

# INTERNATIONAL HALON REPLACEMENT WORKING GROUP MEETING

OCTOBER 13-14, 1999

Ottawa, Canada

## WEDNESDAY, OCTOBER 13, 1999

### Cargo Presentation and Discussion – J. Reinhardt

MPS-Cargo: See Fire Safety website at <http://www.fire.tc.faa.gov> for a copy of John's presentation and update on the MPS for Cargo. The Cargo MPS work includes 4 scenarios: bulk load, containerized fire, surface burning fire, and aerosol can explosion. John reviewed the current Acceptance Criteria. A report will be produced that will include the data from the tests conducted at the FAATC.

Proposed Change in Cargo MPS: The FAATC is proposing the possibility combining the bulk load with the aerosol can test. There will then be 3 Cargo test scenarios instead of 4 within the Cargo MPS. This proposal will be discussed further within the Cargo MPS Task Group (10/14/99). A number of questions/comments were brought up during the main meeting. These will be discussed in detail during the Cargo MPS Task Group meeting (10/14/99).

R. Hill explained that the FAA is currently doing research on nitrogen inerting systems for fire suppression in fuel tanks. Some discussion took place on a nitrogen inerting membrane/water system for aircraft fire suppression.

Halon 1301 Simulant Presentation: John provided a brief review of the Halon 1301 simulant work in cargo compartments that has been done at FAATC to date. John contacted the Task Group members in September 1999 to indicate considering using SF<sub>6</sub> as a Halon 1301 simulant in the cargo compartment area. He presented data from the tests he ran using SF<sub>6</sub> as compared to Halon 1301 and HFC-125. The FAA needs guidance from the EPA as to which simulant agents they should be considering and which ones they should not pursue. Jeff Cohen (EPA) indicated that he believes it is likely that the EPA will discourage the use of SF<sub>6</sub> as a Halon 1301 simulant even though it has SNAP approval. B. Glaser suggested using CO<sub>2</sub> to test for leakage in the compartment instead of SF<sub>6</sub>. Walter-Kidde believes it is best to run one test with the complete system using Halon 1301 to make sure the entire system functions correctly (valves, etc.). The Task Group does not want to recommend SF<sub>6</sub> as a simulant. A suggestion was made to form a Task Group to continue the research on HFC-125 as a simulant. This Task Group would present the results at the next IHRWG meeting in Spring 2000.

### Cargo Compartment Smoke and Fire Detector Testing – R. Hill

Dick reviewed some of the work Dave Blake has been doing at the FAATC on false alarms in cargo compartments. There is an initial report from NIST on the Fire Safety Section website in the REPORTS Section on false alarms. FAATC has asked Sandia to develop a transport model of all of the components Dave has been investigating. Dave is trying to determine the types of fires that the system should detect and define what should happen within the system in order to detect those types of fires. Sandia will

develop the fire transport model based on this data. Dave is planning to have a revised draft of an Advisory Circular by October 2000.

#### Engine Nacelle Simulator Status – D. Ingerson

The engine nacelle simulator at the FAATC should be fully operational by the end of 1999. To date some hot agent simulant work has been done in the simulator.

In July 1999, Doug ran a pair of tests to determine the impact of airflow temperature on agent distribution (agent used HFC-125). He explained the data from these tests.

Halon 1301 Distribution Simulation: As a result of research to date HFC-125 closely simulates Halon 1301 distribution in the engine nacelle application. There is an FAA Tech Note, DOT/FAA/AR-TN99/64, relating to this work on the Fire Safety Section website.

Doug presented test results produced with the simulator during the August-October 1999 period. These tests were primarily performed to develop simulator operating procedures, develop an understanding of its behavior, and provide additional Halon 1301/HFC 125 simulant test pairs.

In conclusion: This Working Group recommends HFC-125 as a simulant for Halon 1301 distribution in the engine nacelle certification application unless there is a concern because of some unique design feature of that system requiring that Halon 1301 should be used in place for HFC-125 (this will be determined by FAA certification personnel).

#### Handheld Extinguisher MPS and Testing – R. Hill

The MPS is on the Fire Safety Section website. Developmental Testing is complete. Test protocol is posted on the Fire Safety Section website. Comments on the MPS should be directed to Harry Webster at [Harry.Webster@tc.faa.gov](mailto:Harry.Webster@tc.faa.gov).

