INTERNTIONAL AIRCRAFT SYSTEMS FIRE PROTECTION WORKING GROUP MEETING

MAY 23-24, 2012

EASA HEADQUARTERS

WEDNESDAY, MAY 23, 2012

Flight Deck Smoke Penetration Testing – D. Blake (FAATC)

Dave reviewed this upcoming test program at FAATC. This testing was requested by the FAA Transport Airplane Directorate. The objective is to determine if current flight deck smoke penetration certification testing is adequate. The FAATC 747SP aircraft will be used as the test article. Test conditions will include smoke penetration tests using only pack1, pack2, and pack3. Additional tests will be conducted under the above conditions but with varied areas of cargo liner removed for the below floor tests. Dave showed several pictures of the areas of the test aircraft where these tests will be conducted. FAA Report # DOT/FAA/AR-TN03/36 covers some previously run smoke penetration tests.

Smoke Transport in an Aircraft Cargo Compartment – D. Blake (FAATC)

Ezgi Oztekin has been doing this work at the FAATC. Motivation: FAA Federal Aviation Regulations (FAR) Part 25, Section 858. The objective of the current study is to – assess predictive abilities of available CFD solvers for smoke transport when applied to aircraft cargo compartments. Dave reviewed the methodology of the CFD study. Results of a test using a compressed plastic resin block as the fire source were presented. The model parameters were reviewed. The Grid Meshes were presented. The results of this work were presented. Conclusion for all four test cases model solutions are: in good agreement with the test data for light transmission and CO_2 concentrations. Ezgi will write a Technical Note that will be available in the Reports Section of the FAATC Fire Safety website after it is published. We will continue to update the Working Group on the status of this publication. B. Miller: Any plans to do in-flight validation tests on this work? D. Blake: We do not have any plans within the FAA to do in-flight validation tests. The FAA Transport Airplane Directorate (Steve Happenny) is interested in pursuing this method of certification.

Fire Suppression in a Class E Cargo Compartment – D. Blake for D. Dadia (FAATC)

Objective: test and evaluate a variety of fire suppression options: aerosol based agents, oxygen starvation, medium expansion foams, and zone based water-mist (or some other fluid) systems. A photo of old test article was shown with the results of the tests conducted in that container. Observations for aerosol agents and oxygen starvation were presented. Dhaval is investigating a type of nextgen container. The container is well sealed and employs oxygen starvation effectively. More tests will be conducted with a more practical door. Not all freight is loaded in a container – some is loaded on pallets. Please contact Dhaval Dadia or Dave Blake if you would like to contribute: conduct tests in a container with better fire withstanding capabilities, conduct tests with medium expansion foam, and conduct tests with a zone based water mist system in the DC-10 cargo hold. P. Chittenden: Has there been any discussion on whether you want to know if something is

happening in one of these sealed cargo containers in-flight or after landing? Dave: we have been struggling with that issue. One of the issues of the UPS fire was smoke detection. There has been some discussion about having detectors within the containers. All those issues are being discussed. I don't know where this is going to lead. D. Hill: Do you depressurize the airplane now (to UPS representatives in attendance)? UPS response: Yes, that is our current procedure. D. Blake: The new nextgen container we will be testing has been modified to deal with the new depressurization requirement for containers. D. Hill to EASA and TCCA reps: what is the damage tolerance allowable by certification officials? D. Blake: Those containers were certified with allowable damage tolerance. The in-flight testing that is being done right now is going to have the in-service FCCs brought back to the Tech Center. I would guess it would be done similar for the newer Fire Containment Containers. C. Lewis: The other aspect is the cover and how it is attached/wrapped, etc., at the floor or under the container.

UPS Presentation – J. Ransom (UPS)

UPS/IPA Safety Task Force Members: PHMSA, Boeing, Airbus, Industry Consultants, Safety Vendors, and UPS Aircraft Engineering.

The Issue of Air Transportation of Batteries: how has our business changed? A growing percentage of our payload involves technology (including lithium batteries). Safety Task Force Strategy: approach: short, medium, and long-term issues.

