Aviation Fuel Equipment Inspections…
Why, Who, What & How…

Presented by:
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Why are we doing inspections?

- Airfield Safety
- Aircraft Safety
- Passenger Safety
- FAA Requirements
Why are we doing inspections?

Airfield Safety:

Protection of environment:
  spill prevention
  spill control

Fire Prevention

Protection of employees

Protection of equipment

Protection of facilities
Why are we doing inspections?

- **Aircraft Safety:**
  Prevent damage to fueling system
  Prevent damage to aircraft systems:
  - engines
  - electrical systems
  - flight surfaces

- **Fire Prevention**
Why are we doing inspections?

Passenger safety:

Fuel properly loaded into aircraft
Proper actions in event of a spill
Proper actions in event of fire
Why are we doing inspections?

FAA 139 requires it!

139.321 states, in part....
(a) Each certificate holder who acts as a cargo handling agent must establish and maintain procedures for the protection of persons and property on the airport during the handling and storing of any material regulated by the Hazardous Materials Regulations (49 CFR 171 through 180) that is, or is intended to be, transported by air.
Why are we doing inspections?

Each certificate holder must, as a fueling agent, comply with, and require all other fueling agents operating on the airport to comply with, the standards established under paragraph (b) of this section and must perform reasonable surveillance of all fueling activities on the airport with respect to those standards.

(d) Each certificate holder must inspect the physical facilities of each airport tenant fueling agent at least once every 3 consecutive months for compliance with paragraph (b) of this section and maintain a record of that inspection for at least 12 consecutive calendar months.
Why are we doing inspections?

SAFETY
Who is doing inspections?

- Airfield Operations
- Airfield Security
- Airfield ARFF Departments
- Outside Consulting Companies
Who is doing inspections?

Each has their own strong points for doing the inspections. Airfield Operations, Security and ARFF are available 24/7. All know the airfield they work at. All are already on the airport payroll. Outside Consultants may not know the fuelers they are inspecting.

Each has a weakness as well. Operations may be tied up with weather events, construction, or any number of airside issues. Security has its hands full with perimeter fencing, gate control, TSA. Outside consultants may only be there one or two days of every ninety and they are an additional cost.
More and more, FAA Certification Inspectors and turning to ARFF Departments to handle the task of Refueling Equipment Inspections.

**WHY??**

- **ARFF** Departments usually have enough personnel to handle the inspections. They may already have a Fire Inspector.
- **ARFF** departments are not tied to any airline, fuel handler, or fueling company.
- Firefighters are used to dealing with requirements and know how to say “NO”.
How are we going to get this done?

- Research other programs
  - See how other airports are getting it done
  - Checkout your options

- Work with other authorities
  - FAA
  - Airfield Ops
  - Security
  - Fuel Handling Companies/FBO’s
Get your inspector trained!!

- Regardless of which agency is doing the inspecting, the inspector MUST know what they are looking at. Different equipment has different requirements. A Train the Trainer Inspector course or, at minimum, a FAA Approved Supervisory Fuel Handling is a good starting point.
- Where can you find this training?
  - Outside Training Companies
    - Approved companies are listed in AC 5230-4B
  - On Field Fuel Handling Companies
    - Get the fuelers view
    - Get the same training the fuelers get
Irrespective of where the inspector gets their training, they should be well versed in the following documents:

- FAA 139.321
- FAA AC5230-4
  Aircraft Fuel Storage, Handling, Training, and Dispensing on Airports
- NFPA 407 (2017 edition)
  Standard for Aircraft Fuel Servicing
- ATA 103 (2017 edition)
  Standards for Jet Fuel Quality Control at Airports
- Local Requirements
  These are where all the requirements for airfield fuel handling come from.
After your inspector has initial training, you need to set up an inspection program. The bigger the airport, the more complex the program. Records must be kept, reviewed, and stored for the annual inspection by the FAA. Most FAA Inspectors do not visit the fuel handling company, they go to the inspecting agency and want everything there. It is the inspectors responsibility to have everything accurate and ready.
You need to decide how your program will work....

- Just required inspections?
  - Once every 90 days?
  - Random spot inspections?
  - Monitoring fuelers?
Equipment coming to you?

- Single location
- Easy for inspector
- Might be out of the elements
- Hardship for FBO
  - Requires equipment to be driven to a possible remote location tying up a fueling employee for an extended period of time.
Are you going to the equipment?

