Aviation Investigation Final Report

Location:	Upland, California	**Accident Number:**	WPR18LA268
Date & Time:	September 17, 2018, 13:35 Local	**Registration:**	N7472P
Aircraft:	Piper PA24	**Aircraft Damage:**	Substantial
Defining Event:	Fuel contamination	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was on final approach to the destination airport at the conclusion of a cross-country flight when the engine lost total power. Unable to restore engine power, the pilot performed a forced landing to a field short of the runway, during which the airplane impacted large rocks, resulting in substantial damage.

Examination of the airplane revealed about 25 total gallons of fuel onboard. Examination of the engine revealed no mechanical anomalies that would have precluded normal operation, except for the aft boost pump, which contained a mixture of fuel and water. Given the lack of other anomalies and the presence of fuel onboard, it is likely that the engine ingested the fuel/water mixture, which resulted in the loss of engine power.

Probable Cause and Findings

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

Loss of engine power due to fuel contamination.

Findings

Environmental issues	Rough terrain - Contributed to outcome
Aircraft	Fuel - Fluid condition

Factual Information

History of Flight

Approach-VFR pattern final	Fuel contamination (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On September 17, 2018, at 1335 Pacific standard time, a Piper PA-24-250, N7472P, was substantially damaged when it was involved in an accident near Upland, California. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* (*CFR*) Part 91 personal flight.

The flight originated from Reno/Tahoe International Airport (RNO), Reno, Nevada, about 1115, where the airplane had been tied down for four days. On the morning of the accident, the pilot performed a preflight inspection and noted no discrepancies. The airplane's auxiliary fuel tanks had been fueled with 20 gallons of fuel; 10 gallons in each auxiliary tank. The pilot estimated a total of 75 gallons of fuel onboard at the time of departure.

The pilot stated that he departed with the left main fuel tank selected and estimated that it contained about 30 gallons of fuel. Once he reached cruise altitude, he switched to the right auxiliary fuel tank and alternated between the left and right auxiliary tanks every 30 minutes until there were about 5 gallons remaining in each auxiliary tank. He used the electric fuel pump during each fuel tank change.

About 3.5 nautical miles (nm) from the destination airport, the pilot turned on the electric fuel pump and switched to the right main fuel tank. He noted that the fuel pressure was steady, and he left the electric fuel pump on for the remainder of the approach. As he turned from the crosswind to downwind legs of the traffic pattern, he extended the landing gear and performed the before landing checklist.

While on final approach for landing, he noted an increasing sink rate, and increased the throttle to compensate; however, there was not a corresponding increase in engine power. He switched to the left main tank, confirmed that the electric fuel pump was switched to ON, the ignition switch was on BOTH, fuel mixture control was full-rich, and that the propeller control was in the maximum rpm position, but the engine did not respond. The pilot chose an empty field short of the runway in which to perform a forced landing. The airplane rolled a short distance before the nose landing gear and the left main landing gear impacted rocks and the airplane spun about 150° before coming to a stop.

The pilot reported that he was wearing a noise-cancelling headset and wasn't sure when the partial loss of engine power occurred.

A responding Federal Aviation Administration (FAA) inspector reported that the main fuel tanks contained 24 to 25 total gallons of fuel.

A visual inspection of the engine revealed no holes in the case. Valve train and mechanical continuity was established throughout the engine. The oil filter was examined with no carbon deposits found. The fuel screens for both boost pumps were free of debris. The aft boost pump contained about 4 spoonsfuls of a mixture of fuel and water. Borescope examination of the cylinders revealed signatures consistent with a lean fuel/air mixture.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	78,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 17, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 25, 2018
Flight Time:	(Estimated) 1200 hours (Total, all aircraft), 350 hours (Total, this make and model)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N7472P
Model/Series:	PA24 250	**Aircraft Category:**	Airplane
Year of Manufacture:	1961	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-2663
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 2, 2017 Annual	**Certified Max Gross Wt.:**	2900 lbs
Time Since Last Inspection:	49 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5966 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-540-A1D5
Registered Owner:		**Rated Power:**	250 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CCB,1443 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	240°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.89 inches Hg	**Temperature/Dew Point:**	31°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Reno, NV (RNO)	**Type of Flight Plan Filed:**	None
Destination:	Upland, CA	**Type of Clearance:**	VFR flight following
Departure Time:	11:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Cable CCB	**Runway Surface Type:**	Asphalt
Airport Elevation:	1443 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	24	**IFR Approach:**	None
Runway Length/Width:	3863 ft / 75 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	34.111389,-117.68722(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye		
Additional Participating Persons:	Gavin A McCune; Federal Aviation Administration; Riverside, CA		
Original Publish Date:	June 24, 2021	**Investigation Class:**	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98318		