Protecting the Flight Deck: a combination of two technologies greatly improves safety: full face oxygen masks and emergency vision assurance system (EVAS). Two fleets has completed conversion to full face oxygen masks. EVAS: a photo of two EVAS units deployed in the cockpit was shown. The crewmember with his full face oxygen mask on puts his face up against the plastic of this system to see the screens/instruments. UPS tested EVAS on crews without training with success. A view through EVAS was shown. This is the last line of defense for the crew to get the airplane on the ground.

Fire Suppression: multiple paths are being explored including Fire Containment Covers (FCC). Cover is designed to suppress a 1500 degree fire for four (4) hours. Testing began 2011. FCC reengineered to increase durability in UPS system. Phase 3 of redesigned cover underway. Container-Based Solutions are being evaluated: fire resistant container materials under evaluation. Suppression agents are being tested. The new material being tested is less susceptible to damage as well. More research and testing is necessary and will be done.

Improved Temperature/Fire Detection: early smoke detection, container temperature data.

Q: It seems like some of the UPS fires have been self-oxidizing. Isn't part of the issue cargo control? J. Ransom: This is why we are interested in getting more information to the crew on the cargo and what the fire detection situation is so they can handle the specific situation accordingly. O. Meier: earlier you mentioned that crew procedures were being investigated, also. Are there specifics you can give us? J. Ransom: On one of our fleets the cargo fire procedure is 5 pages long. Five pages later, you get to – it (fire) is here. This type of checklist delays the actions of the crew. We need some OEM help to come up with these abbreviated procedures. P. Dang: in the future knowing a fire was

extinguished, would UPS consider it is safe to fly on? J. Ransom: I think we would proceed to the nearest airport not continue on with the mission to destination. D. Hill: full face mask – if you have a fire warning do you put it on full pressure or on demand? J. Ransom: we had an incident recently where the crew put it on full pressure and had an issue communicating. Not normal to put it on full pressure initially. UPS's detailed spec is enough oxygen to fly at 25,000 feet in emergency flow until safe to fly to a sea level airport and land. We carry more oxygen than the regulations require for a passenger aircraft. We tell the crew to go to emergency flow if there is danger of getting smoke in the mask but otherwise stay at 100 percent.

Freighter Fire Cost Benefit Analysis and Risk Model – R. Cherry (RGW Cherry & Assoc.)

Lithium battery involvement in US registered freighter aircraft initiated this work. Models have been developed for both US and Canadian fleets. FAA Model Overview: Monte Carlo simulation model developed in Microsoft Excel. The model considers each freighter airplane type individually and in combination. Proposed mitigation strategies were reviewed. The User Variables were explained. The model and the report are available on the FAATC Fire Safety website: Report # DOT/FAA/AR-12/3, published in March 2012.

Cargo Smoke Detector False Alarm Rejection Standard – A. Freiling (Airbus)

SAE Committee AS 8036 is working on the update of this Standard (1985). Send out AS 8036 for public reading and comments and define pass/fail criteria by September 2012. Later, modify TSO C1. False alarm rejection ratio taking into account real fire will not be part of this standard. MIL-STD-81OF, 520.2 Proc. III procedure provides combined environment tests. The test method for smoke detector false alarm stability shall simulate the fog formation in case of transition from a cold/dry to a hot/humid environment. The test procedure is not finalized yet, but the goal is to simulate this. Tests performed at FAATC for dust filled compartment for the light obscuration to be used for dust false alarm resistance standard. Insecticide: this is one of the most challenging issues of this process. The tests set-up is a challenge – considering possibility of using dust channel to introduce insecticides into test apparatus. Ambient light: test procedure was agreed upon. Summary: the Committee meets bi-weekly via WebEx. S. Hariram: Have you considered carriage of animals and discharges from animals that cause false alarms: ie: chicken feathers causing false alarms. A. Freiling: we have considered other items and how far this Standard shall go. The main substance we are considering in relation to carriage of animals is dust. This is supposed to be a minimum Standard. Q: What about context information going into detection system? A. Freling: this is thought to be on the equipment level (the smoke detector level). Other concerns go beyond this Standard.

Lithium Battery Update – H. Webster (FAATC)

The Effect of State of Charge on Flammability – groups of rechargeable lithium-ion 18650 cells were tested in two modes. Harry reviewed the results of tests conducted with the batteries at the following charges: 100% charge, 50% charge, and 30% charge.

