INTERNATIONAL AIRCRAFT SYSTEMS FIRE PROTECTION WORKING GROUP MEETING

Hosted by FAA Technical Center at Trump Taj Mahal, Atlantic City, New Jersey, USA

November 17-18, 2009

Laptop Battery SAFO (Safety Alert for Operators) - D. Blake
Inflight Fire Fighting Training Video INFO

Harry Webster is the contact for the Laptop Battery SAFO (SAFO is available on the FAA Fire Safety website http://www.fire.tc.faa.gov and the main FAA website)

Inflight Fire Fighting Training Video INFO is available on the FAA Fire Safety website and the main FAA website. Dave Blake is the contact for this work.

Lithium Battery Update – H. Webster

Recent Battery Incidents: UPS: E-Bikekit Lithium Battery, Honolulu

Lithium-Ion Iron Phosphate battery designed to power bicycles (flight NJ to Honolulu). Photo of battery in ULD right after being extinguished and photo of battery as received at the FAATC. None of the cells vented or appeared to be directly involved in the fire. FAATC believes an electrical short in two wires that connect one end of the battery to the other was the source of the fire. The last 3 inches of this wire completely burned away. Several of the individual cells showed bulging indicating that they had gotten very hot. Cause appears to be short circuiting.

UPS – Undeclared Shipment of cell phone batteries

3 skids of boxes found to contain used cell phone batteries, flown from Miami to Santo Domingo. Thousands of batteries were included in this shipment thrown into cardboard boxes.

American Airlines, ARCHOS 704:

September 10, 2009: Descending through 10,000 feet, the cabin crew was collecting portable media players, as a passenger was handing the unit to the flight attendant , the battery fell off the back and caught fire. It is a lithium polymer battery (same as cell phones).

Fedex: inflght fire involving e-cigarette:

August 14, 2009 – flight from Indianapolis to Minneapolis-St. Paul – on approach, crew got fire warning in lower cargo compartment, fire suppression was activated, fire was determined to have originated in a shipment of Ruyan Inhalers, model RappE-Mystick, a tobacco delivery system. Photo of box where fire occurred was shown.

Lithium Battery Test Program – H. Webster

Lithium Polymer batteries, agent effectiveness tests.

Intermixing of Cells in Nickel-Cadmium Batteries for Aircraft Usage – S. Summer

RTCA SC-211 committee addresses the design, performance, operational and testing issues for Ni-Cd, Lead Acid and rechargeable Lithium batteries. Issues have been raised at RTCA SC-211 meetings regarding the intermixing of cells within Ni-Cd batteries used in aircraft. It is typical to replace individual

cells within the battery as they reach their end of life, and there are aftermarket PMA cells approved for direct replacement. Manufacturers claim intermixing of cells causes a safety issue. Planned Work: FAATC has purchased two battery testing systems from Arbin Instruments for use in this and other battery related projects and is expecting delivery in December 2009. Steve described the tests the FAATC will conduct using this equipment.

Composite and Aluminum Wing Tank Flammability Comparison Testing – S. Summer

FAA has issued a final rule requiring the reduction of flammability within high risk fuel tanks with the benchmark being a traditional unheated aluminum wing tank. Steve reviewed the main parameters when looking into wing tank flammability (different than center tank). He reviewed the flammability drivers on the ground and in flight. See FAA report DOT/FAA/AR-08/8. FAATC constructed a wing tank test article from previous test article. Tank was mounted in the high-speed test section of the FAATC wind tunnel. Tests were conducted under fuel loads of 40%, 60%, and 80%. Previous testing examined flammability/temperature profiles using bare materials (composite and aluminum) for top and bottom skin. Current Tests: for the current set of tests, aviation grade primer and a white topcoat were applied to the composite panels and tests were repeated. Steve presented results of these tests. Comparisons between bare composite and painted composite were shown. Static heating/cooling test with the FLIR camera also show little difference with the painted versus the bare panels. Planned work: 727 wing surge tank utilized in previous testing will be re-skinned with a composite material for further testing. Examine the effects of varying thickness of composite panels. Conduct tests with black painted aluminum.

