



SUMMARY OF FINDINGS AT FBO

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Air Safety Investigator
Central Region

NTSB Accident Number: CEN14FA462 – N51RX at Las Cruces, New Mexico

On August 28 thru 30, 2014, and on September 29 and 30, 2014, I traveled to Las Cruces, New Mexico. I responded to the accident scene, examined the wreckage, and I spoke with several persons who witnessed or had knowledge of the accident. I also traveled to Las Cruces International Airport (LRU), Las Cruces, New Mexico, where I examined the facilities of the fixed base operator (FBO) at LRU.

Southwest Aviation, Inc. was the FBO at LRU, which provided aviation fuel, aircraft parking, and other aviation support services to the public. They reported that they are a Phillips 66 aviation fuels dealer with at least four different fuel trucks that dispense either aviation gasoline (avgas) or jet fuel. They also operate a separate bulk storage “fuel farm” on the airport premises at LRU from which their fuel trucks were refueled.

The New Mexico State Police (NMSP) had quarantined a jet fuel truck, and a sealed evidence bag containing: the keys to the jet fuel truck; the original of a pink colored fuel ticket; the original of a white fuel ticket – invoice 28551 – dated 8/27/14 at 18:41; and the original of a smaller white fuel ticket – dated 08/27/2014 19:46:08. The quarantined jet fuel truck and the sealed evidence bag had been secured with tamper-evident tape and the NMSP SP 205 Evidence Control Form showed that the NMSP had taken physical custody of the above evidence at 2250 local time on August 27, 2014.

In the presence of the state police officer, I opened the sealed evidence bag containing the fuel tickets. I examined the fuel tickets and the fuel truck and I confirmed that an ending fuel totalizer meter reading of 20849332 on the jet fuel truck matched the ending fuel totalizer meter reading of 9332, which was marked on the original pink colored fuel ticket. At 1100 on August 29, 2014, I accepted custody of the evidence from the NMSP.

After photographing the jet fuel truck and the three original paper documents, I immediately released all of that evidence to the custody of an employee of Southwest Aviation, Inc.

FBO employees at Southwest Aviation, Inc. showed me where each of their four fuel trucks were normally parked, and how the colored fuel tickets were to be used by the line service technician.

Each fuel truck was equipped with a fuel tickets printed on different colored paper: AV-1 (light blue paper) – AV-2 (white paper) – JET-2 (pink paper) – JET-3 (light green paper). The line service technician would contemporaneously prepare the colored fuel ticket while they were servicing the aircraft. They would then take the completed colored fuel ticket into the FBO office and enter into their computer billing system the aircraft ID (N number), fuel type, fuel quantity, and other information.

I examined the original pink fuel ticket, which had hand-written entries showing that N51RX had been serviced with 40.0 gallons of Jet-A at a time of 1843, invoice number 28551. The “serviced by” block on the pink fuel ticket was marked with the initials “DC”.

The original pink fuel ticket had a hand-written entry of “Elite Med Tran.” in the block for customer name. The customer’s signature block at the top of the original pink fuel ticket was blank and had no entry.

I examined the original small charge slip for the accident airplane which showed that 40.000 gallons of Jet A fuel was charged to Elite Medical Air Transport, for N51RX with a date/time stamp of 8/27/2014 at 18:41. This original small charge slip did not have a signature, or initials, or any other hand-written entries.

I examined a second original small charge slip, this one printed with a winged shield Phillips 66 logo, which showed that 40 gallons of Aviation Gas was charged to N51RX for Elite Medical Air Transport, LLC with a date/time stamp of 08/27/2014 at 19:46:08. This original Phillips 66 charge slip had the signature of the accident pilot.

FBO employees explained that they thought the time stamp on the Phillips 66 charge slip might be different because the Phillips 66 computer was in a different time zone.

They also explained that the Phillips 66 charge slip showed that this was for a special “into plane contract fuel” arrangement that Elite had for N51RX, which was different from a credit card charge from an ordinary customer.

I examined the FBO’s fuel trucks, which were parked in a line parallel to the fence on the west edge of the FBO’s main aircraft parking area, with nose of the trucks oriented to the north. FBO employees said that the normal parking positions of the fuel trucks, from north to south were: AV-1, JET-3, JET-2, with AV-2 on the south end.