The Effect of State of Charge on the Propagation of Thermal Runaway – tests were designed to measure the effect of state of charge on the propagation of thermal runaway: 4 cells were wired together. A series of 5 tests were conducted: 100%, 50%, 40%, 30%,

and 20% charge. The propagation test data was reviewed. Photos of each test were presented and results at each state of charge were reviewed.

Conclusions: 50% charge seems to have the greatest possibility of thermal runaway propagation. Recommendation: shipping cells at less than 50% state of charge may reduce severity of a fire event. D. Ferguson: Would it be better to describe it as more and less energetic? H. Webster: Yes. Q: did you do this test just one time? H. Webster: there were multiple tests conducted. The results were reproducible.

Lithium Battery Update – Lithium Metal Cell Container Tests – H. Webster (FAATC)

Lithium metal cells are banned from cargo shipment on U.S. passenger aircraft, but are allowed to be shipped on cargo aircraft. A photo of a test where overpack screen failure occurred was shown. Tests were designed to evaluate the effectiveness of an end-of-line deflagration flame arrestor as a container vent. A photo of the 30 gallon test container was shown. A series of thee tests were conducted. Results of 6 cell test, 18 cell test, and 90 cell test were presented.

Full Scale Battery Fire Test Plan Update – H. Wester (FAATC)

Purpose: to document the characteristics of large battery fires in a realistic aircraft environment. Test article: FAA Fire Safety 727 freighter aircraft. Fire Load: 5,000 cells with packaging as shipped from manufacturer. Adjacent flammable materials: 18x18x18" cardboard boxes with shredded paper. A photo of the interior of the 727 test article was shown. Harry reviewed the measurements that will be investigated during these tests. Harry described the tests that will be conducted.

5,000 Cell Battery Fire Characterization:

Purpose: to determine severity of a large lithium-ion and lithium metal battery fire. Tests were conducted in an outdoor location. 5,000 18650 lithium-ion cells were tests in 50 100 cell boxes. It took approximately 10-12 minutes for the fire to break through. Results of these tests were reviewed: cell explosions, rocketing flaming cells up to 133'. Test duration: 1:05 hr. Next tests: 4800 lithium metal cells – 12-400 cell boxes. Extremely intense fire that lasted about 12 minutes. Everything was consumed. The fire escalated very rapidly during the test. Minimal rocketing, some explosions, cells fused together. Test duration: 17 minutes.

Water extinguisher test: a deluge water extinguisher was designed to protect the aircraft during the full scale test. There was concern about the effectiveness against a lithium metal battery fire. Test was conducted with 400 123A lithium metal cells. Results: the water was very effective in knocking down the fire, cells continued to go into thermal runaway and vent flames and molten lithium for approx. 20 seconds.
Harry showed videos of the 5,000 cell lithium-ion test and the 4,800 cell lithium metal test and 400 lithium metal batteries with extinguisher. Q: how much water was used? H. Webster: The nozzles we used are 60 gallons per minute, so probably a couple hundred gallons. I haven't reviewed all that data yet.

We will investigate automotive-type batteries in the near future.

ICAO Panel Lithium Battery Shipping Rules – D. Hill (FAATC)

The FAA does not regulate the carriage of batteries in aircraft. PHMSA within the DOT regulates the carriage of batteries in aircraft, and the FAA coordinates with PHMSA. The U.S. Postal Service has just put a ban on the shipment of lithium and lithium-ion batteries to foreign countries based on the ICAO rule. ICAO has changed the number of batteries in a shipment that are required to be classified as a certain type of hazardous materials. There are a lot of questions about what we do next. We are trying to catch up to what is currently being shipped on airplanes. Newer types of batteries continue to be developed. It is important to write the regulation to keep up with battery design changes in the future. It's the scale of the amount of batteries that are being shipped that causes the problem, and the number being shipped is going to increase. The ICAO changes are a step in the right direction. At this time they do not mandate changes in the packaging of the batteries. B. Brown: can that rule be modified if there is another incident? R. Hill: if there is another incident caused by batteries. There will have to be direct proof that batteries caused the incident.