- All over the airfield
- See the unit in use
- Able to monitor the fueling process
- Element of surprise
- May have to hunt the equipment down
- May have to call a supervisor if issues are found
- Out in the elements
Record Keeping

- Fuel Farms
- Mobile Fuel Equipment
- Fixed Fuel equipment
- Fueler Training
Fuel farms are the specific area that aviation fuels are received, stored and dispensed. They can be fed by pipeline, tanker trucks, or a combination of the two.
Mobile Fuel Equipment

- Tankers
- Hydrant Trucks
Mobile Fuel Equipment

- Ground Service Equipment Refuelers
Fixed Fuel Equipment

- Hydrant Carts
- Hydrant Stands
The inspector is NOT responsible to do the fueler training, that is done by each fuel handling company, but the inspector IS responsible to verify that...

- Each fuel handling company has appropriately trained supervisors
- Each fueler receives approved initial training and refresher training as required
- Each fueler receives initial fire safety training and recurrent training
Now that we know what needs to be inspected, how are we going to keep track?

- Paper Inspection forms
  - Cheap
  - Easy
  - Take up space
  - They get lost

- Computer based records
  - Easy to store
  - Multiple copies can be made
  - Can be costly
**CHICAGO AIRPORT SYSTEM**
**FUEL SITE INSPECTION REPORT**

**Date:**
**Firm:**
**Inspector:**

**INSPECTION TYPE:**
- [ ] Spot
- [ ] Quarterly

### EMERGENCY FUEL SHUT OFFS
**NFPA 407 2-4.5**
1. Located outside probable spill area
2. Near route that would normally be used to exit spill area or to reach fire extinguishers
3. At least one shut off conveniently accessible to each fueling position
4. Must shut off fuel flow to all hydrants that have a common exposure
5. Access to shut offs must be kept clear at all times
6. Must be operationally checked quarterly
7. Are in addition to deadman controls
8. Deadman controls in working order and not tampered with

### FIRE EXTINGUISHERS
**NFPA 10 3-3**
1. One required at each loading station
   - Additional extinguishers as required
2. Extinguishers adequately mounted with contrasting background
3. Weatherproof tag attached. Tamper devices intact. Tag current
4. Extinguishers protected from weather
5. Unrestricted access to each extinguisher

### BONDING
**NFPA 407 2-1.2, 3-4**
1. Bonding wires kept on a reel or properly stored
2. Bonding wires in good condition
3. Clamps in good working order

### HOSES
**NFPA 407 2-2**
1. Hoses shall be free of cracks and excessive wear
2. Hoses must be properly stored
3. Nozzles covered or capped
4. No banded clamps

### SIGNAGE
**UFC ARTICLE 79**
1. "FLAMMABLE" and "NO SMOKING" signs required and are at least 3" high
2. Type of fuel required on piping and at dispensing site. "JET A" and "AVGAS"

### STORAGE
**NFPA 407, UFC ARTICLE 79**
1. No Open trash containers
2. Grounds kept free weeds, trash or other combustibles
3. No open fuel containers
4. All containers properly marked

### NOTES:

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

### INSPECTOR

**Signature:**

**Print Name:**

---
**Fuel Vehicle Inspection Report**

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<tr>
<th>Vehicle Number:</th>
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<tr>
<td>Location:</td>
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<td>Ohare-SignatureFlightSupport</td>
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<tr>
<td>Vehicle Type:</td>
<td>HydrantTruck</td>
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<tr>
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<td>May 28, 2004</td>
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<tr>
<td>Inspector ID:</td>
<td>15493</td>
</tr>
<tr>
<td>Operator:</td>
<td>Jim R</td>
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<td>Capacity (gal):</td>
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<tr>
<td>Inspection Tag Type:</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Fuel Type:</td>
<td>Jet A</td>
</tr>
<tr>
<td>Inspection Type:</td>
<td>Spot</td>
</tr>
<tr>
<td>Operator ID:</td>
<td>7747</td>
</tr>
<tr>
<td>Inspection Tag #:</td>
<td>*None</td>
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<tr>
<td>Remarks:</td>
<td>No problems</td>
</tr>
</tbody>
</table>

**Emergency Cutoff System**

- **Pass** 1. "EMERGENCY FUEL SHUTOFF" sign is at least 2" high, contrasting color.
- **Pass** 2. Method of operation "PUSH" or "PULL" or indicated by an arrow.
- **Pass** 3. Two cutoffs required, one on each side of the vehicle.
- **Pass** 4. Quick acting, remote from fill openings and discharge outlets.
- **Pass** 5. Must be operable from ground or any elevated platform.
- **Pass** 6. Checked for proper operation during fueling operation.