The Impact of Low Flashpoint Fuels on FAA Flammability Requirements – S. Summer

Background: since 1960, 18 airplanes have been damaged or destroyed by fuel tank explosions. New rule published in 2008 to significantly reduce the likelihood of fuel tank explosions. The Fuel Tank Flammability Assessment Method (FTFAM) is a comparative analysis tool to examine airplane fuel tank flammability. The program uses Monte Carlo statistical methods. Steve provided an overview of the model and discussed how flashpoint comes into play in the model. With the introduction of new fuels, there is a potential for a shift in this flashpoint distribution, despite the fact that the minimum specifications are the same as for Jet-A fuel. Any shift has a direct effect on the overall fuel tank flammability exposure. Summary: the introduction of new fuels into the fleet poses a potential shift in the flashpoint distribution, which leads to significant changes in the overall flammability analysis of a fuel tank. These changes have a direct impact on determining if a FRM is required, and on the sizing and design of any FRM that is utilized.

Swissair 111: Could Sensors Have Made a Difference? – Capt. H. “Boomer” Bombardi (ALPA)

He used an MD 11 Simulator configured the same as the Swissair 111 flight. Test Case #1: Simulator crew made an aggressive divert to Halifax. Simulator Result: landed on Runway 05 Halifax approximately 16 minutes later. Test Case #2: This time the simulator crew makes a much more aggressive descent. Simulator Result: landed on Runway 05 Halifax approximately 10 minutes, 15 seconds later. Test Case #3: added tailwinds, Simulator Result: landed 9 minutes, 47 seconds on Runway 05 Halifax. Test Case #4: took a less aggressive descent, landed 9+minutes. Test Case #5: didn’t use gear until last minute to slow down, Result: simulator landed on Runway 05 Halifax approximately 9 minutes, 19 seconds later. Smoke Fire Fumes Steering Committee (SFF): standardized SFF checklist, definitions and philosophy, FAA began research on material flammability. Standardized SFF Checklist still requires knowledge of the nature and intensity of the event. Conclusion: A smoke fire fume detection system to indicate the severity of the situation would have told the Swissair 111 pilots what the actual situation on the aircraft was, and they could have acted quickly. One of the first six or so steps on this standardized SFF checklist asks for the decision to divert or not. Question: would the sensor system be sectionalized? Yes. He believes the process needs to be started within the FAA to investigate feasibility of these sensors – he believes a research/discussion group should be formed to look into feasibility and available technology. No smoke

simulation in the cockpit during the simulator tests. Suggestion: maybe sensors in the bleed air system or in specific areas that have caused the most problems.

Engine Nacelle Halon Replacement – D. Ingerson

MPSe rev03 to rev04 Transition: Issues driving the test process revision: terminating the use of halon 1301 in the test process. General characteristics for halon-replacing fire suppressants are becoming more unlike halon (more like streaming agents).

Terminating 1301 usage: modify the halon 1301 benchmark process and thermally characterize fire threats. Surrogate will be HFC-125. Degrading the negative impacts of assessment: modify test process and review suppressant measurement rational. Items Completed: small-scale flow visualizations and large-scale flow observations. Remaining tasks are in-process: HFC-125 surrogate validation, testing begins late-November '09 and modify test fixture for thermal characterization is underway, and administrative considerations for MPSe rev04 is underway.
Flow Visualization, Small-Scale Wind Tunnel: utilizing a small-scale wind tunnel (SSWT) to visualize wake regions. Gas Analysis in the Nacelle Fire Simulator: investigated sample point placement in the NFS: Purpose?: retain/reinforce "total flood" concept related to this application. Principal curiosity about wake region behaviors related to the halon 1301 distributions: would halon 1301 still meet the intent of FAA certification if sample points were placed in wake regions in the NFS? Per MPSe rev03, halon 1301 is delivered to the NFS meeting FAA certification intent for each ventilation condition. Secondary curiosities about wake region behaviors related to HFC-125 and CF_3I distributions.
Quantitative comments regarding hot-wire anemometry: complex issues challenge the HWA calibration during exposures to mixtures at varying temperature (working this issue in the background).
Conclusions: Transition from MPSe rev03 to rev04 continues. Expecting Task Group review for draft rev04 in the Jan2010 time frame. The halon 1301 distributions met the intent of FAA certification with gas analysis sample points "buried" in the wak regions of certain flame-holding structures in the NFS. Will the AC take wake region into account? Doug: The AC already addresses this but does not refer to wake region specifically.

