

## **FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT SAFETY ELEMENT 1.3.16 - FUELING JOB AID**

The Federal Aviation Administration (FAA) is proactively moving away from compliance-based safety surveillance programs to Systems Safety Risk Management programs to eliminate air carrier's accidents and incidents. System Safety Risk Management programs was initial implemented with all CFR Part 121 air carriers and are now being applied to CFR Part 135 air carriers.

The FAA reached the limit of its ability of utilizing compliance-based oversight programs in 1996 for CFR Part 121 air carriers. Compliance-based oversight program repeated the same surveillance activities without identifying the actual root causes that could lead to an unsafe operating practice and/or accident. It was based on only looking at meeting the minimum standards established by the rules and regulations. To react to any identified unsafe condition, new rules and regulations had to be enacted, which could expand over many years. The compliance-based oversight system was not an effective means in reducing the causal factors that lead to air carrier accidents.

System Safety Risk Management program, known as Surveillance Evaluation Program (SEP), was implemented in 2001, for CFR Part 121 air carriers to assess how an air carrier operations and maintenance organizations were operating as an integrated whole safety system. For their system to be considered safe, they have to be proactive in identifying potentially unsafe hazards and risk and mitigate it to a safe state. Safety must be built into the air carriers systems by addressing the FAA's primary seven System Elements and their associated sub-elements. Each System Element identifies questions regarding the effectiveness of that system by addressing the following topics of: Responsibility, Authority, Procedures, Control, Process Measurement, and Interfaces.

In 2004 the FAA and the Helicopter Safety Advisory Conference (HSAC) established a workgroup to assess the reasons for the increase of helicopter accidents occurring in the Gulf of Mexico and develop intervention strategies. From this workgroup four of the primary root causes of Gulf of Mexico Helicopter accidents were; "Failure of Equipment/Components". This root cause resulted in the development of intervention questions for each of the applicable System Safety Attributes under System Safety Element 1.3.16 Fueling.

The primary Safety Attribute questions defined within the System Safety Element will determine if an Operator's Policies and Procedures are adequately defined in having a System Safety program; the ability to identify Risk in its daily operations; and being able to mitigate that risk to prevent the future occurrences and/or accidents.

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
SAFETY ELEMENT 1.3.16 - FUELING JOB AID**

**ELEMENT SUMMARY INFORMATION**

A “YES” response to the questions means compliance with the statement or indicates the requirements were met. A “NO” response always indicates a negative response to the question and also means the requirements were not met. The air carrier is not complying with the requirements of the Safety Attribute question or the system is weak or inadequate in the area being evaluated. An explanation should always occur with a “NO” response.

**Specific Regulator Requirements (SRR):**

- 91.167 Fuel Requirements for Flight in IFR Conditions
- 135.23(h)(j) Manual Requirements
- 135.209(b) VFR Fuel Supply
- 135.223 IFR Fuel Requirements

**Other CFRs and/or other Guidance:**

FAA Order 8300.10, Volume 2, Chapter 84, “Operations Specifications”

FAA Order 8300.10 Volume 2, Chapter 95, “Evaluate FAR Part 121/135 Operator/Applicants for Participation in CASE”

FAA Order 8300.10 Volume 2, Chapter 227, “Evaluate Applicants Refueling Procedures”

AC 150/5230-4 Airports Fueling Procedures and Storage

NFPA Publication #407 (Aircraft Fueling Servicing)

ATA 103 (Air Transportation Association of America Standards for Jet Fuel Control in Airports)

HSAC Recommend Procedures RP 2004-02 Jet Fuel Quality Control Procedures

HSAC Rapid Refueling Recommend Procedures RP 1994-01

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
SAFETY ELEMENT 1.3.16 FUELING –  
SECTION 1 – RESPONSIBILITY ATTRIBUTE**

**Objective:** To determine if there is a clearly identifiable qualified and knowledgeable person who is accountable for the quality of the process.

