



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

OCT 13 2010

1200 New Jersey Ave., SE
Washington, DC 20590

The Honorable Deborah A.P. Hersman
Chairman
National Transportation Safety Board
490 L'Enfant Plaza, SW
Washington, DC 20594

Dear Chairman Hersman:

This letter provides an update on Safety Recommendations A-07-104 through A-07-108, A-08-1, and A-08-2 issued by the National Transportation Safety Board (NTSB) to the U.S. Department of Transportation (DOT). The Deputy Secretary has asked me to respond on his behalf.

The Safety Board made the following safety recommendations to the Pipeline and Hazardous Materials Safety Administration (PHMSA):

Safety Recommendation A-07-104:

Require aircraft operators to implement measures to reduce the risk of primary lithium batteries becoming involved in fires on cargo-only aircraft, such as transporting such batteries in fire resistant containers and/or in restricted quantities at any single location on the aircraft.

Safety Recommendation A-07-105:

Until fire suppression systems are required on cargo-only aircraft, as asked for in Safety Recommendation A-07-99, require that cargo shipments of secondary batteries including those contained in or packed with equipment be transported in crew-accessible locations where portable fire suppression systems can be used.

In the Notice of Proposed Rulemaking (NPRM), titled "Hazardous Materials: Transportation of Lithium Batteries," published on January 11, 2010, PHMSA proposed several actions to implement these recommendations. Specifically, PHMSA proposed to prohibit stowage of lithium metal batteries, transported in an inaccessible manner unless the inaccessible cargo compartment or freight container is equipped with a Federal Aviation Administration (FAA)-approved fire suppression system or the lithium batteries are packaged in an FAA-approved fire resistant container. The PHMSA also sought comments on how limiting the number of lithium batteries in a single aircraft, single compartment, unit load device, pallet or similar overpack would further enhance safety.

Since publication of the NPRM, FAA has continued to study the fire behavior of both lithium

metal and lithium ion batteries, including the effectiveness of metal packaging and depressurization in controlling a fire involving lithium metal batteries. (Depressurization is a common suppression method used to help respond to fires on the main deck of a cargo-only aircraft.) These investigations found that (1) metal containers were ineffective in containing a lithium metal cell in thermal runaway, and (2) reduced air pressure had no effect on lithium metal cells once they were in thermal runaway. This additional testing reaffirms the conclusion that the ban on transporting lithium metal cells and batteries as cargo aboard passenger aircraft should remain in effect. In addition, further regulatory action extending the ban to cargo aircraft will be reevaluated. Further research for processes, procedures, or materials to mitigate the risk of onboard fires involving lithium metal batteries will continue. As we gather more data and refine our understanding of different containers and engineering processes, additional regulatory action may be necessary.

The FAA also examined the fire behavior of lithium ion batteries, including the effectiveness of cargo compartment fire suppression systems, fire resistant containers, and hand-held fire extinguishers and found that several promising approaches exist to mitigate fires involving lithium ion batteries during air transport. Fire suppression systems in Class C cargo compartments proved effective in extinguishing open flames but will not stop the propagation of thermal runaway between cells, resulting in reignition. A fire resistant container or overpack also appears to mitigate the hazard present in shipping lithium ion batteries in non-Class C cargo compartments, such as those found on cargo-only aircraft (Class E). Additional work is needed in this area to develop a performance standard for this container. Testing revealed a limited advantage in placing a shipment of lithium ion cells in an accessible location.

The FAA and PHMSA are continuing to assess the value of packaging and cargo-stowage limits for lithium ion batteries not transported in a Class C cargo compartment. We anticipate obtaining additional information with alternatives for improved safety measures for the transport of lithium ion batteries shipped as cargo as a result of the same evaluation. As we gather more data and refine our understanding of different containers and engineering processes, additional regulatory action may be necessary. These issues will have the immediate attention of DOT and are expected to be included in a rulemaking based on the results of the continuing research and testing.

Safety Recommendation A-07-106:

Require aircraft operators that transport hazardous materials to immediately provide consolidated and specific information about hazardous materials on board an aircraft, including proper shipping name, hazard class, quantity, number of packages, and location, to on-scene emergency responders upon notification of an accident or incident.

The NTSB's July 21 letter advised that this recommendation has been classified "Closed—Acceptable Action."

Safety Recommendation A-07-107:

Require commercial cargo and passenger operators to report all incidents involving primary and secondary lithium batteries, including those contained in or packed with equipment, that occur either on board or during loading or unloading operations and retain the failed items for evaluation purposes.

Safety Recommendation A-07-108:

Analyze the causes of all thermal failures and fires involving secondary and primary lithium batteries and, based on this analysis, take appropriate action to mitigate any risks determined to be posed by transporting lithium batteries, including those contained in or packed with equipment, on board cargo and passenger aircraft as cargo; checked baggage; or carry-on items.