AV-1 was a white truck, with a tank capacity of about 2,000 gallons. The white tank had a large horizontal blue stripe with the winged shield Phillips 66 logo. A red label below had white letters that read “AVIATION GASOLINE”. Below that was a blue label with white letters which read “AVGAS 100LL”.

JET-3 was a white truck, with a tank capacity of about 3,000 gallons. The silver tank had a large horizontal black stripe with the winged shield Phillips 66 logo. Below that was a black label with white letters that read "Philjet A -56MB".

JET-2 was a white truck, with a tank capacity of about 5,000 gallons. The silver tank had a large horizontal black stripe with the winged shield Phillips 66 logo. Below that was a black label with white letters that read "Philjet A -56MB".

AV-2 was a white truck, with a tank capacity of about 1,200 gallons. The white tank had a large blue stripe with the winged shield Phillips 66 logo. Below that was a red label with white letters that read "AVIATION GASOLINE 100-LL".

I examined the fuel nozzles on the FBO's fuel trucks. The fuel nozzles on the avgas trucks were round and about 1-inch in diameter.

The FBO's JET-2 jet fuel truck was equipped with an "under-wing" single-point pressure refueling system, which was typically their preferred refueling method for larger jet airplanes and some very large turboprop airplanes.

The FBO's JET-2 jet fuel truck was also equipped with two different hose reels for "over-wing" refueling. The nozzle on one of the hoses was round and about 1 ½-inches in diameter. The nozzle on the other hose was the "duckbill" type and was about 2 ½-inches wide.

When I asked the FBO employees why their jet fuel trucks were equipped with the smaller 1 ½-inch diameter nozzles, they explained that the principal reason was that they had to refuel several turbine engine helicopters with jet fuel and many of those helicopters had refueling ports that were too small and could not accept the 2 ½-inch wide duckbill nozzle.

They then drove one of their FBO jet fuel trucks to a locally based AS-350 helicopter, which was parked on the ramp at LRU. They removed the cap from the refueling port on the AS-350 helicopter and demonstrated that the 2 ½-inch wide, duckbill nozzle could not be inserted into the 2 ¼-inch diameter refueling port on the helicopter.

I asked if there were any other turbine engine aircraft that required jet fuel, but had small refueling ports, which could not accept the 2 ½-inch wide duckbill nozzle. The FBO employees said that in addition to the AS-350 helicopters, they had to use the smaller 1 ½-inch round nozzle on some US Customs helicopters, some US Navy T-34 airplanes, and some very small jet airplanes.

During my visits to the FBO at LRU, I spoke with many of the FBO employees including Mr. Hal Kading and Mr. Andrew Kading. I also exchanged e-mail messages and had telephone conversations with several of those persons.

FBO employees told me that all new line service technicians went through an on-the-job training (OJT) program and got training from a fully qualified employee. The new employee also had to complete an on-line safety-training program from American Petroleum Institute (API).

After the new employee had completed OJT training on servicing and towing each type of aircraft, and operating each of the fuel trucks, the new employees could then work solo, without direct supervision, as line service technicians. That OJT program usually took at least two weeks or more of full-time work experience.

FBO employees told me that line service technician, Mr. Devin Cooper, was initially employed about April 7, 2014. They also told me that on the late afternoon of August 27, 2014, Mr. Cooper was the only FBO employee on duty.

FBO employees gave me copies of pages of Mr. Cooper's employee folder, which included a copy of his API Class C training certificate dated August 22, 2014.

They did not provide me with a copy of a written employee handbook or similar document.