*To meet the objective, the auditor will accomplish the following task:*

1. Identify the person who is responsible for the quality of the Fueling process.
2. Review the description in the manual that delineates the duties and responsibilities of the person.
3. Evaluate the person’s qualifications and work experience (or resume if appropriate).
4. Review the appropriate organizational chart.
5. Discuss the Fueling process with the person.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Is there a clearly identifiable person in management who is answerable for quality of the Fueling processes?	<b>Yes No (explain)</b>
2. Does the person understand the Procedure Attributes associated with the Fueling process?	<b>Yes No (explain)</b>
3. Does the person understand the Control Attributes associated with the Fueling process?	<b>Yes No (explain)</b>
4. Does the person understand the Process Measurement Attributes associated with the Fueling process?	<b>Yes No (explain)</b>
5. Does the person understand the Interface Attributes associated with the Fueling process?	<b>Yes No (explain)</b>
6. Are the duties and the responsibilities for this position clearly documented in the air carrier’s manual(s)?	<b>Yes No (explain)</b>
7. Are the qualification standards for this position clearly documented?	<b>Yes No (explain)</b>
8. Are the qualification standards for this position appropriate for the duties that are assigned?	<b>Yes No (explain)</b>
9. Does the person meet the qualification standards?	<b>Yes No (explain)</b>
10. Does the person acknowledge who has the responsibility for the Fueling process?	<b>Yes No (explain)</b>
11. Does the person know who has authority to establish and modify the Fueling process?	<b>Yes No (explain)</b>

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
SAFETY ELEMENT 1.3.16 FUELING -  
SECTION 2 – AUTHORITY ATTRIBUTE**

**Objective:** To determine if there is a clearly identifiable qualified and knowledgeable person who has the authority to establish and modify the Fueling processes.

*To meet the objective, the auditor will accomplish the following task:*

1. Identify the person who has the authority to establish or modify the Fueling process.
2. Review the description in the Manual that delineates the duties and responsibilities of the person.
3. Evaluate the person’s qualifications and work experience (or resume’ if appropriate).
4. Review the appropriate organizational chart.
5. Discuss the Fueling process with the person.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Is there a clearly identifiable person who has authority to establish and modify the air carrier’s policies for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
2. Does the person understand the Procedure Attributes associated with the Fueling process?	<b>Yes</b> <b>No (explain)</b>
3. Does the person understand the Control Attributes associated with the Fueling process?	<b>Yes</b> <b>No (explain)</b>
4. Does the person understand the Process Measurement Attributes associated with the Fueling process?	<b>Yes</b> <b>No (explain)</b>
5. Does the person understand the Interface Attributes associated with Fueling process?	<b>Yes</b> <b>No (explain)</b>
6. Is the authority of this position clearly documented in the air carrier’s manual(s)?	<b>Yes</b> <b>No (explain)</b>
7. Are the qualification standards for this position clearly documented?	<b>Yes</b> <b>No (explain)</b>
8. Are the qualification standards for this position appropriate for the duties that are assigned?	<b>Yes</b> <b>No (explain)</b>
9. Does the person acknowledge that he/she has authority for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
10. Does the individual know who has the responsibility for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
11. Are the procedures for delegation of authority clearly documented for the Fueling process?	<b>Yes</b> <b>No (explain)</b>

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
SAFETY ELEMENT 1.3.16 FUELING -  
SECTION 3 – PROCEDURES ATTRIBUTE**

**Objective:** To determine if the company has documented procedures for accomplishing Fueling process.

*To meet the objective, the auditor will accomplish the following task:*

1. Review the documented instructions and information related to the Fueling process to ensure that they contain who, what, where, when, and how.
2. Review the FAA Guidance and Specific Regulatory Requirements (SRR) included in the supplemental information section of this SAI.
3. Discuss the Fueling process with appropriate personnel to gain an understanding of the procedures.
4. Observe the Fueling process with appropriate personnel to gain an understanding of the procedures.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Do written procedures meet the specific regulatory and FAA policy requirements for a Fueling process for both on and off shore facilities?	<b>Yes</b> <b>No (explain)</b>
2. Do written procedures provide a method for refueling the rotorcraft at on and off shore platforms (e.g., rapid refueling and fuel quality management)?	<b>Yes</b> <b>No (explain)</b>
3. Do the procedures identify: who, what, where, when and how?	<b>Yes</b> <b>No (explain)</b>
4. Does the operator have the resources to support the written procedures for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
6. Are the procedures published in different manuals relating to the Fueling process consistent?	<b>Yes</b> <b>No (explain)</b>
7. Does the air carrier have a documented process in their Manual(s) to assess the impacts of changing procedures for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
8. Were all observations unrelated to the Fueling process satisfactory?	<b>Yes</b> <b>No (explain)</b>
10. Best practices/favorable comments:	

