The Most Trusted Wings In Aviation™

Aircraft Accident - Fuel Quality Assurance Review

The goal is simple…deliver clean, dry, on spec fuel every time.

FBO Information

ANSON COUNTY AIRPORT (AFP)
2980 AIRPORT ROAD
WADESBORO, NC 28170
Site ID Nbr: 847922

Marketer QA Representative

CAMPBELL OIL CO
TORI MARTIN - AVIATION SALES MANAGER
OFFICE: (910) 247-6755 CELL: (910) 862-3750
torim@campbelloilcompany.com

FBO QA Inspection Contact

REX EDWARDS - AIRPORT MANAGER
OFFICE: (704) 694-2516 CELL: (704) 389-0633
redwards@co.anson.nc.us

This "Fuel Quality Assurance Review" is for Phillips 66 internal use to confirm the existence of a safe level of compliance with industry standards. It does not constitute a full inspection of the customer's equipment for safety and other purposes, and only includes equipment and procedures directly related to fuel in question. It is intended to identify equipment and/or procedural deficiencies that, if not corrected could contribute to fuel quality issues. It is the customer's responsibility to assure full compliance with local, state, federal and industry standards/regulations.

Initial		
	0	***Critical Deficiencies***
	2	***Deficiencies***
	0	***Core issues identified***
	0	***Filtration information complete.***
	0 round spouts observed	***Duckbill spouts on jet overwing fueling nozzles are a required component of a misfueling prevention program. If local circumstances require the use of round spouts during fueling operations, then site specific policies and practices must be in place to ensure the correct fuel type is delivered into aircraft.***
		Aviation Fuel Quality Assurance Requirements Received

08/20/21	Inspection Date (version 21.6)		Revision Date (if applicable)
08/20/21	Accident Date (P66 use only)	X	
08/20/21	Process date (P66 use only)		

FBO Representative Title: Airport Manager

Inspection Type: P66 Accident Review

FBO Representative Name: Rex Edwards

Inspector Name: Charlie Schouweiler

Critial deficiencies indicated by red cell color and hatch patterned box to left of cell.

Deficiencies indicated by yellow cell color and black box to left of cell.

Accident Report: ANSON COUNTY AIRPORT (AFP) CAMPBELL OIL CO (847922)

QA Inspection/Review Info

Yes	Accident QA Review Complete
02/07/19	Date of Most Recent QA Inspection
1	# of Deficiencies
0	# of Critical Deficiencies
Yes	Compliance Complete
06/17/19	Date of Compliance
Schouweiler	QCTS Representative

Days to Comply: 130

Accident Description

This aircraft has not been flown in 15 years. Witness reports aircraft engine was backfiring and running erratically before takeoff. Aircraft took off and immediately banked to the left which appeared to be an attempt to return to the airport then it crashed into a tree. Only parial tail number available.

FBO Info

Accident Reported to Phillips 66 By

08/20/21	Date	11:00 ~Time
Tori Martin	Name	
Campbell Oil	Company	

Dealer Contact

Rex Edwards	Name
(704) 389-0633	Phone
REDWARDS@ANSONCOUNTYNC.GOV	Email

Next Steps

No fuel related issues discovered. Report closed.

Accident Details

8262	Tail #
Piper Comanche	Aircraft Type

Date		~Time	Location
08/20/21	Departure	10:01	AFP
08/20/21	Accident	10:02	Just beyond AFP

0	# Injuries	2 # Fatalities
No	Property Damage	

Fuel Details

Refueler	How was the aircraft fueled?
Avgas	Type of Fuel
NA	If Jet, does it contain SDA?

Gallons		Date	~Time
51.5	Fuel Uplifted	08/20/21	9:48

No	Were samples retained?
0	# aircraft fueled since aircraft in question?
No	Other fuel related problems reported?
Yes	Has fueling been stopped?
7,800	# gallons sold since last receipt?
No	Sample Fuel? Other (explain)
No	After Hours Rush ($300 additional fee)
	Sample Qty Sample Loc

Approximately 380 aircraft fueled (7,800 gallons) since last delivery.