Lithium-Ion Battery Fire - Toronto Pearson Airport 29 October 2011 – C. Lewis (TCCA)

These are the facts as I know them. Equipment: lithium-ion battery assembly part of a kit to convert normal bicycle to electric power, 52 cells per battery, batteries integrated into rigid padded plastic casing (battery pack), with control module (battery management system). There were two cardboard boxes each containing 191 battery packs packaged individually on a pallet waiting to be loaded into 'below-floor' cargo compartment of a pax-carrying B-767-300. Batteries at that time were being shipped at 80-90% charge. Event: smoke emanating from one of the overpacks. Action by airport fire services initially assessed that there were 2 separate fire sources within same overpack. Offending overpack torn open, number of battery packs removed to get to the seat of the fire(s), and fire(s) extinguished. Occurrence under investigation by Canadian TSB. Findings: probably only one source of fire. A cell likely went into thermal runaway and auto ignited, igniting adjacent cells, and subsequently, adjacent battery pack. Status: root cause not yet determined – investigation is on-going. No indication of damage to cells, batteries, battery packs or overpacks prior to the event. Battery pack manufacturer/shipper has elected to: reduce the batteries level of charge to 30-40% and ship via Class E.

2 Lithium-ion battery Incidents:

17 April 2012 – CRJ, Toronto to Minneapolis/St. Paul flight. Mini air purifier incident. 25 November 2011 – S340B, Sydney Airport – iPhone incident.

Full-Scale Demonstration Testing with a Solid Aerosol Fire Extinguishing Agent, Discussion Continued – D. Blake for D. Ingerson (FAATC)

FAA invoked Part B of MPSe rev04. The tests are being conducted on a JT-9D engine on the FAA Fire Safety-owned 747SP test aircraft. Status: currently at the end of the build up phase. Anticipating completion in June 2012, with draft report into publication process September 2012. A photo of the test set-up was shown along with photos taken after some of the tests. T. Gehring: Is the measurement system approved by the FAA? D.

Blake: This is a new system that has never been certified before. I wouldn't call it certified yet, but it will have to go through the certification process if these tests are successful. P. Dang: Do you know which FAA office will be most likely to certify this? D. Blake: probably out of Seattle. D. Hill: The measurement system is not an absolute measurement system. It is a transfer, it doesn't give you an exact number. It is also a proprietary agent. This is just to develop those numbers for that MPS.

Next Generation Fire Test Burner for Powerplant Fire Testing Applications – R. Hill for S. Summer (FAATC)

The FAA requirements are outlined in this presentation. The Advisory Circulars and FAA Reports were listed. All of the burners listed in Appendix III are not available today. FAA Aircraft Materials Fire Test Handbook (4/2000), Chapter 11 specifies the oil burners listed previously, plus Park DPL 3400 (no longer available). All of the specified oil burners are no longer commercially available. Industry is left with propane burner, which can be obtained and is typically preferred due to its consistency and ease of use. A propane flame will not heat a part up as hot as an oil burner flame. FAATC Fire Safety was tasked by the Transport Directorate to see if the NexGen burner could be repeatable and reproducible. Current Status – Round Robin Testing: prior to initiating round robin testing, modifications are being made to the NexGen burner: adjustments to fuel/air cooling mechanisms in order to be able to achieve desired temperatures and replacing existing stator/ignitor combination with a different stator and moving ignitors external to the burner. Information will be posted on the Powerplants KSN site as soon as available to request participation. A. Mullender: I have a small fire test facility. We are very keen to build the NexGen burner for this test. Most of the parts specified come from McMaster Carr in the U.S., and they indicate that they don't sell to the U.K. due to customs issues. Dick suggested he contact FAATC Fire Safety (Dick Hill or Rob Ochs) and they will see what they can do to assist, or he can buy one already built from Marlin Engineering or Govmark in the U.S. Q: how about for other flammability tests: some labs are asking to use the NexGen burner now, so the FAA is working this on a case by case basis with specific labs. They are accepting the use of this burner for certain flammability tests. R. Hill: The intent of this burner is that there will be no temperature or heat flux requirements for this burner. The burnthrough burner required temperature, but we didn't require heat flux at the time that requirement was written. S. Hariram: What about the cargo liners? D. Hill: we have already done the tests for cargo liners using the NexGen burners. There is an ARAC working towards revising Appendix F requirements, and NexGen burners will be part of this revision.