On August 29, 2014, I interviewed Mr. Devin Cooper at the FBO facilities at LRU. He said he had been a line service technician at the FBO for about the past four months. He said he had no previous work experience in aviation, he did not hold a Federal Aviation Administration (FAA) airman certificate of any kind, and he was not a pilot or an aircraft mechanic. He told me:

- On the late afternoon of August 27, 2014, he was the only FBO employee on premises.
- About 1830, as he was performing his closing duties and preparing to lock-up, he heard an airplane taxiing in.
- N51RX taxied in, parked with the airplane's nose oriented to the west, in the number one spot on the ramp, which was the closest parking spot to the FBO entrance door.
- Mr. Cooper was standing outside the nose of the airplane when the pilot of N51RX, still seated inside the cockpit, spoke through the left cockpit window and asked Mr. Cooper for "20 gallons a side".
- Mr. Cooper walked to the JET-2 fuel truck and drove it to park it in front of N51RX with the nose of the fuel truck oriented to the south.
- Mr. Cooper was standing next to the fuel truck, and the pilot was standing outside, when Mr. Cooper verbally confirmed to the pilot "20 a side?"
- The pilot looked over and replied, "yes please".
- Mr. Cooper went to the front of the airplane's right wing and used the fuel hose with the 1 ½-inch diameter nozzle to refuel the right fuel tank on the airplane's right wing.
- When he was finished, Mr. Cooper had difficulty replacing that fuel cap.
- The pilot was then standing on the airplane's left side, and was speaking with a medical crewmember near the airplane's main cabin door.
- Mr. Cooper motioned to the pilot and asked him to come assist him.

- The pilot walked to the front of the airplane's right wing and assisted Mr. Cooper by replacing the fuel cap on the right fuel tank.
- Mr. Cooper moved the fuel hose and refueled the fuel tank on the airplane's left wing.
- When Mr. Cooper finished, the pilot then replaced the fuel cap on the left fuel tank.
- The ambulance with the patient had not yet arrived at that time.
- Mr. Cooper parked the JET-2 fuel truck, and walked inside the FBO office to finish the fuel ticket.
- He entered the fuel ticket information into the PRISIM computer system, entered the fuel ticket information in the "Phillips 66 into plane" site, and printed small charge slips from both systems.
- Information printed on the Phillips 66 charge slip showed the time was then about 1846.
- Mr. Cooper said he walked out of the FBO office, just as the ambulance arrived.
- Standing next to N51RX, he presented the Phillips 66 charge slip to the pilot, which the pilot reviewed and signed.
- At that point, Mr. Cooper briefly spoke with a man standing nearby who said the patient was his brother.
- As the patient was being loaded into the airplane, Mr. Cooper left the ramp area and walked inside the FBO to finish some of his closing duties.
- Mr. Cooper went back outside just as the plane was taxiing eastbound from the FBO ramp.
- The patient's brother asked him which way the airplane would take off.
- Mr. Cooper pointed to the east end of runway 26 as the runway they would probably use.
- Mr. Cooper then went back inside the FBO to double check that the hangar was closed.
- Very shortly afterwards, the patient's brother came inside the FBO and stated "that was fast".
- The patient's brother then left the FBO.
- Mr. Cooper said he left the FBO sometime around 1900, and secured the building as he was leaving.
- Mr. Cooper said that during his drive from the FBO to his home, beginning about 1921, he got a series of telephone calls from Elite Medical Transport informing him about N51RX's emergency return and asking if the airplane had returned to LRU.
- During that series of telephone calls, Mr. Cooper quickly got in contact with the on-call FBO manager, who physically returned to the FBO that evening.

I asked Mr. Cooper why he chose a jet fuel truck to refuel N51RX, rather than an avgas truck. He said that for the past two days he had been thinking about this accident, but he did not have an answer to the question of why. He said most of the other air-ambulance multi-engine airplanes he had refueled used jet fuel, and he had used the avgas truck mostly for refueling smaller airplanes.

I asked Mr. Cooper if the pilot of N51RX had specifically requested refueling with avgas, He said, “no, the pilot only asked for 20 gallons a side”, and the pilot did not mention the type of fuel.

Regarding his OJT training program at the FBO, he said that he did not recall that anyone had ever specifically told him about the danger from misfueling piston engine aircraft with jet fuel.