Additional QA Questions

Yes	Have procedural requirements been reviewed with dealer?

Sumps

Before Fueling Aircraft

N/A	Date: most recent sump I Refueler
N/A	Sump Rating
08/19/21	Date: most recent sump (most downstream vessel)
1A	Sump Rating

After Fueling Aircraft

N/A	Date: most recent sump
N/A	Sump Rating Refueler
8/20/2021	Date: most recent sump
1A	Sump Rating (most downstream vessel)

Differential Pressure (DP)

Green	(PSI) Observed Differential Pressure
	GPM - Observed Flow Rate
	GPM - 100% Flow Rate
	PSI - Corrected Differential Pressure

Before to Fueling Aircraft

08/19/21	Date (most downstream vessel)
GREEN	DP (corrected for GPM)

After Fueling Aircraft

08/20/21	Date (most downstream vessel)
GREEN	DP (corrected for GPM)

No	Are DP results being recorded?
No	Sudden increases or decreases in the last 30 days?

Nozzle Screen

Before Fueling Aircraft

08/20/21	Date: most recent check
Good	Condition
Yes	Free of Debris

After Fueling Aircraft

08/20/21	Date: most recent check
Good	Condition
Yes	Free of Debris

Other

No	Does terminal need to be notified (potential issues with gravity, shelf life, additive, color)?	
No	Does carrier need to be notified (gravity, additive, color)?	

Training

Line service technicians shall receive training prior to performing unsupervised line service operations. Initial and recurrent training shall cover facility policies and procedures and include, but not be limited to, the content listed below:

Misfueling Training — *Annually*

- NATA Safety 1st (www.PreventMisfueling.com)
  - General Aviation Misfueling Prevention (Online Training)
  - Operational Best Practices
- Energy Institute (EI) 1597
  - Aviation Misfueling Prevention (video)
  - Procedures for Overwing Fueling to Ensure Delivery of the Correct Fuel Grade to an Aircraft

Review TrustedFuel.com — *Annually*

- Aviation Fuel Handling Guide
- Quality Assurance Obligations and Inspection Program
- Phillips 66 Quality Assurance Training Videos
  - White Bucket Test
  - API Gravity Test
  - Nozzle Screen Inspection
  - Free Water Test
  - Filter Membrane Test
  - Fuel System Icing Inhibitor (FSII) Concentration Test

Online or Live Training (complete at least one) — *24 Months*

- National Air Transportation Association (NATA) - Safety 1st
  - Online Training Center
  - Certified QC Inspector Workshop or similar program
- Aviation Continuing Education (ACE) – SafetyPro
  - Fuel Safety Supervisor (online)
  - Line Fuel Service (online)
- Fuel Safety Training meeting the FAA requirements (14 CFR Part 139.321)

Records & Documentation

- Develop and maintain an operations manual covering facility policies and procedures
- Retain records to satisfy customers, suppliers, and applicable authority having jurisdiction; at a minimum, keep the following records at the FBO for at least 1 year or longer if noted below:
  - Training documentation
  - Receipt of Fuel:
    - Bill of Lading (BOL)
    - White bucket test results
    - Observed API gravity, observed temperature (°F), and corrected API gravity results (corrected API gravity must be within +/- 1° of the API gravity on the BOL)
    - Fuel System Icing Inhibitor (FSII) concentration results (must be within 0.10 to 0.15 volume %)
  - Filtration information (previous 3 years):
    - Element model numbers, date elements changed and next due date (one year after change date) (if separator element was cleaned and inspected per manufacturer to extend life - document procedure)
    - Differential pressure results
    - Similarity data sheets from filter manufacturer if elements have been updated from original elements installed in vessel
  - Daily, weekly, monthly, quarterly, and annual quality assurance checks
  - Equipment maintenance