Powerplant Task Group/Progress of the Survey and Test Results – S. LeNeve (DGA)

9 labs perform the tests according to ISO2685 and AC20.135 (or Chapter 12 of the Handbook)
1 lab performs the tests according to the AD20.135 using only the oil burner

Serge presented the responses by the 10 particpating labs for the following topics:

- Test configuration
- Calibration
- Heat flux measurement

- gas burner (8 labs have gas burners)
- oil burner (6 different burners)

Test Results: 2024 T3 aluminum plate 60x60 cm/3mmthickness. Oil burner and gas burner results were presented. Conclusions: many differences between the labs (equipment, calibration, additional elements). Good repeatability of the test results, bad reproducibility between labs. Failure times usually higher for gas burner. Differences/discrepancies need to be explained. A. Mullender: were the tests conducted with vibration? S. LeNeve: no, without vibration.

Alternative Jet Fuels – S. LeNeve (DGA)

There are some recent European programs just completed or still underway addressing the development of Alternative Jet Fuels (AJF) (fuels not derived from petroleum with properties similar to kerosene). SWAFEA and ALFA-BIRD. Cabin Safety – assessment of the fire safety risks in presence of a post-crash fire is essential to manage the cabin safety. Currently, kerosene is used to perform these tests. ALFA-BIRD: Framework of the study and objectives: This work was conducted by DGA Aeronautical Systems with the support of INERIS (French Institute of Industrial Environment and Risks). Tests were conducted using 4 alternative fuels compared to kerosene using Park Oil burner and NexGen burner. A comparative assessment of a pool fire was also done. Conclusions: Characteristics of a post-crash fire: all fuel fires have the same measured characteristics (burning rates/temperatures/heat radiation [inside and outside of the flame]). Differences were noticed on the level of smoke released. Impact on fire resistance level of materials and equipments. Effect of alternative jet fuels on aircraft fire safety: does a fuel change have an effect on the cabin and flight safety levels (post crash or engine fire)? Are actions necessary to keep the current performance and safety level? Prioritize fuels with low level of smoke. Q: was toxicity of combustion products measured? S. LeNeve: we did not measure the size of the particles or the toxicity.

Liquid Burner Development for Powerplant Fire Test NexGen Burner … - K. Oayn (University of Cincinnati)

Conclusion of pervious work (1): for calibration purpose, NexGen burner is much more sensitive to a change in the fuel flow rate as opposed to a change on air flow rate. Thermocouple size does affect the temperature calibration data, as well as the result of fire test. At University of Cincinnati lab, we use a modified turbulator in the NexGen burner. We use an uninsulated Iconel 661 burner cone. Current study: fire test for same temperature calibration with NexGen burner vs. gas burner (horizontal placement). Different operating orientations of NexGen burner (30-degree and 45-degree). The burner calibration data for each of the burners was presented. The conclusions from this series of tests were reviewed. Future work: mapping the temperature distribution for inclined NexGen burner. Recommendations were presented.

Electronic Flight Bag (EFB) Hazard Assessment – H. Webster for S. Summer (FAATC)

EFBs are electronic devices used to replace the paper materials typically found in the pilot's flight bag. There are 3 types of EFBs: Class I do not have to meet any airworthiness standards, Class II only their mounting/charging connection hardware have

to meet airworthiness standards, and Class III have to meet airworthiness standards. The FAA Fire Safety 737 aircraft was used for this test program. Laptop outfitted with (7.2 Ah) 9-cell Li-Ion battery. Photos of the battery pack configuration were shown. A video of the test and post test photos were shown. Test #1 Results Summary: two out of the nine cells within the battery pack went into thermal runaway. One had been replaced with by cartridge heater. Test #2 was the same but with the addition of a second heater. A video of this test and post test photos were shown. Test #2 Results Summary: Four of the nine cells with the battery pack went into thermal runaway. Two had been replaced with cartridge heaters. Three were isolated from event due to battery configuration. Smoke meter showed greater than 10% light obscuration. Tests have shown that a typical COTS-Li-Ion battery can present a significant risk. Q: If you were to write a safety bulletin what would you include on this: H. Webster: If an older laptop that doesn't run on Li-Ion batteries is available, use it. This is definitely something to be concerned about. Consider removing the battery and plug it into the power supply. It now becomes a Class II. iPads still have an embedded Li-Ion battery.