**Hoses, Nozzles, and Piping**

- **Pass** 1. Dust caps and nozzles stored properly.
- **Pass** 2. Extend hose, check for leaks using working pressure.
- **Pass** 3. Check nozzle screen for hose particles.
- **Pass** 4. Check for kinked, crushed, soft, or severely worn hoses.
- **Pass** 5. Deadman controls required, may be part of nozzle for overwing filling.
- **Pass** 6. No leaks from any piping, fittings, joints, hose, or nozzle at ANY time.

**Bonding**

- **Pass** 1. Cables to be free of kinks, damage, or paint.
- **Pass** 2. Clamps to be free of paint, properly attached to vehicle, and in good working order.
- **Pass** 3. Both clamps and cables stored properly to prevent damage.

**Lights**

- **Pass** 1. Head, brake, tail, and marker lights operational.
- **Pass** 2. No cracked or missing lenses. Must be fully enclosed and gasketed.

**NFPA 407 2-3.14**

**NFPA 407 2-2**

**NFPA 407 2-1.2, 3-4**

**NFPA 407 2-3.6.5**
Once you decide *how* you will keep your records, you must decide *what* items will be inspected. For example…

- Tires
- Signage
- Electrical systems
- Hoses
- Nozzles
- Local requirements
NFPA 407 is an extensive document that spells out requirements in detail. You need to condense these requirements on your inspection form. You need to inspect all the required items, but you may not have to list each one separately.
# CHICAGO AIRPORT SYSTEM
## FUEL SERVICE VEHICLE INSPECTION REPORT

### Date: [ ]
- [ ] O'Hare International
- [ ] Midway

### Operator: [ ]
- [ ] Other: [ ]

### Type of fuel: [ ]
- [ ] Jet A
- [ ] AvGas
- [ ] Auto Fuel

### Capacity: [ gals ]

## INSPECTION TYPE:
- [ ] Spot
- [ ] Quarterly

### EMERGENCY CUT-OFF SYSTEM (NFPA 407 2-3.14)
1. "EMERGENCY FUEL SHUTOFF" sign at least 2" high, contrasting color
2. Method of operation "PUSH" or "PULL" or indicated by an arrow
3. Two cutoffs required, one on each side of the vehicle
4. Quick acting remote from fill openings and discharge outlets
5. Must be operable from ground or any elevated platform
6. Checked for proper operation during fueling operation

### HOSES AND NOZZLES (NFPA 407 2-2)
1. Dust caps and nozzles stored properly
2. Extend hose, check for leaks using working pressure
3. Check nozzle screen for hose particles
4. Check for kinked, crushed, soft, or severely worn hoses.
5. Deadman controls required, may be part of nozzle for overfilling.

### BONDING and GROUNDING (NFPA 407 2-1.3)
1. Cables to be free of kinks, damage or paint
2. Clamps to be free of paint, properly attached to vehicle, and in good working
3. Both clamps and cables stored properly to prevent damage

### LIGHTS (NFPA 407 2-3.6.5)
1. Head, brake, tail, and marker lights operational
2. No cracked or missing lenses. Must be fully enclosed and gasketed

## SIGNAGE (NFPA 407 2-3.17)
1. The word "FLAMMABLE" on each side and rear in 3" high letters.
2. Product name "AVGAS" or "JET A" on each side and rear in 3" high letters.
3. "NO SMOKING" on all sides, front, rear, and cab of vehicle
4. Signs must be unobstructed

## FIRE EXTINGUISHERS (NFPA 407 2-10)
1. Tankers: two 20# B/C rated extinguishers, one on each side with current inspection
2. Hydrant carts: at least one 20# B/C rated extinguisher
3. Readily accessible from the ground.
4. Area adjacent to or behind extinguisher contrasting color
5. Extinguisher to be kept clear of ice, snow, or equipment

## GENERAL VEHICLE (NFPA 407 2-3.5, 2-3.6, 2-3.7)
1. Exhaust not to discharge near fueling pumping equipment. No leaks allowed. Must be secured to vehicle.
2. Electrical equipment located outside the cab must be rated for hazardous locations
3. All compartments to have open floor for adequate ventilation
4. Batteries to be covered and secured
5. Tire condition: [ ] Good [ ] Fair [ ] Poor
6. Operating parking brake or two wheel chocks
7. Windshield wipers/washers operating
8. Windshield defroster and blower operating
9. No fluid leaks from engine

## VEHICLE CAB (NFPA 2-3.10.1.2)
1. "NO SMOKING" sign in 3" letters conspicuously posted
2. Ashtray and lighter removed, rendered inoperable, or sealed shut
3. Cab free of trash, rags, or other combustible materials

## OPERATOR (If VIOLATIONS ARE FOUND)
- Signature: [ ]

## NOTES:

<table>
<thead>
<tr>
<th>INSPECTOR</th>
</tr>
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<tbody>
<tr>
<td>Signature</td>
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<table>
<thead>
<tr>
<th>Print Name</th>
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Any forms you want to develop and use must be approved by the FAA certification inspector and placed in the airport ACM.
Notification of Fueling Equipment Out of Service

The following Fueling Equipment has been placed out of service by Maintenance or Supervisory personnel. This piece of equipment will remain out of service and off the AOA, until re-inspected by The Chicago Fire Department and deemed in compliance. This information MUST be faxed to the Chicago Fire Department Inspector at the same time the vehicle is placed out of service.

