departure on runway 35. At the time that the flight crew reported to ATC that the incident airplane was going around, the airplane overflew the southernmost airplane on the taxiway, an Embraer EMB-145. FAA radar data showed that the airplane's ground track was slightly to the right of taxiway E as the flight crew performed the go-around, and the closest that the airplane came to the EMB-145 was about 200 ft vertically. (The other three airplanes that were on taxiway E as the incident airplane began to climb were an Embraer EMB-175, a Bombardier CRJ-700, and another Embraer EMB-145. The incident airplane completed the go-around and the second approach to the airport and landed uneventfully on runway 27R.

Pilot Information

Certificate:	Airline transport	**Age:**	0,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Unknown	**Last FAA Medical Exam:**	March 9, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	12500 hours (Total, all aircraft), 1400 hours (Total, this make and model)		

Co-pilot Information

Certificate:	Airline transport	**Age:**	Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:	Unknown Unknown	**Last FAA Medical Exam:**	April 5, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	10000 hours (Total, all aircraft), 4000 hours (Total, this make and model)		

The incident flight was the flight crew's second flight of the day. The captain started his duty day at 1100, and the first officer started his duty day at 1140. The airplane departed from Van Nuys Airport, Van Nuys, California, at 1158 (0858 local time) on a ferry flight to SJD that was conducted under Part 91. The captain was the pilot monitoring, and the first officer was the pilot flying. The flight arrived at SJD at 1358 (1058 local time).

Aircraft and Owner/Operator Information

Aircraft Make:	Gulfstream	**Registration:**	N619A
Model/Series:	G IV Undesignat	**Aircraft Category:**	Airplane
Year of Manufacture:	1989	**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	1123
Landing Gear Type:	Tricycle	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:		**Engine Manufacturer:**	Rolls-Royc
ELT:		**Engine Model/Series:**	TAY 611SER
Registered Owner:		**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 18000 ft AGL	**Visibility**	
Lowest Ceiling:	Broken / 25000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:			
Departure Point:	San Jose del Cabo, OF (MMSD)	**Type of Flight Plan Filed:**	IFR
Destination:	Philadelphia, PA	**Type of Clearance:**	IFR
Departure Time:	20:11 UTC	**Type of Airspace:**	Unknown

Airport Information

Airport:	Philadelphia International PHL	**Runway Surface Type:**	Asphalt
Airport Elevation:		**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	ILS;RNAV
Runway Length/Width:	6501 ft / 150 ft	**VFR Approach/Landing:**	Go around

The centerlines of runway 35 and taxiway E are 400 ft apart. Runway 35 is 150 ft wide, and taxiway E is 100 ft wide.

According to the FAA, the airport's automated surface detection equipment (ASDE)-X system, which was operational and properly configured, did not provide an alert about the incident airplane's position. The FAA reviewed the ASDE-X replay and found that the incident airplane did not trigger an alert because no aircraft were on the runway.

The PHL runway 35 precision approach path indicator was permanently out of service. The runway 35 runway end identifier lights were out of service until August 31, 2018 (3 weeks after the incident), due to construction. The runway 35 high-intensity runway lights and the taxiway E lights were on step 1 at the time of the incident.

As a result of this incident, PHL implemented guidance stating that the runway 35 high-intensity runway lights should be set to step 2 or higher at night in low visual flight rules conditions or as applicable. This guidance was in place until the runway 35 runway end identifier lights were returned to service.

Wreckage and Impact Information

Crew Injuries:	3 None	**Aircraft Damage:**	None
Passenger Injuries:	7 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	10 None	**Latitude, Longitude:**	39.949424,-75.170646(est)

Administrative Information

Investigator In Charge (IIC):	Bower, Daniel		
Additional Participating Persons:	Robert Hendrickson; FAA ; Washington, DC		
Original Publish Date:	May 27, 2022	**Investigation Class:**	3
Note:	The NTSB did not travel to the scene of this incident.		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98050		