In its comments to the January 11 NPRM, NTSB stated that PHMSA did not propose a retention requirement for lithium batteries and equipment, but only requested comments about how retention of failed batteries and equipment might be achieved and analyzed properly. The PHMSA has proposed to modify 49 C.F.R. § 171.21 to require a shipper, carrier, package owner, or person reporting an incident under the provisions of §§ 171.15 or 171.16 to provide upon request, by an authorized representative of the Federal, State, or local government agency, reasonable assistance in investigating a transportation incident. Such assistance would include providing reasonable access to the damaged package or article, if available. The PHMSA believes this requirement would meet the intent of Safety Recommendation A-07-107 and facilitate the accomplishment of Safety Recommendation A-07-018, while still permitting a reporting person or other responsible person discretion in the disposition of the damaged package or article consistent with protecting human health and the environment.

The NTSB has also expressed concern that PHMSA did not discuss the reliability of the data used to determine the causes of the observed incidents. The risk assessment for transportation of lithium batteries discussed in the NPRM is based on an analysis of historical incident data on lithium batteries compiled by FAA. This incident data was the primary source of data used in the analysis. The data includes a narrative report completed by field inspectors that describes the nature of the incidents to the extent that information is available. Other information in the incident reports include the type of battery, the devices in which batteries were contained, if applicable, and the aircraft type (e.g., passenger or cargo aircraft). Despite its limitations, FAA data is the most comprehensive publicly available source to perform a data-driven risk assessment for lithium batteries flown on passenger and cargo aircraft.

In support of its ongoing efforts to understand the causes of lithium battery incidents, PHMSA recently finalized an interagency agreement with the U.S. Department of Defense Naval Surface Warfare Center, Carderock Division, to perform compliance and risk assessment testing

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of lithium batteries in an effort to ensure manufacturer compliance and to further enhance risk reduction for the transportation of such batteries. A major component of this agreement includes the testing and examination on lithium battery remnants and packaging that were involved in an incident and an analysis of the probable cause of the incident. This program will greatly enhance PHMSA's knowledge of the causes of transportation incidents and assist in investigations and appropriate enforcement. Based on the actions outlined above and pending the issuance of the final rule, we request that Safety Recommendations A-07-107 and A-07-108 be classified as "Closed—Acceptable Action." We appreciate your consideration of this request.

Safety Recommendation A-08-1:

In collaboration with air carriers, manufacturers of lithium batteries and electronic devices, air travel including flight crews, about the safe carriage of secondary (rechargeable) lithium batteries or electronic devices containing these batteries on board passenger aircraft.

Safety Recommendation A-08-2:

In collaboration with air carriers, manufacturers of lithium batteries and electronic devices, air travel the safe carriage of secondary (rechargeable) lithium batteries or electronic devices containing these batteries on board passenger aircraft.

The PHMSA continues its ongoing focus to educate the public on the safe use and handling of batteries and devices containing batteries. The SafeTravel campaign focuses on bringing people to the SafeTravel Web site for information by branding guidance material and other content with the SafeTravel logo. The PHMSA includes the Safetravel logo on outreach materials and PHMSA Web site. Links to the Safetravel Web site also appear on many other familiar information sources for air travelers, such as the Transportation Security Administration and FAA. Recently, *Fast Line*, the official blog of the U.S. Secretary of Transportation featured SafeTravel. The PHMSA continues to maintain and expand the SafeTravel Web site to provide up-to-date guidance to air travelers.

Additionally, PHMSA developed an extensive guide for shipping batteries safely by air that targets infrequent shippers of batteries of all types and includes full color pictures and plain language guidance to facilitate compliance with the applicable rules (copy enclosed). The PHMSA also modified the highly recognizable "These Fly..." poster (copy enclosed) to place a greater emphasis on lithium batteries and lithium battery-powered devices.

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Recently, PHMSA has targeted its outreach efforts to specific groups. During the fall of 2009, PHMSA contacted more than 100 retailers and distributors of e-cigarettes to make them aware that lithium batteries, such as those contained in e-cigarettes, are regulated by the Hazardous Materials Regulations and provided them with information on the safe shipment of lithium batteries and battery-powered devices.

The FAA, in conjunction with the airline industry, embarked on a series of tests to determine the optimum procedure for fighting a laptop computer fire onboard an aircraft. Based on this testing, FAA developed a training video that demonstrates effective and practical methods of extinguishing a cabin fire involving lithium batteries in a laptop computer. The video, "Extinguishing In-Flight Laptop Computer Fires," may be viewed at the Fire Safety Team Web site: www.fire.tc.faa.gov. Subsequently, FAA issued a Safety Alert for Operators (June 23, 2009), titled, "Fighting Fires Caused by Lithium Type Batteries in Portable Electronic Devices." The purpose of the Safety Alert for Operators is to recommend procedures for fighting fires caused by lithium type batteries in portable electronic devices.

The PHMSA and FAA continue to collect and assess incident data for changes in passenger and flight crew awareness and behavior. Independent of incident data, PHMSA assesses the continued visibility of the SafeTravel public awareness campaign as a measure of the success of the campaign. The PHMSA partnerships with government and industry have ensured that SafeTravel information continues to figure prominently on government and airline Web sites and monthly in-flight magazines. Based on the actions outlined above, we request that Safety Recommendations A-08-1 and A-08-2 be classified as "Closed—Acceptable Action." We appreciate your consideration of this request.

I hope this information has been helpful.

Sincerely yours,

 *Cindy Douglass*, CSO/
PHMSA

Cynthia Douglass

Enclosure