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
SAFETY ELEMENT 1.3.16 FUELING -  
SECTION 4 – CONTROL ATTRIBUTE**

**Objective:** To determine if checks and restraints are designed into the Fueling process to ensure a desired result is achieved.

*To meet the objective, the auditor will accomplish the following task:*

1. Review the documented instructions and information related to the Fueling process.
2. Discuss the Fueling process with appropriate personnel to gain an understanding of the controls.
3. Observe the Fueling process to gain an understanding of the controls.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Are the following checks and restraints built into the Fueling process:

1.1. Is there a control in place to ensure that only individuals are fully qualified to perform the Fueling process?	<b>Yes</b> <b>No (explain)</b>
1.2. Does the Operator apply the guidance contained in ATA 103 and NFPA #407 as the minimum standards for the fuel servicing and storage document?	<b>Yes</b> <b>No (explain)</b>
2. Does the Air Carrier have and maintain a Fuel Servicing and Storage Document that contains the following standards:	
2.1. Fuel specifications for the aircraft?	<b>Yes</b> <b>No (explain)</b>
2.2. Training of fuel servicing and storage personnel?	<b>Yes</b> <b>No (explain)</b>
2.3. Auditing and inspection of fuel dispensing equipment at on and off shore (e.g. vehicles, hydrant fuel pits, and emergency shut-off stations)?	<b>Yes</b> <b>No (explain)</b>
2.4. Fuel storage facilities and transportation vehicles (marine portable tanks)?	<b>Yes</b> <b>No (explain)</b>
2.5. Auditing of fuel vendors and personnel?	<b>Yes</b> <b>No (explain)</b>
2.6. Do the checks and restraints require fuel sumping of the storage tanks for contaminants?	<b>Yes</b> <b>No (explain)</b>
3. Do the checks and restraints ensure the desired result is achieved for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
4. Does the Operator have a documented process in their Manual(s) to assess the impacts of changing the checks and restraints for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
5. Does the Operator have the resources to support the checks and restraints for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
6. Were all observations unrelated to the Fueling process satisfactory?	<b>Yes</b> <b>No (explain)</b>
7. Best practices/favorable comments:	

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT****SAFETY ELEMENT 1.3.16 FUELING -****SECTION 5 – PROCESS MEASUREMENT ATTRIBUTE**

**Objective:** To determine if air carrier measures and assesses the Fueling process to identify and correct problems or potential problems.

*To meet the objective, the auditor will accomplish the following task:*

1. Review the documented instructions and information related to the Fueling process.
2. Discuss the Fueling process with appropriate personnel to gain an understanding of the controls.
3. Observe the Fueling process to gain an understanding of the controls.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Does the air carrier's Fueling processes include the following Process Measurements?

1.1. Does the air carrier document their Process Measurement methods and results?	<b>Yes</b> <b>No (explain)</b>
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1.2. Does the air carrier audit process define the decision-making process for action plans to mitigate the identified Hazards and Risk?	<b>Yes</b> <b>No (explain)</b>
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1.3. Does the air carrier take corrective actions to the Procedures or Control Attributes in response to identified Hazards/Risk discovered during the audits?	<b>Yes</b> <b>No (explain)</b>
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1.4. Does the air carrier re-evaluate the corrective actions to determine the following; the original hazard, consequence, severity and likelihood have been mitigated effectively?	<b>Yes</b> <b>No (explain)</b>
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1.5. Does the air carrier conduct an independent audit of the Fueling program at least biannually to ensure that it meet its intended function (audits by persons not associated with the fueling program)?	<b>Yes</b> <b>No (explain)</b>
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1.6. Does the air carrier conduct at least 20% of its audits in a random, unannounced fashion?	<b>Yes</b> <b>No (explain)</b>
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2. Does the air carrier's Fueling process include the following process measurements?