Procedures

Misfueling Prevention

- Follow NATA Safety 1st Misfueling prevention guidelines and operational best practices at www.PreventMisfueling.com
- Follow EI 1597 "Procedures for Overwing Fueling to Ensure Delivery of the Correct Fuel Grade to an Aircraft"
- Implement "Save a Life – Verify Fuel Type" heart decals on refuelers and fueling dispensers (send email to TrustedFuel@p66.com for free decals) +

Receipt of Fuel

- Follow the Phillips 66 Aviation Fuel Handling Guide and use the Phillips 66 "Receipt of Fuel" or other industry approved form on all fuel deliveries (at a minimum - document white bucket results, observed API Gravity, observed temperature (°F), and corrected API gravity results must be within one degree of the API gravity on BOL)

Filtration

- Verify with filter manufacturer that filters/elements are fit for purpose, correct for fuel type and latest edition
- Replace coalescer, particulate, and monitor elements if performance issues arise (e.g. differential pressure, free water test, filter membrane test); never exceed manufacturer's 12-month service life
- Separator element life can be extended to 36 months if cleaned and inspected per manufacturer's guidance, current edition, same category, and same manufacturer as the coalescer elements being installed (inspection records of separator need to be signed and retained with filtration records)
- Verify current filter element information (part numbers), date elements changed, and next due date is placarded on filter vessel or near filter vessel and is correct for fuel type and latest edition
- Fuel flow rate shall not exceed the rated capacity of the filtration system
- Filter element installation/commissioning shall follow filter manufacturer's or other industry guidance

Fuel Storage

- Manage fuel inventory so it does not exceed 6 months shelf life, or more than half of the product has been received during the previous 6-month period
- Defueled product shall not be sold as branded fuel and shall remain segregated

Sampling & Testing

- Perform white bucket test to confirm fuel is free of particulate and water, and check for unfamiliar color or odor:
  - Storage tanks ---------- *Daily*
  - Refueler tanks ---------- *Daily*
  - Filter vessels or Relaxation chambers ---------- *Daily*
  - Overwing nozzle samples ---------- *Weekly*
- Perform FSII additive test (Jet A w/ FSII) ---------- *Monthly* +

Filtration

- Monitor differential pressure ---------- *Daily*
- Confirm water defense system (float or probe) shuts down properly per manufacturer ---------- *Quarterly*
- Perform Free Water Test (Jet A or Jet A w/ FSII) ---------- *Monthly* +
- Perform Filter Membrane Test (Jet A or Jet A w/ FSII) ---------- *Monthly* +

Hoses & Nozzles

- Check hose condition ---------- *Daily*
- Flush hose line fill if in sporadic or occasional use ---------- *Weekly*
- Nozzle Screen: Inspect, clean, and replace per industry guidance:
  - Overwing ---------- *Monthly*
  - Single Point ---------- *Monthly* **

\+ Recommended

** If single point nozzle is used less than 8 times per month; inspection of nozzle screen can be extended to quarterly if nothing was found in the previous nozzle screen inspection

Equipment (Fixed & Mobile)

Tanks and Piping

- Dedicated to a single type and grade of product
- Placarded properly per EI 1542:
  - Refueler: front, back, and both sides
  - Storage Tank: minimum two sides
- Fill points identified for grade of product:
  - Avgas 100LL: Painted blue or red with a blue band and labeled with product name
  - Jet A: Painted black and labeled with product name
  - Secure with different keyed padlock; label keys with Avgas 100LL or Jet A and store with appropriate test equipment (send email to TrustedFuel@p66.com for free Jet A and Avgas 100LL keychains) +
- Sump drain or sump pump required on tanks
- Copper or cadmium alloys, cadmium plating, galvanized steel or other zinc material coatings, and plastic materials are not permitted in fuel systems (stainless steel piping is recommended per EI 1540)

Filtration

- Aviation approved particulate and water filtration required (latest edition):
  - Immediately upstream of the aircraft fueling dispenser (maximum 15' of 3" pipe or equivalent)
  - Into mobile fueling equipment
  - On mobile fueling equipment