Icing in Fuel Lines – R. Hill (FAATC) for T. Maloney (Rutgers University)

Background: Four incidents/accidents in the past involving icing in fuel lines or fuel pump screen clogged with ice.
Objective: perform experiments to better understand the collection of ice in fuel pipes: material dependence, temperature effects, effects of flow rate and flow structure, and heat transfer effects.
The altitude chamber was used for these experiments. Jet A-1 fuel was used in these experiments. The softer ice may stick to the pipe material but it stuck to hard ice substantially more. Conclusion of Initial Conditions Variation: The case that fuel flowed continually through the flow loop as the fuel cooled was chosen for further quantitative tests. Several materials were investigated as were a number of geometry variations. Dick reviewed the Test Conditions Variation (repeatability, variation of Reynolds Number, variation of temperature, variation of heat transfer from the pipe). Dick reviewed the Conclusions for Test Condition Variations. Other observations: contamination increases ice accumulation and ice accumulated more on pipe welds than elsewhere in the pipe. Conclusions: the softer ice may stick to the pipe material surface but it stuck to hard ice substantially more. K. Oayn: Is there any research to explain why -11°C is the worst case? R. Hill: In the experiments we ran, that was the worst case. There is some other literature that indicates the same. When the temperature gets too cold, the soft ice does not build up. P. Dang: Is there going to be any correlation to the research industry is doing? R. Hill: Our graduate student who conducted these tests has given presentations to the CRC and to Boeing recently. Some of the work industry is doing is proprietary, so we do not have access that information.

Halon 1211 Stratification/Localization in Aircraft – D. Blake for L. Speitel (FAATC)

AC20-42D. Dave reviewed a number of stratification tests that Louise conducted since the November 2011 Systems Working Group meeting. He presented detailed information and results from her work. Testing conducted applies to flight decks, aircraft cabins. The method used was reviewed. The cabin tests were conducted in the FAA Fire Safety B-737 test aircraft. A photo of the set-up for the cabin test was shown. Dave also reviewed the flight deck tests Louise conducted. Dave reviewed the Summary of MFs and General

Guidance. Conclusions: localization is significant for the cabin tests, resulting in theoretical perfect mixing Halon 1211 concentrations at the firefighter's position at 41" and 22" resulting in corresponding S&L MFs less than one: 0.79 and 0.44 respectively. A drawing of the simplified kinetic model prepared by Louise after this testing series was shown. D.Ferguson: When she was calculating the ventilation changes in the flight deck was it with one pack running? R. Hill: yes. O. Meier: Is there any plans to revise the AC? D. Blake: the AC references a report Louise wrote that is now in draft form. We are receptive to any comments as to what might go into this report. O. Meier: is there a way to present the draft report at the next meeting for comments? D. Blake: Louise's milestone for the report is before the next Systems meeting. If you have questions/comments or questions, send them to Louise, and copy me and Dick Hill, and we will review and discuss them.

Handheld Fire Extinguisher Optimization Update – R. Hill for R. Morrison (FAATC)

Current Contracting Opportunity
https://faaco.faa.gov
Title: Redesign or Optimization of Aircraft Hand-Held Fire Extinguishers
Closing Date: 5/24/2012

The FAA will respond by June 7, 2012. The period of performance will be 12 months. Cost and cost realism will be evaluated as acceptable or unacceptable only.

ASTM D7673-10 Standard Specification for Halon 1211 – D. Blake for M. Robin (DuPont)

Background: need for a standard specification for Halon 1211. Both existing standards lack detailed methodology. Existing Standards do not address three areas that will be addressed in this Standard. Dave believes the Standard is pretty much done with their work and has to be approved by the ASTM committee.

Handheld Extinguishers 2-BTP Testing – D. Ferguson for M. Madden (Boeing)

This is a progress report on the development of 2-BTP. The steps to commercialization list were presented – it includes completed steps. This agent is on track for SNAP/REACH approval in 2013 (dependent upon test results and EPA requirements/schedule). Further updates will be provided at the IASFPWG meetings.