2.1. Audits the fuel dispensing equipment and storage facilities to ensure the fuel is of the correct specification and is uncontaminated.	<b>Yes</b> <b>No (explain)</b>
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2.2. Audits the fueling of the aircraft to ensure compliance with the Fuel Servicing and Storage Document.	<b>Yes</b> <b>No (explain)</b>
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2.3. Audits of the fuel dispensing equipment and inspection records to ensure that it is inspected in accordance with the Fuel Servicing and Storage Document.	<b>Yes</b> <b>No (explain)</b>
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2.4. Audits the remote unattended fueling stations (e.g. offshore platforms and boats with landing platforms)?	<b>Yes</b> <b>No (explain)</b>
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2.5. Audits the fuel storage facilities and transportation equipment to ensure that they are inspected in accordance with the Fuel Servicing and Storage Documents?	<b>Yes</b> <b>No (explain)</b>
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2.6. Audits the training records of the fueling personnel to ensure they are trained in the Operator's fueling procedures?	<b>Yes</b> <b>No (explain)</b>
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2.7. Audits the Fuel Servicing and Storage Documents to ensure each document is current and available at servicing and storage facilities.	<b>Yes</b> <b>No (explain)</b>
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3. Do the process measurement methods appear to be effective?	<b>Yes</b> <b>No (explain)</b>
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4. Does the air carrier use their process measurement results to improve their programs?	<b>Yes</b> <b>No (explain)</b>
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5. Are the process measurement results accessible to the FAA?	<b>Yes</b> <b>No (explain)</b>
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6. Does the organization that conducts the Process Measurement have direct access to the person(s) with responsibility and the authority for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
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**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
 SAFETY ELEMENT 1.3.16 FUELING -  
 SECTION 5 – PROCESS MEASUREMENT ATTRIBUTE**

7. Does the air carrier have the resources to support the process measurement for the Fueling process?	<b>Yes</b> <b>No (explain)</b>
8. Were all observations unrelated to the Fueling process satisfactory?	<b>Yes</b> <b>No (explain)</b>
9. Best practices/favorable comments:	

**FAA/HSAC PART 135 SYSTEM SAFETY RISK MANAGEMENT  
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SECTION 6 – INTERFACES ATTRIBUTE**

**Objective:** To determine if operator identifies and manages the interactions between the Fueling process includes safety attributes.

*To meet the objective, the auditor will accomplish the following task:*

1. Review the documented instructions and information related to the Fueling process.
2. Discuss the Fueling process with appropriate personnel to gain an understanding of the interfaces.
3. Observe the Fueling process to gain an understanding of the controls.

*To meet the objective, the auditor will determine and record answers to the following questions:*

1. Are the following interfaces identified for the Fueling process:

1.1. Aircraft (Element 1.1)	<b>Yes No (explain)</b>
1.2. Maintenance Organization (Element 1.2)	<b>Yes No (explain)</b>
1.3. Records and Reporting (Element 1.2)	<b>Yes No (explain)</b>
1.4. Manual Management (Element 2.1)	<b>Yes No (explain)</b>
1.5. Line Stations (Servicing and Maintenance) (Element 5.1.1)	<b>Yes No (explain)</b>
1.6. Director of Safety (recommended Part 135 for System Safety program) (Element 7.1.3)	<b>Yes No (explain)</b>
1.7. Other programs approved Operations Specifications	<b>Yes No (explain)</b>
2. List any additional interfaces identified:	<b>Yes No (explain)</b>
3. Are there written procedures for the use of air carrier personnel in the application of these interfaces?	<b>Yes No (explain)</b>
4. Are there controls to ensure that interfaces occur?	<b>Yes No (explain)</b>