



**Aviation Fuel Safety FAR 139.321
Standard Operating Guideline**

I. Purpose

- A. The purpose of this SOG is to meet the requirements of FAR 139.321 by properly applying NFPA 30, 407, 409, 410, the Florida Fire Prevention Codes, and SMAA policy.
- B. This SOG provides an acceptable means of complying with FAR 139.321 and will be effective by a policy set forth by the SRQ Airport Fire Department (SRQ AFD) a division of the Sarasota Manatee Airport Authority.
- C. The intent of the SRQ Aviation Fuel Safety SOG is to educate the personnel whose duties and responsibilities involve the handling and storing of hazardous substances and materials, specifically line personnel, in the safe handling of fuels, while performing aircraft and ground equipment fuel servicing.
- D. The NFPA codes prescribe the minimum fire safety standards along with adopted Fire Prevention codes necessary to establish a reasonable level of fire and life safety and property protection from the hazards created by fire, explosions and dangerous conditions.

II. References

- A. FAA 14 CFR 139.321, Certification of Airports, Operations, Handling and storage of hazardous substances and materials.
- B. FAA A/C 150/5230-4A, Aircraft fuel storage, handling and dispensing on airports. 9/28/2012
- C. NFPA 30, Flammable and Combustible Liquids Code, 2012 edition
- D. NFPA 407, Standard for Aircraft Fuel Servicing, 2012 Edition
- E. NFPA 407, Standard for Aircraft Fuel Servicing, 2012 edition. Tentative Interim Amendment (TIA) effective date of November 8, 2011.
- F. NFPA 403, Standard for Aircraft Rescue and Fire-Fighting Services at Airports
- G. NFPA 410, Standard on Aircraft Maintenance
- H. Air Transport Association Specification 103



III Definitions

- A. Authority Having Jurisdiction (AHJ) - An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.
- B. Fire Inspector – An individual who has met the job performance requirements specified in this standard. The Fire Inspector conducts fire inspections, reviews plans and applies codes and standards.
- C. Fueling Agent - A person or company that sells fuel products on the airport. This is intended to exclude the self-fueling activities of an airline or corporation that conducts self-fueling.
- D. Fuel Bowser- Equipment used to contain contaminated fuels either from sumped fuel or recovered spilled fuels.
- E. Fueling ladders- Ladders used to access larger aircraft. These appliances are connected to the hydrant cart or truck and then the attached hose is connected to the aircraft providing a safe condition for fueling.
- F. Fuel Safety Program Administrator – A person assigned by the Fire Chief to administer the guidelines set forth by this document.
- G. Inspection Cycle- Quarterly, at least once every 3 consecutive months.
- H. Line Service Personnel- The individual performing aircraft and ground equipment fuel servicing.
- I. Personal Protective Equipment-(PPE)- including eye protection, ear protection, hand protection, proper types of clothing and shoes/boots.
- J. Sump trucks- Trucks used to remove contaminated fuel from the AOA. They pump fuel and water from the hydrant pits and other collection points. May also be used to assist in mitigating any fuel spill.
- K. Supervisor Certificates- Required to include the following:
 - 1. Name of company doing the training
 - 2. Name of individual who completed the “Fuel Safety Supervisor” training



Aviation Fuel Safety FAR 139.321 Standard Operating Guideline

3. "Has successfully completed all classroom and practical application for the requirements of 14 CFR §139.321(b) (1) through (b) (6) and §139.321(e) (1)"

4. Date of completion

L. Supervisor/Trainer- The individual who has completed the Supervisory Training Program and provides the line service fuel safety training for their employees.

IV Personnel Safety

A. Personnel must exercise extreme caution at all times.

1. Wear appropriate safety equipment (PPE), including ear protection, proper types of clothing and shoes/boots.

B. Incidents and accidents caused by the mishandling of fuels and other hazardous materials, as well as incidents attributable to insufficient attention, are vital concerns to both the FAA and airport operators. Each can result in personnel injuries, damage to property, and detrimental environment impacts when fuel/lubricant products are not used properly.