(end)

SOUTHWEST AVIATION											
AIRCRAFT N NUMBER: <u>S1RX</u>											
MAKE: _____		MODEL: _____									
CUSTOMER NAME: <u>Elite Med Tran</u>		PHONE # _____									
I hereby authorize these services to be performed by Southwest Aviation											
SIGNATURE: _____											
WINDSHIELD	YES _____	NO _____									
	GLASS _____	PLASTIC _____									
OIL	TYPE: _____										
REQUESTED LEVEL	L: _____	R: _____									
CHECKED LEVEL	L: _____	R: _____									
TOTAL ADDED	L: _____	R: _____									
TIEDOWN	NUMBER OF NIGHTS: _____										
	SINGLE: _____	MULTI: _____									
RAMP: _____	SUNSHADE: _____	HANGAR: _____									
FUEL TYPE	100LL _____	JET-A <u>X</u>									
NOTES: _____											
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SERVICED BY: <u>[REDACTED]</u>		DATE: <u>8-27-14</u> TIME: <u>18:43</u>									
ORDER #: <u>23</u>		INVOICE #: <u>28551</u>									
JET-2											

Photo 1 – Photo of Original Pink Fuel Ticket – Marked JET-2 (NTSB Photo)

PHILLIPS 66
Southwest Aviation Inc.
9050 Zia Blvd
Las Cruces, NM 88007
KLRU

Have A Nice Flight!

Ph: 575-524-8047

Fax: 575-523-2330

*** CHARGE ***

Terminal ID: SPSL0000

Invoice 28551

3/27/14

18:41

ELITE MEDICAL AIR TRANSPORT

Airplane ID: N51RX

Item Number

Qty	Price	Ext
40.000	0.0000	0.00

Sub-Total 0.00

ET-Jet A 8.84

Low Fee Jet 1.60

ET-Jet A 0.00

Total 10.44

Cash 10.44

Current Balance: \$80.67

Jet fuel is sold with the

1.219

Federal Excise Tax Rate

Customer Signature



Phillips 66 Aviation Fuel

Airport: LRU1
Southwest Aviation Inc
Las Cruces, NM

Transaction: 19:46:08
08/27/2014

Ship Date: 08/27/2014

Ticket: 028551 Aircraft: N51RX

	Qty	Price
Aviation Gas	40	0.00
		\$0.00

Customer Agrees to Pay the above
Total Amount according to the Card
Issuer Agreement.

Phillips 66 Company

ELITE MEDICAL AIR
TRANSPORT, LLC
6989000390

Customer Signature

Photo 2 – Photo of Two Original Small Charge Slips – N51RX (NTSB Photo)

