Lithium Battery Air Safety Advisory Committee

Meeting Minutes

March 3, 2021

I. Call to Order

Chairman Bob Brown called the third meeting of the Lithium Battery Air Safety Advisory Committee to order at 10:34 AM EST on March 3rd. The meeting was hosted virtually via Microsoft Teams. Serving as Designated Federal Officer (DFO), Duane Pfund from PHMSA, and as Alternate Designated Federal Officer (ADFO), Richard Hill from FAA.

II. Roll Call

Roll call was conducted by means of introductions of Committee members and staff. Twenty of twenty Committee members were in attendance:

BOB BROWN, Chairman, Coalition of Airline Pilots Associations

J. THOMAS CHAPIN, Underwriters Laboratories

JAMES DAVIS, AccuFleet Testing

RAJU DESAI, Apple

DOUG FERGUSON, Boeing

GEORGE KERCHNER, PRBA - the Rechargeable Battery Association

JENNIFER LITTENBERG, Hawaiian Airlines

TODD MACKINTOSH, General Motors

BRANDON MARTIN, Outdoor Power Equipment Institute

ROBERT McCLELLAND, UPS Airlines

KATHLEEN O'SHEI, Integer

WILLIAM REESE, Commercial Vehicle Safety Alliance

PAUL ROGERS, International Association of Fire Fighters

STEPHANE ROSSETTI, Medtronic

SCOTT SCHWARTZ, Air Line Pilots Association

TIM SHEPPARD, Samsung Electronics America

PHILIP SQUAIR, National Electrical Manufacture Association

MICHAEL TOBIN, Alaska Airlines

DAVID WEILERT, Viking Packing Specialist

VERONICA WILSON, Walmart

III. Opening Remarks

Opening remarks were provided by Tristan Brown, Acting Administrator, PHMSA; Ben Supko, Executive Director, FAA Office of Hazardous Materials and Chairman Bob Brown. All speakers recognized the diverse backgrounds of the Committee membership and highlighted the important work to be carried out. Acting Administrator Brown noted that the work of this Committee can make the agencies' work more effective and efficient, and indicated that he is looking forward to the report from the Committee. Executive Director Supko spoke about the importance of proactive risk mitigation and making a concerted effort to focus on system design, as well as being innovative with data and available information. Chairman Brown discussed the current and projected increase in the use of lithium batteries in energy storage grids, electric-powered automobiles and consumer products. Further, Chairman Brown stressed the importance of working together to the benefit of safety for all.

IV. Previous Meeting Minutes, Agenda Adoption & Report Update

Chairman Brown noted the minutes from the previous meeting were provided to all and made available on the Committee's webpage, and asked for a motion to adopt the minutes. A motion was received from member Weilert and a second from member Chapin. The minutes were adopted as provided. Chairman Brown then reviewed the current meeting agenda. A motion to approve the meeting agenda was provided by member McClelland and a second from member Martin. Noting no objections to the agenda as presented, the agenda was approved. Chairman Brown provided an update to the Committee that the initial report of the Committee had been submitted to the Department of Transportation in January of 2021.

V. Reports from Sub-Committees

Each of the four Sub-Committee Chairmen provided an update of the work that their committee had undertaken since the last Committee meeting and guest speakers presented on topics germane to the applicable Sub-Committees. Three of these updates were provided on the first day of the meeting.

DATA COLLECTION AND ANALYSIS

a. Bob McClelland, Chairman of the Data Collection and Analysis Sub-Committee, provided the Committee with an update of the sub-committee's work concerning two initial recommendations:
   1.) Receiving and ensuring access to granular information regarding lithium battery incidents and air transport . This is made possible by capturing information beyond what the regulations require or is provided through existing reporting mechanisms.
   2.) Establishing a mechanism and process for root cause analysis of lithium battery and product air transport incidents.

(1) Matt Pasha from Underwriters Laboratories made a presentation on the Thermal Incident Runaway Program (TRIP). This presentation provided updated battery incident data collected through TRIP, as well as a discussion on the addition of new users to the system and plans to consider the addition of more fields for data collection to reflect existing fields in PHMSA's Form 5800.1 and elements identified by this Sub-Committee.