C. Fuel/ product spills may pose a serious health or fire threat and will be handled as a true emergency.

V. Command Considerations

A. Fire Chief is responsible for ensuring that all personnel adhere to the requirements of this guideline.

B. Company officers must be aware of their personnel's location at all times.

VI. Inspection Guidelines

A. SRQ AFD will inspect all aviation fueling equipment assigned to the AOA, at least once every (3) consecutive months or once a quarter.

1. December is the inspection month for the First Quarter of Jan, Feb, and March.

2. March is the inspection month for the Second Quarter: April, May, June.

3. June is the inspection month for the Third Quarter: July, August, and Sept.

4. September is the inspection month for the Fourth Quarter: Oct., Nov. Dec.



**Aviation Fuel Safety FAR 139.321
Standard Operating Guideline**

- B. Fifteen (15) days prior to the quarterly fueler inspection cycle, the SRQ AFD Fuel Safety Program Administrator will contact via e-mail or phone each fueling agent to request a list of their current fueling equipment with assigned SRQ AFD numbering decals.
- C. The fueling agents will respond to the SRQ AFD request within 5 business days with the updated information showing the in-service, dead-lined and retired equipment including: Agent number and equipment locations of each vehicle during normal business hours.
- D. The inspection period will be from the 1st to 20th day of the inspection month. The SRQ AFD will supply each Captain with their assignment, inspection forms and decals. A master list will be available for the Fire Chief to record their inspections.
- E. Shift personnel will conduct inspections of the vehicles or facilities assigned to them by the 20th day of the inspection month.
- F. Completed forms will be returned to the Fire Inspector or his designee for review, ensuring accurate information has been completed before submitting them to the SRQ AFD Fire Chief.
- G. The SRQ AFD Fire Inspector will review the completed forms for accuracy. Any forms improperly completed will be returned to the appropriate Captain for corrections.
- H. The SRQ AFD Fire Inspector will compare the supplied operator's name to the agent's list of qualified line fuel service personnel. Inspection forms completed by unauthorized operators will be presented to the fueling agent for clarification.
- I. The original completed forms will be kept on file in the SRQ AFD Fuel Safety Program's vehicle folder.
- J. Following completion of all inspections, a report will be generated detailing results of the inspection to include any failure issues encountered. The report will also include general safety issues for all agents to consider.
- K. The report will be sent to each fueling agent for filing in their records.
- L. Quarterly inspection forms will be kept in each agent's individual vehicle folder for 24 consecutive months, after which they will be transferred to storage before destruction in accordance with Florida statutes.



VII. TRAINING RECORDS

- A. Training shall be completed in accordance with FAA FAR139.321 and the most current FAA Cert Alert for Fuel Safety Training.
- B. Each tenant fueling agent shall provide a written confirmation of required training completion every 12 consecutive calendar months to the SRQ AFD. Training records must be maintained for 12 consecutive calendar months. **(FAR 139.321(f))**
- C. At least one supervisor with each fueling agent must have completed an aviation fuel training course in fire safety that is authorized by the Administrator (FAA) and receive recurrent instruction at least once every 24 consecutive calendar months. **(FAR 139.321(e) (1))**
- D. Upon completion of the required course, the supervisor shall submit to the fire department a Fueling Agent Line Supervisor Training Confirmation Form and provide a copy of the certificate of training. **(FAR 139.321(f))**
- E. All fuel-handling line service employees shall receive initial hands-on and recurrent training at least every 24 consecutive calendar months from a supervisor who has completed a Supervisory Training Program in Fire Safety. The agent shall maintain a Line Service Fuel Safety Training Form on all employees who fuel aircraft, accept fuel shipments or handle fuel. **(FAR 139.321(e)(2))**
- F. Each tenant fueling agent shall submit a training roster to SRQ AFD Fire Inspector on a company letterhead, to include the name of the instructor, the instructor's date of FAA certification, the names of line personnel with their printed names and signature. **(FAR 139.321(f))**
- G. Upon receipt of the new quarterly list, the SRQ AFD Fire Inspector will check individuals who need recurrent training before the next inspection cycle.
- H. As vehicle inspection forms are received by the SRQ AFD Fire Inspector, names on the training roster will be compared with the individual signing the inspection form to ensure active line fueling personnel are in compliance with the FAA training requirements.
- I. Any individual signing the inspection form whose name does not appear on the class roster will be challenged by the SRQ AFD Fire Inspector through the appropriate fuel agent representative.