Upgrading of Oil Burner for Propulsion Testing – Discussion – R. Hill

Background: development of NexGen (sonic) burner for materials testing as replacement to Park Oil Burner and explanation behind the development of this new burner. FAATC is beginning a research program to use the NexGen burner to replace the older oil burner while working with the authorities to determine how much of the advisory material needs to be modified and make the modifications. The two from the FAATC who will be involved are Rob Ochs (he designed the NexGen burner) and Bill Cavage will look at the system side. We will also be coordinate with the FAA New England Region, FAA Wichita Certification, and international aviation authorities. If you are interested in being involved in the burner side, please contact Rob Ochs. If you would like to be involved in the system side, please contact Bill Cavage.

Particle Image Velocimetry (PIV) for FAA Fire Safety Research – R. Ochs

PIV is an instantaneous, whole-field, non-intrusive fluid flow measurement technique. Rob explained via diagrams how PIV works. Data from PIV Measurements: in-plane (2 components) velocity vector field, vorticity, streamlines, additional data….Stereoscopic 3D PIV can be done with 2 cameras – based on the same fundamental principle as human eyesight. Interferometric Particle Imaging (IPI) can also be done with 2 cameras. Current PIV Research – Burner Analysis: the FAA utilizes a modified oil burner to simulate the effects of a jet fuel fire on an aircraft fuselage, interior components, and components in fire zones; burner flame characteristics scaled directly from measurements made from full scale pool fire testing; the burner is used to measure the fire worthiness of aircraft materials. The PIV system at the FAATC has been used to take airflow measurements in the draft tube of the burner and to look into the burner flame (reacting flow and non-reacting flow). PIV for Systems Fire Protection Research: Smoke Transport CFD Model

Validation, Extinguishment Sprays, and/or flow in a compartmentalized fuel tank. Dave Blake asked members if any of them use PIV for anything? It's possible that some of the engine manufacturers use it.

Integrated Fire Protection Work Status – B. Cavage

We are going to put the IFP on hold for now. We achieved what we originally intended to do and at some point would like to look at use of IFP in other areas of the aircraft, but it is all dependent on resources and priorities. If anyone is interested in the work that has been done to date, please contact Bill Cavage at the FAATC or Claude Lewis at TCCA. Everything done to date has been documented.

Class E Cargo Compartment Smoke Detection and Active ULD Testing – D. Blake

This work came out of UPS February 7, 2006, accident in Philadelphia, Pennsylvania. There was no finding as to what the origin of this fire was. Dave showed the cockpit voice recorder transcript. He discussed the NTSB recommendation that initiated the research at the FAATC. FAATC used 727 Freighter for tests retrofitted and certified to one minute detection time (FAR 25.858). Test results were reviewed. Tests were also conducted in the 747SP test aircraft. Preliminary results: 747 Time of Initial Alarm Regardless of Duration. Results of 747 Lower Aft Compartment Sustained Detection were shown. The next series of tests were conducted using a Simulated Refrigerated ULD container ("Active" LD-3 Container). All these tests were conducted in the 747SP test aircraft. The draft report has been submitted for publishing and will be available on the FAA Fire Safety website shortly.