(2) Members of PHMSA's Risk Data & Program Management and the U.S. Census Bureau provided a presentation updating the Committee on work currently being undertaken to examine the PHMSA Form 5800.1 which is used to report hazardous materials transportation incidents. This work includes cognitive research by the Census Bureau to evaluate the effectiveness of the form itself and the instructions to the user. The presentation also noted PHMSA has the flexibility to revisit the types of information collected, subject to information collection requirements, and make modifications to the 5800 in alignment with the work that the Census Bureau has done, as well as recommendations of this Committee.

(3) Tom Chapin provided a presentation addressing forensic analysis. This presentation addressed the types of information required to initiate a forensic analysis as well as the types of areas that are investigated during such an evaluation.

REGULATIONS AND GAP ANALYSIS

b. Mike Tobin, Chairman of the Regulations and Gap Analysis Sub-Committee, provided a presentation that discussed the concept of a regulatory gap and what that means (e.g., either a regulation does not exist or a regulation exists but is not being followed). After the presentations under this agenda item, Mr. Tobin provided examples of potential gaps identified by the Sub-Committee related to lithium battery transportation by air. These potential gaps include: personal electronic devices transported as cargo being allowed to be transported in a powered state, complex requirements for transporting battery powered mobility aids, difficulty obtaining information from battery and device manufacturers, lack of regulations addressing used or refurbished portable electronic devices, and concerns over lithium batteries transported through the postal system. During the open discussion at the end of this section, additional potential regulatory gaps concerning ICAO Section II batteries and batteries packed with and contained in equipment were discussed.

(1) Jennifer Littenberg provided a presentation on safety management systems (SMS) instituted by Hawaiian Airlines. This presentation included discussions on Hawaiian Airline's process to identify hazards, assess the risk and implement controls to the risk. Additionally, the presentation discussed the importance of implementing mitigation and control measures to manage risks to an acceptable level.

(2) Lynn McGuigan provided a presentation addressing the International Civil Aviation Organization (ICAO) Annex 6, Chapter 15 requirements recently introduced which require operators to perform a specific risk assessment on the carriage of items in the cargo compartment. The presentation provided an overview of ICAO's structure and overview of the regulation of dangerous goods and SMS within ICAO Annexes to the Chicago

Convention. The presentation noted that the SMS requirements in ICAO Annexes are not new, but that the new language is provided to help reinforce existing requirements to ensure the aircraft has an appropriate level of airworthiness, is operated in a safe manner and that safety is managed.

(3) Trevor Howard provided a presentation concerning regulatory gaps with ICAO Annex 6, Chapter 15. This presentation identified some potential issues carriers may run into during implementation of the safety risk assessment requirements found in ICAO Annex 6, Chapter 15. Examples of these potential issues include: difficulties in obtaining information for postal mail, difficulties accessing passenger baggage, scoping issues concerning requiring a risk assessment on all items in the air supply chain, and concerns that conducting a complete risk assessment of the entire supply chain could require the review of contracted ground handling agents, freight forwarders, shippers, manufacturers, distributors, and retailers.

SUPPLY CHAIN SAFETY AND INTEGRITY

c. Dr. Tom Chapin, Chairman of the Supply Chain Safety and Integrity Sub-Committee, provided an overview of the work done by the Sub-Committee to date and the five key phases of work to be carried out. The first phase involves defining key aspects of the lithium battery supply chain and lifecycle. The second phase is identifying regulatory categories and requirements for lithium battery shipments. The third phase is to examine the complex global supply chain. The fourth phase is to obtain feedback and input from airline industry and the U.S. Postal Inspection Service concerning challenges and incidents. The last key phase is to receive guidance from other Sub-Committees and develop broad-based recommendations from the supply chain perspective to advance lithium battery transportation safety.

(1) Mike Wentz provided a presentation on the results of a survey of air carriers on the types of information carriers believe to be important to them in order to accept lithium battery shipments for air transport. The top responses were watt hours/lithium content of batteries offered for transportation and a 38.3 test report or battery test summary document. These were followed by a desire for confirmation of a third-party certification for the battery or device. Mr. Wentz then stressed a desire for a third-party certification to product safety standards provision for lithium batteries to be transported.