Seat Fire/Toxicology Test Status: The test protocol is on the Fire Safety Section website. Baseline testing with Halon 1211 is complete. Baseline testing with uncontrolled fires is complete. Replacement agent testing has begun at the FAATC.

#### Discussion on In-Use Lavatory Extinguishers – R. Hill

R. Mazzone gave update on current Boeing work on this project. Boeing's part has been started. Once this is done, the lavatory bottle vendors will need to take care of their part of this project. Percival Aviation and Kidde have approved alternatives for the lavatory extinguisher.

#### Halon Options Task Group Report Update – R. Hill

The third version of this report is just about ready for publication. The draft/final report (when available) is on the NMERI website. A link to the NMERI website is available

through the Fire Safety Section website. Once the report has been approved for publication, it will be available on the FAA Fire Safety Section website.

#### Class 'D' to 'C' Cargo Compartment Conversion – R. Hill

Approximately 20 percent of the U.S. fleet has been converted from 'D' to 'C'. Lufthansa's deadline for the conversion is the end of 2000. At this point Lufthansa has 2 planes converted.

#### FAA Ground Based Inerting Program – R. Hill

- A. At airport – A study is currently underway on inerting empty fuel tanks on the aircraft with nitrogen prior to refueling at the airport. Atlantic City International Airport and Atlanta Hartsfield Airport are the two airports participating in this study. Air Liquide Medal is also participating in this study. This is a cost study to determine cost on all fuel tanks or only certain fuel tanks (ie: heated center wing tank) on aircraft.
- B. Onboard Aircraft – A project will be conducted to determine the components, cost, etc., for an onboard inerting system.

This work is related to the NASA's On Board Inert Gas Generation program. See Fire Safety Section website "Conference" section for Doug Rohn's presentation for additional details on the NASA Fire Prevention Program. NASA has a contract with Boeing for some of this research. Tom Reynolds is the point of contact at Boeing if anyone would like additional information on this project.

The FAA has an agreement with the Civil Aviation Authority (CAA) in the United Kingdom for Airbus to provide similar information. The contract is not in place yet. Ray Cherry of the CAA has produced a number of tables that Airbus would complete with the required information. Dick presented the tables and explained the information that would be requested from Airbus. Once we have this information, we will approach systems manufacturers and ask them what it would cost them to manufacture a system to meet these parameters.

### **THURSDAY, OCTOBER 14, 1999**

#### Cargo Compartment Task Group Meeting – J. Reinhardt

John reviewed Task Group member comments on his September 27, 1999, letter to Task Group members. Group discussion on current and possible test configuration/parameters. Group discussion/concern on the type of cans used in the test. Group members suggested a 'standard' aerosol can be used in each test. John asked the Task Group to think about how different equipment and systems can be tested without being based on Halon. We need comments from Task Group members on: (1) if an aerosol can explodes and we don't get a fire, and (2) [time-based] in testing a system see how much time it gives us before the fire.

#### Cargo Compartment Test Halon 1301 Simulants – R. Hill

FAATC has some concern with using HFC-125, because HFC-125 varies depending on where the leakage is within the cargo compartment. A suggestion was made to form a Task Group to look at the data we have collected in our testing at the FAATC. Doug

Dierdorf will chair this Task Group. Al Gupta and Juan Vitali will be members of this group.

International Environmental Update – J. O’Sullivan

HTOC/UNEP has produced its 1998 report. It is on the UNEP website. The production of Halon in India has finally stopped. In the U.K. we have been doing some work with the DETR to determine current Halon usage and supplies in the U.K. The FIREDASS group has produced a report that is available on the University of Greenwich website.

U.S. EPA – J. Cohen

Clarification on letter concerning ‘D’ to ‘C’ cargo compartment conversion. The U.S. EPA is in the process of developing a Halon Management Strategy as mandated by the Montreal Protocol. The EPA will address using SF6 as a simulant as far as restrictions within the SNAP approval. Kyoto Treaty has not been ratified by the U.S. Senate.

Working Group Member Presentations

‘CF<sub>3</sub>I For Fuel Tank Inerting’ – Jim Tucker (Applied Research Associates)

A copy of Jim’s presentation is available on the Fire Safety Section website.

NEXT MEETING:

The next IHRWG Meeting will be hosted by Daimler-Chrysler Aerospace Airbus in Bremen, Germany, May 3-4, 2000.