Smoke Transport CFD Code Status – D. Blake

Sandia National Laboratories has developed a CFD code for the FAA that models the transport of products of combustion throughout a cargo compartment. The code was validated with numerous tests in a 707 and DC-10 below floor cargo compartment. There was good agreement between actual fire test data and code results. The code was initially released to a group of potential users for evaluation. No feedback was received. Data from recently completed Class E Smoke Detection project is available and could be used to further validate the model under those conditions. Work is underway to upgrade the Graphical User Interface (GUI) to improve ease of use. If the proposed validation results show reasonably good agreement, the code will be better publicized for use by industry in the certification process. Doug Ferguson noted he had spent some time a number of years ago and experienced the inability to troubleshoot impeded its use. There is still an interest in using the model at Boeing once the GUI is improved. Validation criteria would be on a case by case basis. Dave asked if industry has other codes they use that work better.

Class E Cargo Compartment Fire Suppression – D. Blake

Dave showed a photo of the baseline test. A Cost/Benefit study has been conducted on the installation of a total flood Halon 1301 fire suppression system on freighter aircraft. The study was jointly sponsored by the FAA and CAA. One of the conclusions from that study was:: "It is concluded that Halon fire suppression systems, or alternatives that are likely to be developed for below floor cargo are unlikely to be cost beneficial for the main desk cargo compartments of cargo aircraft of any weight category". The report is available on the FAA Fire Safety website. Bruce Popp of Fedex presented the Fedex system during the 2007 International Aircraft Fire and Cabin Safety Research Conference. It is available in the 2007 Conference Proceedings available on the FAA Fire Safety website. Mark Petzinger indicated that the current Fedex system is slightly different than the FedEx FAA Certified FSS Installed on MD-10 Dave showed from Bruce Popp's 2007 conference presentation. The Lexan/Aluminum AAY Container test conducted at FAATC was described. Other suppression options to be tested: passive systems, injection systems, and fire resistant containers. Steel test container frame will be skinned with material of interest (Lexan, aluminum, steel, composite, etc.). This will be reusable. FAATC is looking for industry input. Task Group formation is possible in the future depending on test results and input received from industry.

Initially, we will test Class A materials and later we will test additional materials. There is a potential to use PIV to investigate the spray patterns and possibly assist in optimizing spray patterns.
Dick Hill mentioned that the FAA is not the only organization regulating what is carried in the cargo compartment. We have been keeping up with the research the TSA is doing in such areas as hardened cargo compartments and what other government entities may be regulating as far as what may/may not be carried in cargo compartments.

Measuring Oxygen Concentration in a Fuel Tank Ullage – B. Cavage

Bill provided the background of this work. The FAA gas sampling method was improved. Light absorption gas sample: Oxigraf makes a light absorption sensor which has been applied to an unregulated gas sample train. Results – Airplane Fuel Tank Simulation were shown. Optical Fluorescence: optical fluorescence using in situ probe (ASF) – small fiber optic probe uses spectrometer to interpret coherent light signal which is highly dependent on temperature/pressure, used in situ (in place) which has many advantages (low power, small size/weight, rapid response) but also has limitations. Not practical to calibrate on a daily basis. Recent work has illustrated marked improvement. Bill showed ASF Oxygen Sensor Data with Varying Temperature. Status: both the FAA method and the light absorption (Oxigraf) method duplicate calibration gases well at a variety of conditions and both agree on oxygen concentration measurements made during a simulation of an inert commercial transport airplane fuel tank flight cycle. Optical fluorescence making progress but is still working out problems. It is slated for more chamber examinations in December.

Dick Hill: ice in fuel line study and going through filters, etc., in engines. Are there some folks that would like to hear about this work at the next Systems meeting? Consensus: Yes, there is an interest in a presentation on this work.

2010 Sixth Triennial International Aircraft Fire and Cabin Safety Research Conference – R. Hill

The conference will be held October 25-28, 2010, at the Tropicana Hotel Casino in Atlantic City, New Jersey, USA. Additional information, conference registration, and hotel reservation details will be available on the FAA Fire Safety website in the near future. There will be a number of systems fire safety related sessions. If you would like to submit an abstract for consideration, contact April Horner.