Date: 

Company Name: 

Contact Number: 

Vehicle Number: 

Vehicle Type: 

Reason: 

Estimated Duration: 

Name of person placing Vehicle out of service: (print) 

(Signature)

To be faxed to: Chicago Fire Department 
Fueling Equipment Inspector 
773-894-7159 

Original Date: December 9, 2004 
Revision Date: 31 JUL 2007 

FAA Approval:
There are certain forms the FAA requires:

- Supervisory Fuel Handling Certificate
  - Obtained from the Fuel Handling Trainer/Supervisor
  - MUST be from a FAA Approved Training company (AC 5230-4B)
  - MUST have the proper wording (AC 5230-4)

- Supervisory Fuel Handling Confirmation
  - downloadable from the FAA
  - Attaches to the certificate

- Line Service Fuel Safety Training Form
  - What the Trainer uses to document his classes
  - downloadable from the FAA
Inspection records

- Fixed and mobile equipment must be inspected at least every **90 consecutive days**.
  - If something fails, both the failure and re-inspection must be available.
- Inspection records must be kept for at least 12 months (24 months suggested).
- Records can be either paper or electronic.
  - There are companies that specialize in electronic recording programs that are acceptable to the FAA.
- Fueler training records must be kept for 12 months.
  - Obtained from each fuel handling company.
Before you actually go out to inspect, some things to consider:

- **Make sure your inspector is prepared**
  - Training complete?
  - Forms ready?
  - Everything properly approved?
  - Equipment ready?
  - Dress for the weather

- **Inter-agency cooperation**
  - Introduce yourself
  - Explain the program
  - Explain the form
Starting the Inspection Program

- Allow ample time to accomplish your task
  - Don’t have unrealistic time lines
- Take a FBO Supervisor with you
  - Finding equipment
  - Unfamiliarity with the equipment
  - Questions either of you may have
  - Spirit of cooperation
Remember why we are doing these inspections, PUBLIC SAFETY. The fuel handling company is NOT the enemy. Everyone working together to maintain a safe travel and working environment is the goal. An iron fist does not benefit anyone.
As with all inspections, some items are more critical than others. The inspector must be knowledgeable enough about aircraft fuel servicing to be able to decide which items can be delayed and which items require a piece of equipment to be placed Out of Service.
Some items that require an Out of Service designation.....

-Leaks
-INOP safety devices
-Missing Safety Equipment
-Damaged Equipment
-Unsealed interlock override
Items that need repair, but not necessarily be placed Out of Service:

- Worn tires
- Faded, damaged decals
- Dirty equipment
- A broken bonding cable
  - You only need 1!
GOOD

FAIR

ARE YOU KIDDING ME??
REMEMBER
PRIOR TO MOVING THIS VEHICLE,
MAKE SURE ALL HOSES AND
CABLES HAVE BEEN DISCONNECTED
FROM THE AIRCRAFT AND THE
AIRCRAFT’S SERVICE PANEL
DOOR(S) SECURED.

---

FLAMMABLE
JET A
NO SMOKING

1863
3
Reserve your Our of Service powers for only the severe violations. A fueling vehicle that is Out of Service is costly in many ways to the fuel handling company.....

- The repair itself
- The loss of revenue
- The employees loss of income
- The loss of revenue to the airport
A high quality inspection program is not determined by how many violations you can find. A high quality program has cooperation between agencies, respect between all parties, approachability and understanding. Everyone on the airfield relies on one another.
You will find that as your program matures, you will see less and less equipment violations. The dreaded inspector will become someone who is not feared, but look upon as someone who is looking out for people and approachable. Remember, these are machines, and machines sometimes break......
Questions?

This has been a very brief introduction into inspections of Airfield Refueling Equipment Inspections. There is much that was not covered due to time limitations. Are there any general questions I can answer?
If you require a Train the Trainer Inspector Course, a FAA Approved Train the Trainer Supervisory Fuel Handling Course, help setting up your inspection program, or help navigating NFPA 407 please feel free to contact me.

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Training to make your airport safer

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