Fuel Type	Coalescer/Separator (6th Edition) (Do not mix manufacturer's elements in the same vessel)	Monitor (7th Edition)
Jet A with FSII	Category "M"	No
Jet A	Category "C" or "M"	Yes *
Avgas 100LL	Category "C" or "M"	Yes *

** Note: Monitor filtration containing super absorbent polymer (SAP) material is being phased out by the aviation industry. Please refer to the filter manufacturers for additional details on alternative filtration.*

- Placards on filter vessels or near filter vessel indicating:
  - Current element model numbers installed in vessel and they are the latest edition
  - Date elements were changed, and next due date shall be displayed (one year from change date)
- Water defense system (float or probe) required on coalescer/separator filtration located immediately upstream of aircraft fueling hose
- Sump drain required on filter vessels and relaxation chambers
- Differential pressure gauge required on filter vessels (recommend direct read type with peak hold)

Dispensers, Hoses & Nozzles

- Dispensers properly placarded for grade per EI 1542
- Implement "Save a Life – Verify Fuel Type" heart decals on refuelers and fueling dispensers (send email to TrustedFuel@p66.com for free decals) +
- Aviation fueling hoses must be marked with EI 1529 or EI/API 1529 and in good condition; never exceed manufacturer's 10-year service life
- Overwing nozzle handles color coded per EI 1542:
  - Avgas 100 LL: Red Handle
  - Jet A: Black Handle
- Duckbill spouts required on jet overwing fueling nozzles per EI 1597
- Nozzle Screens (100 mesh) required on fueling nozzles
- Dust covers or other protective devices required on fueling nozzles

\+ Recommended

FSII Additive Injection at the FBO (if applicable) _____

Develop and adhere to a Fuel System Icing Inhibitor (FSII) program that includes equipment, procedures, training and documentation specific to the injection and sale of Jet A with or without FSII including, but not limited to, the following:

- EI 1597 “Procedures for Overwing Fueling to Ensure Delivery of the Correct Fuel Grade to an Aircraft”
- NATA Safety 1st “General Aviation Misfueling Prevention”
- NATA Safety 1st “DEF Contamination Supplement”
- ASTM Manual 5 “Aviation Fuel Quality Control Procedures”

Equipment & FSII Inventory

- Ensure FSII meets ASTM D4171 “Standard Specification for Fuel System Icing Inhibitor” and is stored and handled in accordance with manufacturer’s recommendations
- FSII containers (e.g. totes, drums, pails/tanks):
  - Prominently labeled to identify product
  - Charged desiccant filter on vent
- FSII additive injector system designed for aviation applications
- Graduated cylinder (minimum 500 ml) to test FSII injection rate using bypass test method
- FSII Additive Test Kit (B/2) to test jet fuel with FSII at storage tank or refueler
- Where FSII is not available, install and maintain “FSII not Available” decals on refuelers, fueling dispensers and fueling hoses to ensure proper identification of fuel type (send email to TrustedFuel@p66.com for free decals)

Procedures

- FSII injection systems and FSII containers:
  - Ensure FSII additive remains free from contaminants (e.g. water, dirt) and other products (e.g. Diesel Exhaust Fluid (DEF), TKS de-icing fluid)
  - Document all transfers of FSII additive to refuelers
  - Daily inspection of the components (e.g. tanks, lines, valves, desiccant filters) and correct deficiencies
  - Calibrate additive injectors per manufacturer’s guidance, at least monthly, to ensure a FSII additive concentration rate of 0.10 to 0.15 volume % (recommend 0.125)
- FSII additive injected into refueler or storage tank: confirm FSII additive concentration is within 0.10 to 0.15 volume % using a FSII Additive Test Kit (B/2)
- FSII additive injected at the aircraft wing: confirm fuel order with customers (Jet A with or without FSII) and document on fuel ticket
- FBO use of aerosol cans to dispense FSII additive into fuel is prohibited

FSII Not Available at the FBO (if applicable) _____

Develop and adhere to a quality assurance program that includes equipment, procedures, training and documentation specific to sale of Jet A without FSII including, but not limited to, the following:

- EI 1597 “Procedures for Overwing Fueling to Ensure Delivery of the Correct Fuel Grade to an Aircraft”
- NATA Safety 1st “General Aviation Misfueling Prevention”

Equipment

- Install and maintain “FSII not Available” decals on refuelers, fueling dispensers and fueling hoses to ensure proper identification of fuel type (send email to TrustedFuel@p66.com for free decals)

Procedures

- Confirm with customers that Jet A does not contain FSII additive and document on fuel ticket
- Communicate to the public that Jet A with FSII additive is not available (e.g. Ac-U-Kwik, AirNav, FBO website)
- FBO use of aerosol cans to dispense FSII additive into fuel is prohibited

The Most Trusted Wings In Aviation™

Phillips 66 Aviation Fuel Quality Assurance Program

Quality assurance requires ongoing activity to monitor/manage aviation fuel from the time it is received at the airport until delivered into the aircraft.

Please acknowledge compliance of the following by checking the boxes at the right.

Aviation Fuel Quality Assurance Requirements ☐
I have reviewed and agree to adhere to Phillips 66 "Aviation Fuel Quality Assurance Requirements"

Corrective actions (2) on the following page(s) have been resolved. ☐

_____		_____	
FBO Contact Signature		Marketer/Account Rep Signature	
_____	_____	_____	_____
Print Name	Date	Print Name	Date

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Summary of Corrective Actions

1	**Avgas - Receipt of Fuel (COA) - Bill of Lading & Certificate of Analysis** Ensure that each Bill of Lading (BOL) is accompanied by a COA (meets ASTM spec) from the source terminal and that the COA date is within six months of the BOL date. Contact Phillips 66 Aviation at 800-234-6603 (option 1) if you have questions.
2	**Avgas - Receipt of Fuel (White Bucket) - Bill of Lading & Certificate of Analysis** Ensure that fuel receipt documentation confirms the fuel received was free of any visible contamination by recording satisfactory results (1A Rating) on the bill of lading.

	Master Data	Manual Input	Data Used for Cover Page
Facility Information			
Ship To #	847922		
Ship To Name	ANSON COUNTY AIRPORT		ANSON COUNTY AIRPORT
Sold To #	10002819		10002819
Physical Address	2980 AIRPORT ROAD		2980 AIRPORT ROAD
City	WADESBORO		WADESBORO
State	NC		NC
ZIP	28170		28170
Airport ID	AFP		AFP
Type	AVMD		AVMD
Marketer Name	CAMPBELL OIL CO		CAMPBELL OIL CO
P66 Account Rep	Russ Boy		RUSS BOY
P66 QA Rep	Charlie Schouweiler		CHARLIE SCHOUWEILER
FBO QA Inspection Contact		Same As	
Name	REX EDWARDS		REX EDWARDS
Title	Airport Manager		AIRPORT MANAGER
Office Phone	(704) 694-2516		(704) 694-2516
Cell Phone	(704) 389-0633		(704) 389-0633
Email	redwards@co.anson.nc.us		redwards@co.anson.nc.us
QA Compliance Contact		same as	
Name	Tori Martin		TORI MARTIN
Title	Aviation Sales Manager		AVIATION SALES MANAGER
Office Phone	(910) 247-6755		(910) 247-6755
Cell Phone	(910) 862-3750		(910) 862-3750
Email	torim@campbelloilcompany.com		torim@campbelloilcompany.com
TrustedFuel.com Website		Same As	
Name			
Title			
Office Phone			
Cell Phone			
Email			
NATA Safety 1st Contact		Same As	
Name			
Title			
Office Phone			
Cell Phone			
Email			

Tab/Section/Sub Section	Notes
General Comments	
Avgas Fuel Farm 1	
Storage to Aircraft	
Filtration	ACO-51201R

Equipment Inventory

Fuel Farm 1

Notes

	Jet	Avgas
Product	Not Applicable	Avgas
# Tanks		1
Refuelers		No
Aircraft Fueling Dispenser		1
FSII Injection Equip		
Filtration / Relaxation Vessels		
Transport to Storage		No
Vessel Count		Not Applicable
Storage to Refueler		Not Applicable
Vessel Count		Not Applicable
Storage to Aircraft		Yes
Vessel Count		1

Note: Mobile storage tanks should be recorded as both tanks and refuelers.