WEDNESDAY, NOVEMBER 18, 2009

EASA Update – Halon Out of Specification – R. Deletain (EASA)

Issue: suspect contaminated Halon 1211 and 1301 delivered to industry. Contaminated in the sense that it does not fulfill purity.
Origin: a UK-based company is suspected to have delivered Halon of variable purity to several companies involved in aviation fire extinguishing equipment overhaul and/or manufacturing. Customer database gives around 15 companies potentially affected. From raw data, considerable quantities are affected.
EASA Communication: SIB release. EASA Letter to companies potentially affected.
Preliminary Information: 1301: most likely out of any in-service corrective actions; Halon 1211: seem to be concern, especially for toxicity aspects. Likely to have corrective actions.
CAA UK has written communications regarding this issue. See CAA website for names of communications or a copy of Remi's presentation on FAA Fire Safety website.
Conclusion: large amount of data requiring verification. Feedback coming slowly to the agency. Safety assessment may require further testing and industry support. To date, indication to warrant an Airworthiness Directive (AD) action for Halon 1301. Upon unsafe condition identification for Halon 1211, EASA may take further action (AD).
Fire Fighting Enterprises knows of approximately 30,000 bottles of affected Halon. Tests are currently underway but feedback is slow getting back to them.
Question: where did original material come from (what country)? Remi: we do not know.

Handheld Fire Extinguisher Task Group Activities to Date – H. Webster

The first Task Group meeting was held July 15-16, 2009, at the FAA Technical Center. Agents discussed: BTP, NOVEC 1230 and Gelled powder/clean agent combination. Identify agent issues: dry powder cleanup, visibility degradation after powder discharge, weight, size. Demos: dry powder discharge in Boeing 737 with air packs running: a dry powder "cloud" quickly spread throughout the cabin. Also, ran a demo of 5BC 2.5lb Halon 1211 and a 10 BC 2.5lb Sodium Bicarbonate dry powder and discussed MPS for the Seat Fire Test. Harry showed the photo of the MPS Hidden Fire Test Apparatus and described the test set-up. Harry showed a video of the Halon 1211 Baseline test conducted during the July Task Group meeting. Harry then showed a video of the 10 BC Dry Powder extinguisher test – visibility issues evident and not an affective flooding agent. Next Meeting: November 18, 2009, at the FAA Technical Center.

Status of Hand Fire Extinguishers for Use in Aircraft, AC 20-42D – J. Petrakis (FAA HQ)

Drafted AC 20-42C Revision 11/2006
Handheld MPS Released in 2002 (DOT/FAA/AR-01/37)

Proposed AC 20-42D: updates guidance for new installations of required handheld extinguishers, establishes handheld MPS as FAA approved, identifies 3 agents for use as handheld replacements, provides guidance for fire fighting effectiveness selection, location, and mounting, recommends transition to halocarbon clean agent extinguishers, cancels AC 20-42C, March 1984, document is currently out for public comment in Notice for Public Comment 10/09 in Federal Register, public comment period closes 11/27/09, resolution of comments completed by 2/2010, issuance of AC scheduled for March 2010.
Status of Halon Use in Civil Aviation Comparison: ICAO (A36-12) AIRP Proposal (Rev Annex 6 & 8) and EC DG Environment Proposal. John reviewed dates ICAO and EC have proposed for lavatory, portable, engines/APU, and cargo.
Thomas Gerhig expressed concern regarding the three agents that they have higher GWP and ODP than Montreal Protocol.
Tom Cortina expressed concern for shortness of comment period. John said this would be assessed on a case-by-case basis if companies contact him directly.

U.S. Army Aviation Weapon System Non-Halon Handheld Extinguisher Development – T. Helton & D. Mather (Stanley Associates, Inc.)

