Seventh Triennial International Aircraft Fire and Cabin Safety Conference

MATERIALS FLAMMABILITY WORKING GROUP
(for ARAC TAEIG)

verview

eport

ecommendations

BACKGROUND

- ARAC: Aviation Rulemaking Advisory Committee
- TAEIG: Transport Airplane and Engine Issue Group
- Working Group: Given a specific task with a time limit, then disbands.
- Tasks: Proposed by FAA

Federal Register Tasking

The Task

The ARAC is asked to consider the merits of the FAA's proposed approach for a threat-based structure for part 25, Appendix F, and make recommendations for improvement, classification of the various parts of Appendix F, and advisory material necessary for implementation.

Proposed Future of Fire Safety Development:

- Objective is pro-active rules for fire safety
- Requires a complete, clean sheet of paper revision

History of Regulatory Development:
Transport Type Aircraft Fire Safety

- Rules have expanded reactively

MEMBERS

NAME	COMPANY
Ralph R. Buoniconti	SABIC Innovative Plastics
Francisco Landroni	Embraer
Ian Lulham	Bombardier
Jean-Francios Petit	Airbus
Claude Lewis	Transport Canada
Scott Campbell	C&D Zodiac
Mike Miler	Schneller
David E. Lucas	Cessna Aircraft Company
Ed Nixon	Gulfstream
Jeff Gardlin	FAA
Kendall Krieg	Boeing
Cheryl Hurst	American Airlines
Jim Davis	AccuFleet
Robert Trimble	Weber
Thomas Livengood	BEAerospace
Becky Wulliman	Evonik
Phuong Ta	Goodrich
Serge Le Neve	DGA
Enzo Canari	EASA
Jean Claude Lerminiaux	Dassault
Dan Slayton	Boeing (alternate)
Dick Hill	FAA

Safety Regimes

- In-Flight
  - fire threats should not present a direct hazard to the occupants and should allow the safe flight, landing and potential evacuation of the aircraft

- Post-Crash
  - sustain survivable conditions long enough to evacuate the aircraft

For each area of the aircraft:

- Nature and likelihood of ignition source.
- Likelihood of detection.
- Ability to mitigate.
- Proximity to occupants.
- Proximity to flight critical systems.

In Flight zones

- Acessible
- Inacessible
- Waste Containment
- Cargo

Post crash performance

- Threat is a large, external pool fire.
- Protection for escape equipment.
- Limiting flame penetration into the cabin.
- Limiting flame spread within the cabin due to the involvement of cabin materials.

Draft Language:

- 25.853
- Appendix F
- Advisory materials (To Do List for Industry):
  - Advisory Circulars
  - NEW Test Reference Manual
  - Revised Handbook

Results

- Threat based organization is logical, practical and a more effective framework for regulation going forward than the current published regulations.

- The new structure, along with appropriate advisory material, would ultimately be simpler and more easily understood and enforced.

Results

- **Is the threat based approach organized correctly?**

Results

- **Is App. F I (Bunsen Burner) necessary for items covered with more stringent (Appendix F II-VII) tests?**

Results

- **Are there regions within the aircraft not covered that should be?**

Results

- **Can requirements be simplified while maintaining or improving safety?**

Results

- **How should non-metallic structure be handled? (e.g. Seats and airframe/fuselage)**

Results

- **What advisory material is needed to implement the new threat-based flammability safety structure?**
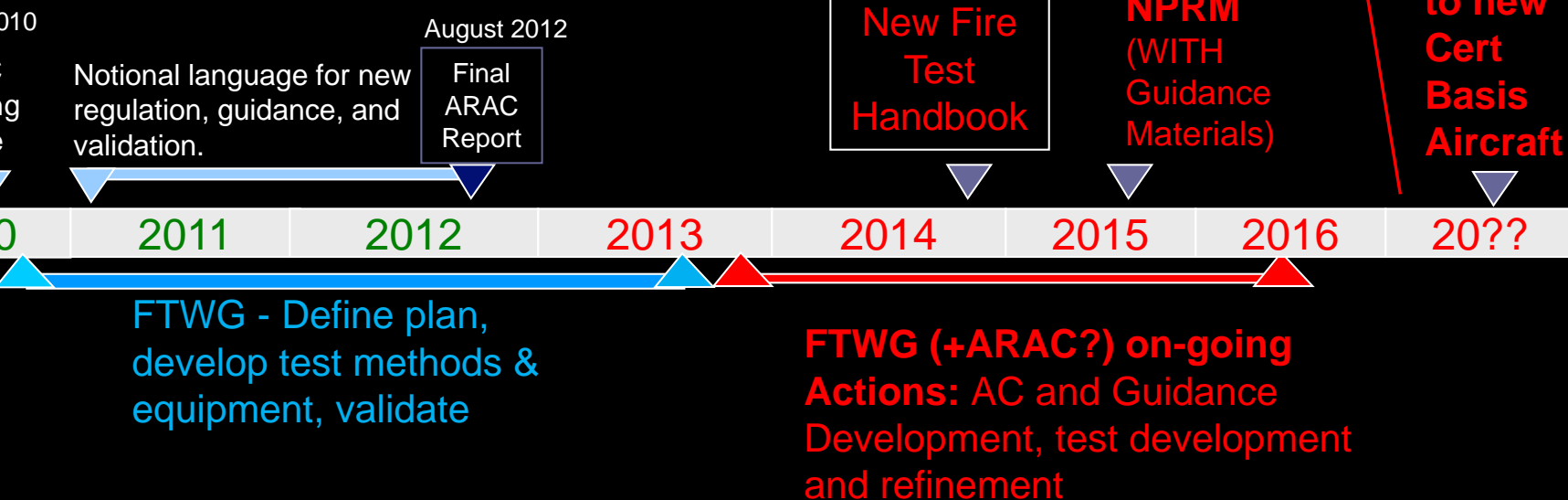
Benefits versus cost

- The current system, while flawed, maintains a VERY safe aviation industry.
- Since "low hanging fruit" have been harvested….
- And industry has in place MOC's to do things in accordance with current regulations….
- Hurdle: How to move to a better organized, logical system when fewer immediate safety benefits are seen.
- If not now, when?

lammability ARAC – What comes next?

POSSIBLE Timeline

Flammability ARAC

Extended comment period for industry/FAA refinement?

New Rule Applied to new Cert Basis Aircraft

010

Notional language for new regulation, guidance, and validation.

August 2012

Final ARAC Report

New Fire Test Handbook

NPRM (WITH Guidance Materials)

| 0 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 20?? |

FTWG - Define plan, develop test methods & equipment, validate

FTWG (+ARAC?) on-going Actions: AC and Guidance Development, test development and refinement

Test Working Groups (FTWG) – 12 Task Groups

Compliance effort Reduction

- FTSG type industry groups for listed materials
- Hierarchy
- Size and spacing criteria, science based
- Engineering / non-aviation tests allowed

Test Development

- Fire Test Working Group, Industry and FAA Technical Center joint effort on updated and new test methods.

Cargo "Systems"

- FTWG special interest group
- Possible ARAC follow on group?

QUESTIONS?