Halon Options Report Update – D. Blake for L. Speitel (FAATC)

The report has been published and available on the FAA Fire Safety website – Report # DOT/FAA/AR -11/31.

Fire Extinguishing/Suppression Agents' Quality Control – C. Lewis (TCCA)

Background: instances of contaminated Halons (particularly in handheld extinguishers). Objective: investigate means to minimize the probability of contaminated agents. It is jointly funded by Transport Canada, U.S. FAA, and U.K. CAA. Claude outlined the planned Phases of this program. This is a study aimed at minimizing the likelihood of non-compliant agents being installed on aircraft through improvement in QC. The contract was

recently issued to R.G.W. Cherry & Associates Ltd (UK). We seek this Working Group's support ('focus' group). We will have a short meeting today just prior to lunch break. Contact: Ray Cherry.

Fire Containment Cover ISO/DIS 14186, SAE 6453 - D. Blake (FAATC)

The FAA requested that SAE develop a standard for Fire Containment Covers (FCCs). Current ISO Status: ISO/DIS 14186 is listed as in Stage 40.00, DIS Registered. Dave outlined the SAE schedule: SAE releases new Standard AS6453 – February 2013. Dave discussed EASA CS25 Amendment 8 Change information. There has been discussion on developing another ISO/SAE Standard to apply to fire resistant ULD's but to date a working group for this has not been established. Does anyone have any additional information on this? J. Gatsonides: Are these Standards being lined up with Standards for cargo transport by other modes of transportation (train transport, truck transport) ie: transport to/from warehouses? D. Blake: the discussions I was involved in only covered aircraft.

Update and Correction to Cargo Compartment MPS Report – D. Blake (FAATC)

Latest version of MPS was issued June 2005 as second update. It has been pointed out that there were errors in this report. Dave outlined each of the errors and explained the corrections made.

This report will be reissued as TC-TN12/11. It should be available on the FAA Fire Safety website in the near future. The link to the June 2005 second update will be removed when it is reissued.

Working Group Question:
Should the cargo compartment MPS and/or the FAA FCC TSO include a lithium ion/lithium metal battery fire scenario? No response from attendees on this.

A350XWB Cargo Inerting Function – J. Taberski (Airbus)

Cargo Fire Protection as Combination of Halon 1301 and Nitrogen Enriched Air (NEA).

NEA produced by the Inert Gas Generating System (IGGS) as part of the Fuel Tank Inerting System. A diagram of the system architecture for both systems was presented. Jens reviewed the details of this combined system and the certification approach. Way Forward: preparation of draft CRI based on Airbus working paper and preparation of mock-up tests at DLR in Trauen. Benefits: first step to Halon-free aircraft, greener aircraft (less halon), 20045 kg weight saving, aircraft level architecture synergy, and unlimited ETOPS.

CAA Training Videos – R. Hill (FAATC)

We are working with the UK CAA. A slightly more detailed presentation on these videos was presented during the November 2011 IASFPWG meeting – see Minutes from that meeting at www.fire.tc.faa.gov.

Accident Database Update – R. Cherry (RGW Cherry & Associates)

Ray covered the Purpose of the database, database content, the current version of the database has 3,926 accidents from 1967 to 2009. 3,208 have textual fields, 583 with synopsis of accident reports. Access: http://www.rgwcherry-adb.co.uk. This is the current URL location for the database. Ray highlighted some of the data content of this database.

Recent changes: New User Guide now available on RGW Cherry & Associates website. Software changes went live April 2, 2012, including accident tagging, designated accidents, new data fields (ie: seat category), official accident reports, advanced search feature, search in custom list, updated features of picture viewer, session time out changed, 'text string' search improved. Planned future changes: Addition of NTSB Accident Reports, addition of 2010 and 2011 accident data, transition to the FAA Fire Safety website in the near future (a link will be available on the RGW Cherry website).

Working Group Member Presentations:

The Use of ULD Contained Suppression for Hazardous Air Cargo – D. Register (Firetrace International)

A copy of Doug's presentation is available at www.fire.tc.faa.gov.

Next Meeting:

Information on the dates and location of the fall 2012 Systems Working Group meeting will be posted to www.fire.tc.faa.gov when it is available. An email notice will also be sent to the email distribution list.