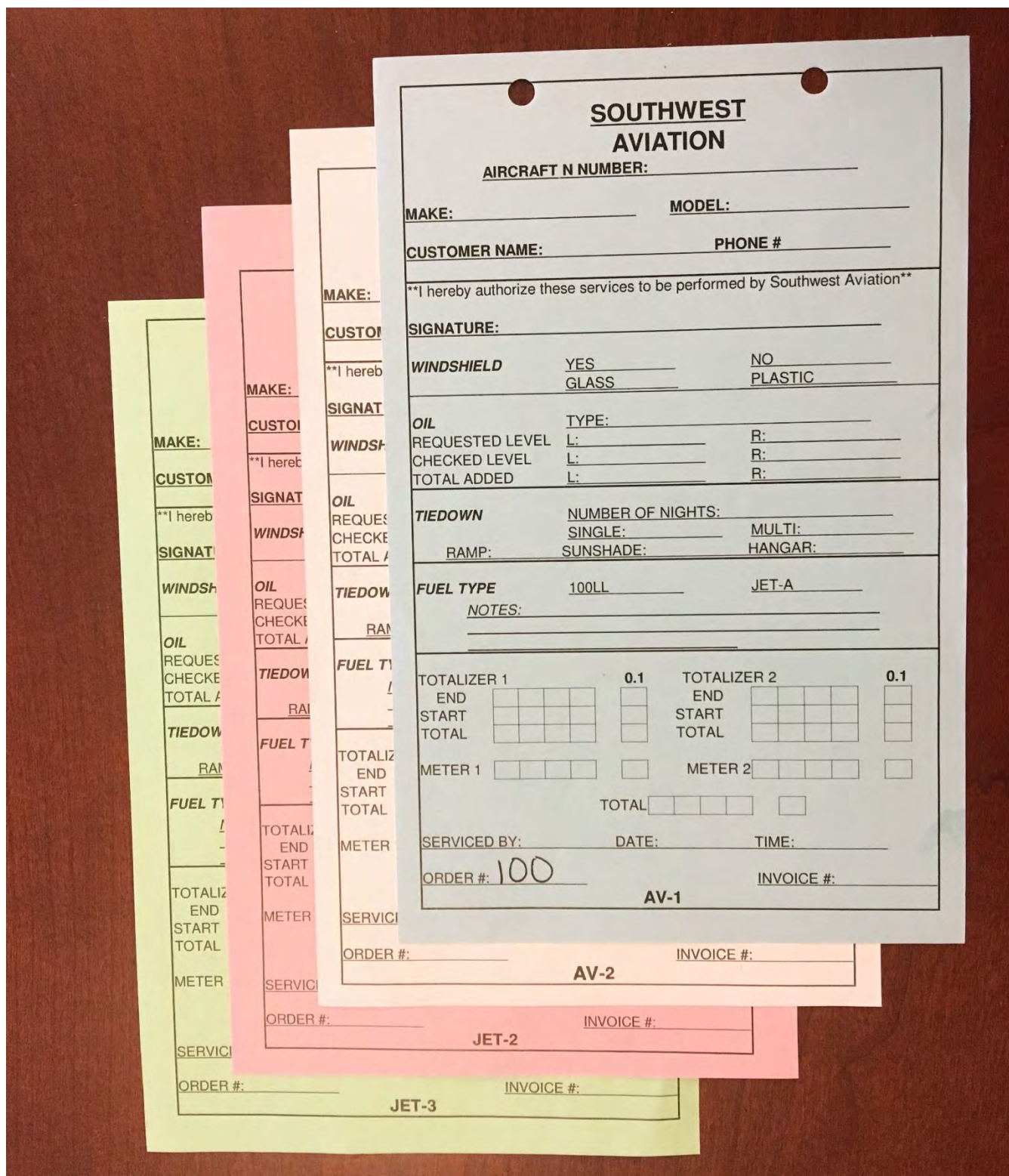


Photo 3 – Photo of Blank Fuel Tickets in Four Different Colors (NTSB Photo)

Certification of Employee On The Job Training

I Devin Cooper, have completed all yearly testing and on the job training. This was provided to me by the fueling supervisor and / or the company president. I am aware that my annual testing has been reviewed and was presented back to me with a passing grade. I am also aware that if I failed the annual testing that it was given back to me, and that I am to review it with the fueling supervisor, correct the failed tests and resubmit them to the fueling supervisor. I am also aware that on the job training is on a day to day basis, as there is always something new to learn everyday. Fire safety training is a yearly short seminar that was presented to me by the Las Cruces Fire Department. Fire safety training covered basic fire extinguisher use, identifying fire types, identifying extinguisher types and basic fire safety training. I have been notified that if I am uncertain of any aspect of my job, that I am to seek immediate help from another employee, the fueling supervisor or the company president.



Employee receiving training



Fueling Supervisor

Photo 4 – Photo of Certification of Employee On The Job Training (NTSB Photo)

Statement of Understanding

I have received, read, and agree to abide by the Company Employee Handbook. I understand the policies and procedures set forth in the handbook. I also understand that the handbook is not a contract of employment, does not in any way limit the right of the Company to terminate my employment and that my employment may be terminated at any time, with or without notice, within the sole discretion of the Company management.

Employee Name 

Date 4-7-14

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Photo 5 – Photo of Statement of Understanding (NTSB Photo)

Print Close

Certificate ID: 72257760

This Certificate of Completion is presented to
Devin Cooper

for having completed the
Class C Operator Training
New Mexico

22-Aug-14
Date of Training

Class A/B Acknowledgement

Andrew Kading 8-22-14

[Redacted] KLRU

Photo 6 – Photo of API Safety Certificate of Completion (NTSB Photo)

SOUTHWEST AVIATION INC.

DEVIN COOPER

LINE SERVICE TECHNICIAN

SIGNATURE

[Redacted Signature]

MANAGER

[Redacted Signature]

Photo 7 – Photo of Line Service Technician Certificate (NTSB Photo)