T. Helton described the program. The U.S. Army was tasked with replacing Halon 1301 2.75lb. handheld fire extinguisher (HHFE) currently carried onboard Army rotary wing weapon systems. Previous efforts (other DoD development, research, sources sought, etc.) about 1995 through 2007. Overall project inception and planning initiated approximately July 2007. Evaluation of commercial clean agent in optimized Army hardware, evaluation of commercial "off the shelf" extinguishers, minimal evaluation of dry agent additives (a "non-clean" agent blended with a commercial clean fire suppressant). Test field user supplied and DLA supplied, halon 1301, NSN: 6830-00-555-8837 extinguishers with JP-8 fuel and heptane. D. Mather of Stanley Associates, Inc., reviewed some of the specifics of the tests conducted and the clean agent test methods employed. He briefly reviewed some of the data from the test program. The report is currently being written. Preliminary static fire testing of all agents demonstrated the inability of candidate agents to completely clear small pan fires (to edges and corners) from the entire fuel surface in limited testing. A schematic of agent/nozzle test apparatus was shown. Over 300 tests in various configurations have been conducted and Brief Results to Aviation Management are expected in December 2009. Results of tests conducted in Rounds 1 and 2 and final optimization (clean agent tests) were presented (3 agents were focused on). We are currently conducting tests with addition of dry agents to Agents 1 and 2. If you have any questions, please contact Tim.Helton@us.army.mil.

U.S. EPA Activities – Halons and Aviation – B. Maranion (U.S. EPA)

EPA Regulations Background: Clean Air Act Title VI authority for stratospheric ozone layer protection: halons and fire protection (ban on product and import, ban on halon blends, emissions reductions, ban on discharge testing, training, recovery and safe disposal), Significant New Alternatives Policy (SNAP) Program listings, no ban on use of recycled halons, and no requirements for de-commissioning, destruction. Final Rule exempting aircraft halon 1301 system bottles from ODS import petition requirement published 3/10/2009 (74 FR 10182) exempts imports from EPA ODS petition process, NPRM for ODS import for destruction (2010). Other activities: Codes and Standards: IMO Fire Protection Subcommittee, ISO TC21/SC8, and NFPA 12, 12A, 2001, 2010. Emerging Issues: Montreal Protocol: ODS bank management and destruction, carbon credits for ODS destruction (CCX, VCS, and CAR).
Montreal Protocol: signed in 1987, now ratified by ALL 196 countries of the world, considered the most successful international environmental treaty. Global Ozone Depletion and Recovery graph. 2010 – end of global production of halons for fire production (in developing countries). HTOC 2006 Assessment Report: remaining production of halon 1211/1301 for fire protection ending in S. Korea and China, Halon 2402 inventories sufficient but export restrictions exist, adequate global stockpiles of halon 1211/1301 exist to meet existing equipment needs to EOL, barriers to import/export of recycled halons, mixed results on halon banking, severely contaminated halons in Africa, transition progress in all sectors of use except for aviation, destruction/transformation options. Decision XXI: Parties of Montreal Protocol met this year noting that the 2009 report by the Halon Technical Options Committee observed that legislative barriers preventing the free flow of halons. Bella reviewed other parts of Decision XXI related to halons. Key Issues for HTOC 2010 Assessment: transition for aviation, ICAO leadership/Member States commitments, impact of proposed climate legislation, barriers to free movement of recycled halons, new installations using recycled halons, prolonged equipment use, developing country (Article 5) banking, unusable, contaminated stockpiles, delayed transition and impact on ozone recovery. Contact Bella Maranion at maranion.bella@epa.gov.

International Environmental Update – T. Cortina (Halon Alternatives Research Corporation)