**Aviation Fuel Safety FAR 139.321
Standard Operating Guideline**

-
- J. Between Quarterly inspections cycles, if a new employee is added to the agent's list, his or her name and date of training must be forwarded to the SRQ AFD Fire Inspector for record keeping.
 - K. Any employee leaving the company or no longer responsible for fueling operations will have their name listed on the quarterly update as an unqualified line service fuel handler.
 - L. Quarterly training records must be kept in each agent's training folder for 24 consecutive calendar months, after which they will be moved to storage before destruction in accordance with Florida statues.
 - M. Each tenant fueling agent that fuels or de-fuels aircraft shall provide a copy of their training outline and copy of their written exam for filing with SRQ AFD Fire Inspector.
 - N. Organizations that do not fuel aircraft shall be required to follow the same procedures for fuel safety handling as the fueling agents, except for the FAA required certified schooling.

VIII AIRPORT PROVIDED TRAINING

- A. The Fire Department shall provide a training class for all fueling agents, annually during the first quarter.
 - 1. Instructions will include fire behavior, classes of fire, and operation of a fire extinguisher.
 - 2. Each attendee shall be required to operate the fire extinguisher on a live fire. Personnel not participating in the live fire will not receive a certificate and will not be certified to fuel on airport property.
- B. The class will be required for FAA 139.321 certified trainers and SRQ Fueling Agent representatives only. The class is also open to personnel that will be attending a FAA required course.
- C. The class shall meet the 14 CFR section 139.321 requirements for the local fire code training by the AHJ.
- D. A certificate of attendance shall be provided and valid for 12 months from the date of the class.



IX ADMINISTRATION

- A. As a representative of SMAA (the certificate holder) the SRQ Fire/Rescue Department shall administer the program. **(FAR139.321 (a))**
- B. The **SRQ AFD Fire Inspector** shall maintain all records required under FAR 139.321 at the Fire Station.
- C. All equipment that requires inclusion into the Fuel Safety Program shall be assigned an identification number decal supplied by the program administrator.
- D. The numbering system shall identify the type of equipment to be inspected in accordance with the following groupings.
- 1001-1099 Fuel Truck ASIG
 - 2001-2099 Fuel Truck Dolphin
 - 3001-3099 Fuel Truck Rectrix North
 - 4001-4099 Fuel Truck Rectrix South
- E. The numbering decals shall be attached to lower left corner of the windshield on vehicles.
- F. The SRQ AFD shall inspect each fuel servicing vehicle and fixed facility at least once every (3) consecutive months and affix the color-coordinated decal on each item inspected.
- G. The color codes are as follows:
1. BLUE- January, February, March
 2. ORANGE- April, May, June
 3. GREEN - July, August, September
 4. YELLOW- October, November, December
 5. RED – out of service- removed from AOA
- H. Uninspected vehicles found on the airfield after the 20th of the month shall be subject to RED tagging by the SRQ AFD.
- I. Beginning on the 21st day any vehicle missed during the SRQ AFD inspection shall be sent to the ARFF station for inspection.
- J. Each fueling agent shall provide a monthly report to the SRQ AFD detailing the status of each fueling vehicle operating on SRQ. The report shall also



Aviation Fuel Safety FAR 139.321 Standard Operating Guideline

include the monthly employee-training roster providing a list of those who did not qualify under their training program and employees in training.