(2) Paul Horner provided a presentation focusing on the package level of the supply chain and eventual acceptance by an air carrier. The presentation provided a traffic light system for lithium battery packages offered for transportation by air. Green indicates full compliance, yellow signifies a level of effort is required to make shipments compliant, and red indicates no attempt by the manufacturer or the shipper to comply with the regulations. The presentation highlighted challenges in conducting safety risk assessments for lithium battery shipments (e.g., increased peer to peer shipping, e-commerce, etc).

(3) Vincent Desiderio provided a presentation addressing issues the U.S. Postal

Service Inspection Service encounters in transporting lithium batteries thorough postal mail. The presentation noted a perceived risk spectrum that has a low risk (e.g., isolated incidents that are unlikely to reoccur) assigned to low volume infrequent shippers and private individuals, and more frequent incidents that are typically minor in their severity from high volume shippers. In between these two types of shippers are the small to medium businesses that are responsible for the majority of lithium battery incidents in postal mail. The presentation indicated this may be a result of a lack of awareness of the requirements for safely transporting lithium batteries. Finally, the presentation provided pictures of recent postal mail lithium battery related incidents.

HAZARD REVIEW

d. Bob Brown, Chairman of the Hazard Review Sub-Committee, provided an overview of the Committee meeting at the FAA Technical Center in February 2020. He noted that those in attendance were able to witness and discuss fire risks and flight crew procedures, types and classifications of types of lithium batteries and cargo compartments, and potential mitigation strategies. He further indicated, given this Sub-Committee is comprised of all members of the Committee, that expected next steps would involve an education on FAA Safety Management (SMS) principles and ICAO Annex 6 recommendations, examining the impact of packaging standards under development, and evaluating new mitigation technologies.

VI. Adjournment

Chairman Bob Brown discussed the agenda for day two and adjourned the meeting for the day at 4:03 PM EST.

Lithium Battery Air Safety Advisory Committee Meeting Minutes

March 4, 2021

VII. Call to Order

Chairman Bob Brown called the second day of the third meeting of the Lithium Battery Air Safety Advisory Committee to order at 10:35 AM EST on March 4th. The meeting was hosted via Microsoft Teams.

VIII. Roll Call

Twenty of twenty Committee members were in attendance:

BOB BROWN, Chairman, Coalition of Airline Pilots Associations

J. THOMAS CHAPIN, Underwriters Laboratories

JAMES DAVIS, AccuFleet Testing

RAJU DESAI, Apple

DOUG FERGUSON, Boeing

GEORGE KERCHNER, PRBA - the Rechargeable Battery Association

JENNIFER LITTENBERG, Hawaiian Airlines

TODD MACKINTOSH, General Motors

BRANDON MARTIN, Outdoor Power Equipment Institute

ROBERT McCLELLAND, UPS Airlines

KATHLEEN O'SHEI, Integer

WILLIAM REESE, Commercial Vehicle Safety Alliance

PAUL ROGERS, International Association of Fire Fighters

STEPHANE ROSSETTI, Medtronic

SCOTT SCHWARTZ, Air Line Pilots Association

TIM SHEPPARD, Samsung Electronics America

PHILIP SQUAIR, National Electrical Manufacture Association

MICHAEL TOBIN, Alaska Airlines

DAVID WEILERT, Viking Packing Specialist

VERONICA WILSON, Walmart

IX. Opening Remarks

Chairman Brown provided opening remarks summarizing the work done during day one and outlined the agenda for the second day of the meeting.

X. Reports from Sub-Committees(cont.)

a. Bob Brown, Chairman of the Hazard Review Sub-Committee, led discussions on issues related to the Sub-Committee. Following the presentations for this agenda item, Chairman Brown provided a presentation that outlined various efforts that may assist carriers in mitigating risks of carrying lithium batteries on aircraft.

(1) Richard Hill provided a presentation on FAA's Draft Advisory Circular AC 120-SRACC concerning safety risk assessments involving items in aircraft cargo compartments. The presentation also involved an overview of draft FAA websites to assist carriers in understanding the potential hazards involved in transporting lithium batteries by air and possible mitigation efforts that may mitigate these risks.