Kyoto Protocol entered in force in 2005. It has a worldwide differentiated target of 5.2% reduction in GHG emissions from 1990 levels between 2008-2012. U.S. is not part of the Kyoto Protocol. New post 2012 treaty being negotiated at COP 15 in December 2009 in Copenhagen. Wide gap between US and EU levels in 2020. One of the biggest issues: commitments form large developing countries like China and India. Funding for other developing countries is a key issue. Likely to be some type of political agreement or framework, to be followed by negotiation later. Kyoto Protocol – Aviation: GHG emissions from aviation are about 3.5% of global GHG emissions. Europe: EU emissions trading scheme (ETS) covers about 10,500 facilities in 27 EU countries – cap and trade program, aviation will be included starting in 2012, covers all airlines flying in/out of EU airports, one allowance for every ton of CO_2 emitted. United States: legislation to create Federal GHG regulation has passed House (H.R. 2454) and is currently being considered in the Senate (S. 1733), both bills create an economy-wide cap-and-trade program covering 85% of US GHGs, bills do not cover aviation emissions directly, instead regulation transportation fuels at point of production (refineries). United States – HFC Provisions: HFCs are covered separately from other GHGs by amending Title VI of the CAA ODS regulations. Allowances are required to produce/import HFCs, or import products containing HFCs. Extremely unlikely that Senate climate bill can pass this year. It must still be reconciled with House bill. If not done by mid-2010, could be difficult to pass in an election year. Bill in the House is a broad energy bill not just a climate change bill. EU ODS Regulations: Successor to EU ODS regulations (EC 2037/2000) is still planned to be effective from beginning of 2010, draft new Annex VI on halon critical uses is undergoing revisions due to be voted on March 2010. This has end dates for halon use.

ICAO Update – R. Hill

ICAO will hold a meeting December 1-3, 2009, with a goal to review and update the halon replacement timeframes that are in the ICAO Assembly Resolution A36-12 and update those timeframes if necessary.

ICAO has already invited international aviation authorities and some organizations at their discretion. This will be a group of approximately 20 people. The dates put forth as a result of the December 2009 meeting will then get voted on by the ICAO Commission. Alternative uses and alternatives to halon will be discussed (cabin/crew compartment portables, engine nacelles and APUs, lavatory (potty bottles), and dry bays). For discussion: What is the position on going to an interim or a global warmer to replace halon until a suitable alternative is found? Tom Cortina: The aviation industry has never made the transition that other industries have made over the past 15 years. This puts the aviation industry in a very difficult position. Bella Maranion: I think the decision for the transition away from halon may be made for you due to the viability issues with the current stockpiles of halon. Any question about looking at knock-on effects? Is this being taken into account anywhere? Dick: It has been discussed and would be a big issue in the engines and areas similar to that.

Options to the Use of Halons for Aircraft Fire Suppression Systems Reports Update – L. SPeitel

The Halon Options Task Group is being newly reformed to prepare an update to the "Options to the Use of Halons for Aircraft Fire Suppression Systems – 2002 Update". Louise reviewed highlights of the 2002 report. A short Task Group meeting will be held immediately following the close of the Systems Working Group meeting on November 18, 2009.

Standardization of False Alarm Rejection Capability Assessment – Proposal – K. Behle (Airbus)

Motivation: false alarms in aeronautics. Intention: obtain an objective value for rejection capabilities assessment of fire/smoke detectors. We are still facing a relatively high rate of false smoke detection alarms of 180:1. Multi-criteria smoke detectors developed with SIEMENS in the context of research programs FireDetEx. Airbus is aware that other companies manufacture these as well. Photos of the test apparatus set-up were shown. A flight test was conducted called the "Salad Campaign" on a flight from Toulouse to Singapore. Specific details of proposed test program is available in Kai's presentation on the FAA Fire Safety website: Airbus is interested in working with the aviation community on this possibly in terms of a small industry group. Kai asked for feedback from Working Group members. Boeing: I think it is a good idea to standardize how some of the tests are conducted, etc. Let's discuss the formation of an industry group at the next meeting.

Next Meeting/Announcements – A. Horner

The spring meeting will be held at the CAA House in London, United Kingdom, on May 18-19, 2010. Location details will be available on the FAA Fire Safety website in the coming months.

2010 Sixth Triennial International Aircraft Fire and Cabin Safety Conference – A. Horner

The conference will be held at the Tropicana Hotel Casino in Atlantic City, New Jersey, USA, October 25-28, 2010. There are seven (7) opportunities for Refreshment Break Sponsors. Sponsors will have an opportunity to provide a Powerpoint containing a short video marketing/advertising piece that will be shown in each breakout room and on a large monitor in the Conference Registration Area during the break they sponsor. Please contact April Horner if your organization is interested in sponsoring a refreshment break.