(FAR139.321 (e))

- K. It is the responsibility of the fueling agent to notify the SRQ AFD if a fuel servicing vehicle becomes out of compliance with FAR 139.321 regulations. The violating vehicle shall be immediately removed from the AOA pending repairs. The RED out of service decal will be affixed over the current quarterly decal.
- L. Any vehicle placed out of service due to a malfunction noted by an ARFF inspection will have a "RED" Out of Service form completed and left with the vehicle operator. The form shall describe the reason for the non-compliance for the fuel agent's maintenance department to address.
- M. Upon completion, the mechanic performing the repairs will sign the RED form and return it with the vehicle to the fire station for re-inspection.
- N. The fueling agent shall notify the fire department's duty officer to schedule a re-inspection before the vehicle is brought to the fire station and returned to the AOA.

X ARFF INSPECTIONS

- A. The **SRQ AFD** shall be responsible for the inspections of the total inventory of aircraft fuel servicing vehicles and fixed facilities on the AOA, including spill carts and storage trailers.
- B. The Fueling agents assigned to the shift shall be their responsibility for the quarterly inspections and re-inspections.
- C. The current vehicle inspection form shall be completed to include, the name of the inspector and the operator's signature.
- D. Vehicles requiring re-inspection must be inspected by the same shift who originally inspected the vehicle.
- E. Fueling equipment items failing inspection shall be noted in the remarks section. If the inspection notes any failures with safety or operational concerns, the vehicle shall be immediately RED tagged and removed from the AOA.



Aviation Fuel Safety FAR 139.321
Standard Operating Guideline

-
- F. Vehicles removed from service shall be issued a RED Return to Service form at the time of the violation. This form shall include a description of the violation(s) and the vehicle type and number. The form contains instructions for contacting the duty officer to arrange a re-inspection.
- G. The shift assigned a location shall inspect the fixed facilities and its vehicles. Each facility shall be inspected by a different shift at the next inspection cycle, allowing all personnel to become familiar with each location over the course of a year.

XI OPERATIONS

A. FUELING VEHICLE PARKING

1. No unattended fueling vehicle shall be parked closer than 50 feet from a structure or closer than 10 feet from another fueling vehicle. **(NFPA 407:5:18)**
2. Fueling vehicles shall not be left unattended while connected to the fuel farm tank. **(NFPA 407:5:2.2)**
3. Parking areas for unattended aircraft fuel servicing tank vehicles shall be arranged to provide the following:
 - a. Dispersal of the vehicles in the event of an emergency.
 - b. A minimum of 10 ft. of clear space between parked vehicles for accessibility and fire control purposes.
 - c. Prevention of any leakage from draining towards adjacent buildings or storm drains not suitably designed to handle fuel.
 - d. A minimum of 50 ft from any parked aircraft and buildings other than maintenance facilities or garages for fuel servicing tank vehicles. **(NFPA 407:5.18)**
4. Fueling trailers may be used to service GSE (Ground Service Equipment) only in areas deemed safe. At no time shall GSE fueling occur within 50 feet of the airside terminal buildings or any aircraft.
5. Once fueling has been completed, the fuel trailer shall be removed from the AOA Ramp and parked in a safe location.



XII RAMP OPERATIONS

- A. Transferring fuel by pumping from one tank vehicle to another tank vehicle within 200 ft of an aircraft shall not be permitted. (N.F.P.A. 407: 5.2.7)
- B. Not more than one tank vehicle shall be permitted to be connected to the same aircraft fueling manifold at a time. (NFPA 407: 5.2.8)
- C. Entrances to fueling areas shall be posted with “no smoking” signs. (N.F.P.A. 407: 5.8.1)
- D. Open flames on aircraft fuel servicing ramps or aprons within 50 ft of any aircraft fuel servicing operation or fueling equipment shall be prohibited. (NFPA 407:5.8.2)
- E. Aircraft fuel servicing vehicles or carts shall not be operated unless they are in proper repair and free of accumulations of grease, oil, or other combustibles. (NFPA 407: 5.17.1)
- F. Leaking vehicles or carts shall be removed from service, defueled, and parked in a safe area until repaired. (NFPA 407: 5.17.2)
- G. Maintenance and servicing of aircraft fuel servicing vehicles and carts shall be performed outdoors or in a building approved for the purpose. (NFPA 407:5.17.3)
- H. The fueling operator shall monitor the panel of the fueling equipment and the aircraft control panel during pressure fueling or shall monitor the fill port during overwing fueling. (NFPA 407: 5.15.1)
- I. Fuel flow shall be controlled by use of a deadman control device. The use of any means that defeats the deadman control shall be prohibited. Deadman controls shall be designed to preclude defeating their intended purpose. (NFPA 407: 4.1.7.1)
- J. Following fueling of an aircraft, all hoses shall be removed, including those from hydrant systems. All hoses shall be properly stowed. (NFPA 407:5.2.2)
- K. Fuel nozzles shall not be dragged along the ground. (NFPA 407: 5.2.3)
- L. Prior to making any fueling connection to the aircraft, the fueling equipment shall be bonded to the aircraft by use of a cable, thus providing a conductive path to equalize the potential static charges between the fueling equipment and the aircraft. The bond shall be maintained until fueling connections have