XI. Additional Topics

a. Veronica Wilson provided a presentation on artificial intelligence in e-commerce platforms. The presentation noted the complexities of handling many thousands of different products, often from many separate vendors. Additionally, the presentation discussed the use of bots and logic questionnaires to determine if products being entered into commerce potentially contain lithium batteries and thus require more complete background documentation.

b. Chairman Bob Brown provided a presentation on scanning technologies and its potential use to discover undeclared shipments. The presentation noted that there are multiple existing outreach programs, but perhaps additional technology such as the use of scanning technologies may reduce the likelihood of undeclared shipments being offered into commerce.

c. Duane Pfund provided a presentation on PHMSA's work concerning a statutorily mandated evaluation of current practices for the packaging of lithium ion batteries and cells for air transportation. The presentation noted that an independent research assessment was conducted and that PHMSA would pass along the results of our evaluation to the Committee for assignment to the appropriate Sub-Committee to consider potential recommendations to improve the packaging of batteries and cells for air transportation in a safe, efficient, and cost-effective manner.

d. Monica Mena provided a presentation on counterfeit batteries and products. This presentation provided some data on the scope of the counterfeit battery industry and the impacts of counterfeit batteries both in transportation and in use scenarios.

XII. Stakeholder Engagement in International Forums

a. DFO Pfund provided a presentation to update the Committee on recent and upcoming issues before the UN Sub-Committee of Experts on the Transport of Dangerous Goods.

b. DFO Pfund provided a presentation outlining the establishment of ICAO working groups, including one on energy storage devices, and recent publication of two Addendums to the ICAO Technical Instructions concerning the transportation of vaccines and associated cargo tracking/monitoring devices that may be present in or on packages during transport.

c. A presentation on the ongoing work by the SAE G-27 committee to develop a performance-based packaging standard for lithium batteries transported as cargo on aircraft was presented by Doug Ferguson.

XIII. Sub-Committee Next Steps & Prioritization

Each Sub-Committee chair discussed his views for the next steps of his Sub-Committee and inputs were gathered from Committee members during open discussion.

a. Data Collection and Analysis – The Chairman of this Sub-Committee indicated that there are both short term (3-6 months) and long term (6 months+) next steps for this Sub-Committee. The short-term goals include: developing materials to recruit and support additional carriers participation in TRIP, updating TRIP fields to reflect lower effort but higher value data elements, exploring enhanced reporting options and frequency, working on best practices for airlines conducting lithium battery incident investigations, and facilitating a meeting with FAA & PHMSA leadership to brief them on the TRIP program, and finding a long term location for this data collection to reside.

   Long term next steps include: planning and conducting a series of feedback sessions for TRIP users, seeking a long-term host for TRIP database and reporting, and evaluating and advocating, as needed, for forensic reviews of incidents.

b. Regulations and Gap Analysis – The Chairman of this Sub-Committee recognized a need for more frequent meetings of his Sub-Committee to identify regulations which make it difficult for carriers to perform safety risk assessments (e.g., Section II batteries) and to identify regulatory gaps or burdens.

c. Supply Chain Safety and Integrity – The Chairman of this Sub-Committee indicated the Sub-Committee will examine the contemporary state of the battery transportation supply chain in contrast to historical model. Factors to consider include: the impact of e-commerce, speed of delivery, integration to the last mile, battery diversity, manufacturing advancements, impact of the battery lifecycle and criminal activity.

XIV. Next Meeting

The Committee discussed dates for the next Committee meeting. It was noted that the results of a

survey taken by Committee members indicated that the dates with the most availability were September 22-23, 2021. The Committee tentatively selected September 22-23, 2021, as the dates for the next meeting, subject to required Department of Transportation approval.

XV. Adjournment

DFO Pfund and Chairman Bob Brown provided closing remarks thanking the Committee for their work, and the meeting was adjourned at 3:00 PM EST.

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

Bob Brown

Bob Brown
Chairman
Lithium Battery Air Safety Advisory Committee

Date: April 5, 2021