If 1 Mobile Tank: Record as 1 tank and 1 refueler on Farm 1.

If 2 Mobile Tanks: Record as 1 tank and 2 refuelers on Farm 1 and 1 tank on Farm 2.

Note: Look for additional filtration inside cabinet.

Documents Available

	Revised Date
"Aircraft Accident Reporting" placard	Yes
Aviation Fuel Quality Assurance Requirements	July 1, 2020

Receipt of Fuel Records

[redacted] [redacted]

No Jet A

Notes

		Bill of Lading	Certificate of Analysis		
Date	(most recent bill of lading)				
No Product Selected				**No Product Selected**	
API Gravity					
Gravity on BOL			A		
Observed Temperature					
Observed Gravity				Inspector API Calculation	
Observed Gravity Corrected to 60^0 F			B		C
Gravity Validations					
Gravity on BOL vs Observed Gravity			A vs B		A vs C
White Bucket					
Particulate Rating					
Moisture Rating					
Fuel System Icing Inhibitor (FSII)					
Presence of FSII Indicated on BOL					
BOL: Fuel Gross Gallons					
BOL: FSII Gallons					
Computer FSII Calculation (vol%)				Acceptable range: .10 to .15 vol%	

Avgas

Notes

		Bill of Lading	Certificate of Analysis		
Date	(most recent bill of lading)	05/18/21	Not Available		
		Product is 3.1 mths old (shelf life is 6 mths).			
API Gravity					
Gravity on BOL		66.3	A		
Observed Temperature		78.0			
Observed Gravity		68.5		Inspector API Calculation	
Observed Gravity Corrected to 60^0 F		66.0	B	66	C
Gravity Validations					
Gravity on BOL vs Observed Gravity		OK	A vs B	OK	A vs C
White Bucket					
Particulate Rating		Not Available			
Moisture Rating		Not Available			

Fuel Farm 1 - Avgas

Storage Tank(s)

Tank Information	Notes	
	Tank 1	
Identification #		Avgas
Single Product / Labeled		Single Prod/Labeled
Fill Point Properly Labeled		Yes
Type		UST
Size (gallons)		10,000
Water Management	Notes	
Determination Method		Portable Pump
Removal Method		Portable Pump
Field Tests	Notes	
"WB" 1st Particulate Rating		1-Clear
"WB" 1st Moisture Rating		A-Bright
"WB" 2nd Particulate Rating		Not Applicable
"WB" 2nd Moisture Rating		Not Applicable

Fuel Farm 1 - Avgas

Storage to Aircraft

Filtration

Notes: ACO-51201R

Elements	Vessel 1
Vessel at Dispenser	Yes
Element Type 1 - Model #	ACO-51201R [M] V
Element Type 2 - Model #	Not Applicable
Element Type 3 - Model #	Not Applicable
Compliant Filtration	Yes
Configuration	NA
Element Changed - **Month**	FEB
Element Changed - **Year**	2021
Date/Elements Posted on Vessel	Yes

Appurtenances

Notes:

Sump Drain Functional	Yes
DP Gauge	Green/Red Zone
Water Defense Equipment	No

Field Tests

Notes:

"WB" 1st Particulate Rating	1-Clear
"WB" 1st Moisture Rating	A-Bright

Fuel Farm 1 - Avgas

Dispenser or Cabinet/Hoses/Nozzles

Dispenser	Notes
	Dispenser 1
Properly Labeled for Product	Yes
Self Serve	Yes
Over Wing	Yes
API/EI 1529 Hose	Yes
Dust Cover/Protective Device	Yes
Nozzle Screen Condition	Good
Free of Debris	Yes
"WB" 1st Particulate Rating	1-Clear
"WB" 1st Moisture Rating	A-Bright