**Aviation Fuel Safety FAR 139.321
Standard Operating Guideline**

been removed, thus allowing separated charges that could be generated during the fueling operation to reunite. Grounding during aircraft fueling shall not be permitted. (NFPA 407:5.4.1)

- M. In addition to the above, where fueling overwing, the nozzle shall be bonded with a nozzle bond cable having a clip or plug to a metallic component of the aircraft that is metallically connected to the tank filler port. The bond connection shall be made before the filler cap is removed. If there is no plug receptacle or means for attaching a clip, the operator shall touch the filler cap with the nozzle spout before removing the cap in order to equalize the potential static charges between the nozzle and the filler port. The spout shall be kept in contact with the filler neck until the fueling is completed. (NFPA 407: 5.4.2)
- N. Aircraft being fueled shall be positioned so that aircraft fuel system vents or fuel tank openings are not closer than 25 ft to any terminal building, hangar, service building, or enclosed passenger concourse other than a loading bridge or walkway. Aircraft being fueled shall not be positioned so that the vent or tank openings are within 50 ft of any combustion and ventilation air-intake to any boiler, heater, or incinerator room. (NFPA 407:5.10.2)
- O. Aircraft fuel servicing vehicles and carts shall be positioned so that a clear path of egress from the aircraft for fuel servicing vehicles shall be maintained. (NFPA 407:5.12.1)
- P. The propulsion or pumping engine of aircraft fuel servicing vehicles or carts shall not be positioned under the wing of the aircraft during overwing fueling or where aircraft fuel system vents are located on the upper wing surface. Aircraft fuel servicing vehicles or carts shall not be positioned within a 10-ft radius of aircraft fuel system vent openings. (NFPA 407:5.12.2)
- Q. Parking brakes shall be set on all fuel servicing vehicles or carts before operators begin the fueling operation. (NFPA 407:5.12.3)
- R. Aircraft fueling hose shall be inspected before use each day. The hose shall be extended as it normally would be for fueling and checked for evidence of blistering, carcass saturation or separation, cuts, nicks, or abrasions that expose reinforcement material, and for slippage, misalignment, or leaks at couplings. If coupling slippage or leaks are found, the cause of the problem shall be determined. Defective hose shall be removed from service. (NFPA 407:5.16.1)



XIII SAFETY

A. FIRE EXTINGUISHERS

1. ABC multipurpose dry chemical fire extinguishers (ammonium phosphate) shall **not** be placed on aircraft fueling vehicles, airport fuel servicing ramps, aprons, or at airport fuel facilities. (Tentative Interim Amendment (TIA) to NFPA 407, Standard for Aircraft Fuel Servicing, 2012 edition. November 8, 2011. **4.1.6.3**)
2. The multipurpose dry chemical (ammonium phosphate) fire extinguishing agent is known to cause corrosion to aluminum aircraft components. Although the agent is capable of extinguishing fires on or near aircraft, it is likely that the agent will spread to other, uninvolved aircraft, causing damage from corrosion. (NFPA 407:A.4.1.6.3)
3. Each fueling tank vehicle shall have two listed fire extinguishers, each having a rating of at least 20-B:C, with one mounted on each side of the vehicle. (NFPA 407:5.13.2)
4. One listed fire extinguisher with a rating of at least 20-B:C shall be installed on each hydrant fuel servicing vehicle or cart. (NFPA 407:5.13.3, ATA 103.6)
5. Fuel spill carts and fuel bowsers shall have one 20-B:C minimum rated extinguisher mounted on the vehicle.
6. Inspection tags shall be located so the tag may be read without removing the extinguisher from its mounting bracket.
7. Extinguishers with broken seals shall be re-inspected by a certified Florida fire extinguisher inspection company before extinguisher can pass the quarterly inspection.

