



# **Cargo Compartment Halon Replacement Working Group Update**

*May 14, 2014*

*International Aircraft Systems Fire Protection Working Group Meeting  
Bremen, Germany*

**By**

***Robin Bennett (Boeing, AIA), CCHRWG Chair  
Rolf Greiner (Airbus, ASD), CCHWG Co-Chair***



# ToR Commit Industry to Broad Stakeholder Approach

## Task:

ICCAIA shall establish a working group tasked to work on Halon Replacement issues for Cargo compartments.

Under the ICCAIA-AC authority, the working group shall establish and coordinate a process to:

- Develop an industry recommendation to ICAO for a cargo compartment halon replacement deadline for new design (new aircraft types) taking into account progress towards identification of an alternative agent and/or approach to fire suppression in cargo compartments, including the state of research (available agent, viability), supply chain readiness, testing, qualification, and certification.
- To enable this deliverable, the work group will encourage/support timely research, testing and approval of a halon alternative for cargo compartments, in coordination with the relevant industry and governmental/certification entities, including:
  - Inviting non-member industry associations to participate as appropriate.
  - Facilitating the exchange of non-proprietary research data.
  - Collecting information and reporting to the ICCAIA-AC.
  - Continuing dialogue with government/certification entities.



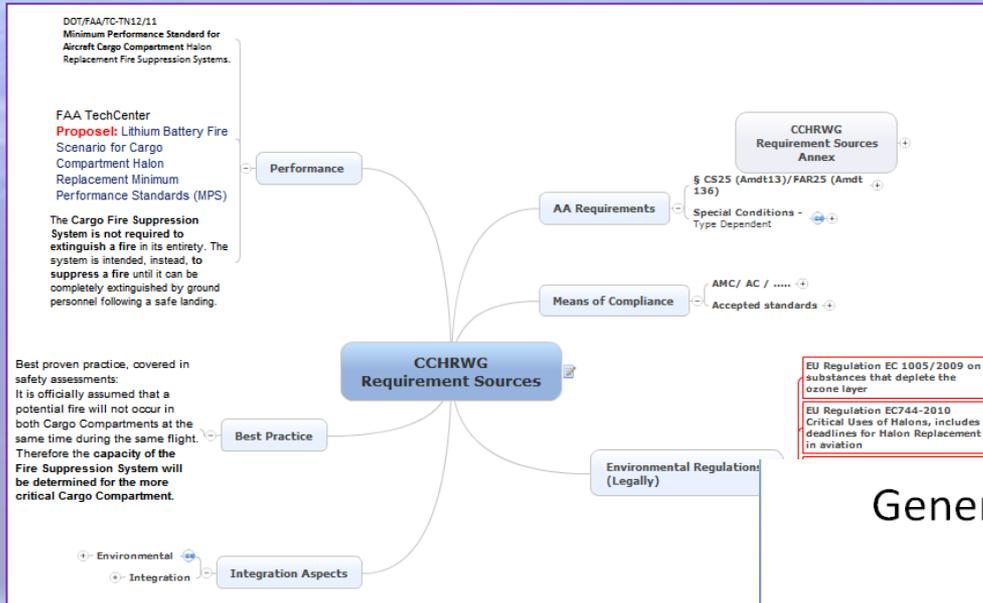
## The Work Plan is progressing

- Outreach and engagement with stakeholders continues
  - 5 Stakeholder WG teleconferences have been held
    - With nearly 100 invitees
    - From nearly 40 different organizations
    - Representing 7 different sectors including
      - Fire protection system and extinguishing agent manufacturers
      - Airline and cargo aircraft operators
      - Academia and research institutions
      - Authorities as advisors on regulatory and certification issues
  - 2 Face-to-Face Stakeholder Meetings held since May 2013 Kick Off meeting
    - December 2013 in Philadelphia
    - May 13, 2014 in Bremen
- Roadmap to Action in-work
  - First Deliverable is a living document:  
Stakeholder input to Requirements Document ongoing



# Stakeholder Engagement Critical for Next Steps

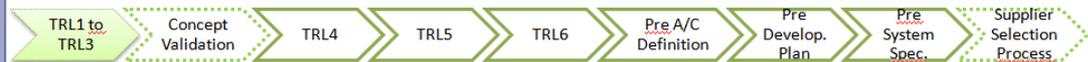
- Requirements are being transposed into a Time Line



## Generic Halon Free Cargo Compartment Fire Suppression Time Line

Development process before application for TC  
Start point TRL3 passed  
Best case 3,5 years  
Worst case 6 Years

Best case	1	9	6	12	1	2	6	2	41 Month
-	-	-	-	-	-	-	-	-	-
Worst case	6	15	12	18	3	4	8	6	72 Month





## Time Line leads to Action Plan

- Develop Action Plan with schedule (ECD Dec 2014)
  - Incorporate non-proprietary research on halon replacements into plan
  - Explore options to cooperate with regard to identifying promising design approaches and/or extinguishing agents
  - Note potential schedule risks and opportunities that have been identified, and their implications to the overall schedule
- Obtain commitment to support Action Plan from relevant stakeholders
  - Kick-off Action Plan (ECD May 2015)
  - Recommend a deadline for cargo compartment halon replacements for consideration during 2016 General Assembly (ECD Dec 2015)
- Continue ongoing stakeholder outreach and engagement
  - Contacts:
    - Robin Bennett ([robin.g.bennett@boeing.com](mailto:robin.g.bennett@boeing.com))
    - Rolf Greiner ([ROLF.GREINER@airbus.com](mailto:ROLF.GREINER@airbus.com))



**Thank you!**

*Contact:*

*Robin Bennett (robin.g.bennett@boeing.com)*

*Rolf Greiner (ROLF.GREINER@airbus.com)*



## Roadmap to Action

Collect & document requirements for cargo compartment halon replacements (ECD Dec 2013)

- Agent (US EPA SNAP, material compatibility, commercialization)
- System (Concentration, distribution, duration)
- Component (Temperature, vibration, electrical, software, reliability)
- Regulatory (MPS, FARs, ACs, standards)
- Certification (Component qualifications, system test demonstrations, flight test)
- Maintenance (dispatch reliability, lifecycle/duration of parts, repair procedures)

Map requirements into a flow diagram (ECD June 2014)

- Investigate and evaluate options to harmonize requirements across stakeholders
- Determine dependencies and sequence between requirements
- Estimate time needed to meet each requirement
- Identify complete list of current and potential agents noting pros/cons

Develop Action Plan with schedule (ECD Dec 2014)

- Incorporate non-proprietary research on halon replacements into plan, and/or
- Explore options to cooperate with regard to identifying promising design approaches and/or extinguishing agents
- Note potential schedule risks and opportunities that have been identified, and their implications to the overall schedule

Obtain commitment to support Action Plan from relevant stakeholders

- Kick-off Action Plan (ECD May 2015)
- Recommend a deadline for cargo compartment halon replacements for consideration during 2016 General Assembly (ECD Dec 2015)