XIV MARKINGS

- A. Each fueling vehicle shall be so marked as to allow easy identification as to product, vehicle owner, vehicle ID number and emergency operations.
- B. Each vehicle shall have 3 inch lettering on all four sides identifying the following:
 1. No smoking
 2. Flammable



3. Product identification

- C. Each vehicle shall have 2 inch lettering identifying the following:
1. Emergency fuel shut-off (EFSO)
 2. EFSO direction of action/arrow
 3. Fire extinguisher
 4. Vehicle identification number
- D. Labels shall be kept in good repair. Any signage that is faded or is damaged shall be removed and replaced immediately.
- E. A “no smoking” sign shall be posted prominently in the cab of every aircraft fuel servicing vehicle. (NFPA 407:4.3.11.1)

XV IGNITION SOURCES

- A. Ignition sources shall be kept to a minimum on each fueling vehicle.
- B. Any vehicle developing a fuel leak either from its own fuel system or from its transfer system shall be RED Tagged and removed from the AOA immediately.
- C. The vehicle status shall be reported to the fire department’s duty officer via telephone.
- D. The vehicle shall be re-inspected post – repairs prior to returning to operations on the AOA.
- E. The vehicle exhaust system shall be so designed as to discharge exhaust heat and vapors as far away from the fueling area as possible. (NFPA 407:4.3.6)
- F. Wherever possible, flexible engine exhaust pipe should be avoided due to the potential of breaking. Where used, stainless steel is preferable, and the length should be limited to approximately 18 in..
(NFPA 407: A.4.3.6.1)
- G. All vehicle operators shall be prohibited from carrying smoking materials, lighters or matches. Operators found with these items in their possession shall be issued a safety violation and removed from the AOA. The Airport Authority, at its discretion, may revoke the violator’s ID badge.
(NFPA 407:5.8.5)



Aviation Fuel Safety FAR 139.321
Standard Operating Guideline

-
- H. All fueling vehicles shall have all cigarette lighters and/or power points disabled on the vehicle. (NFPA 407:5.8.6)
 - I. Smoking equipment such as cigarette lighters and ash trays shall not be provided. If a vehicle includes such equipment when initially procured, it shall be removed or rendered inoperable. (NFPA 407:4.3.11.2)

XVI SMOKING

- A. Open flames on aircraft fuel servicing ramps or aprons within 50 ft of any aircraft fuel servicing operation or fueling equipment shall be prohibited. (NFPA 407:5.8.2)
- B. The category of open flames and lighted open-flame devices shall include, but shall not be limited to, the following: (NFPA 407:5.8.3)
 - 1. Lighted cigarettes, cigars, pipes, E-cigs, Vaporizers
 - 2. Exposed flame heaters, liquid, solid, or gaseous devices, including portable and wheeled gasoline or kerosene heaters
 - 3. Heat-producing, welding, or cutting devices and blowtorches
 - 4. Flare pots or other open-flame lights
- C. The authority having jurisdiction might establish other locations where open flames and open-flame devices shall not be permitted. (NFPA 407:5.8.4)
- D. Personnel shall not carry lighters or matches on their person while engaged in fuel servicing operations. (NFPA 407:5.8.5)
- E. Lighters or matches shall not be permitted on or in fueling equipment. (NFPA 407: 5.8.6)

XVII LIGHTNING

- A. While lightning is a concern for aviation fuel personnel it is the policy of SRQ to allow individual airlines and FBO's to determine when to stop fueling operations and coordinate their decisions to aviation fuel line personnel.