



December 23, 2011

Dr. Katherine Rooney
Secretary, Dangerous Goods Panel
International Civil Aviation Organization
999 University Street
Montreal, Quebec H3C 5H7
Canada

Dear Dr. Rooney:

I commented during the ICAO Dangerous Goods Panel October 2011 meeting that the premise of the FAA's study entitled *Freighter Airplane Cargo Fire Risk Model* (September 2011) is flawed for several reasons. Although we have not been provided access to the sources, databases and model used to prepare this study, even a quick review reveals it is based on faulty data and assumptions. These include, but are not limited to, the following:

1. FAA looked at five aircraft incidents occurring since 1958. We know that batteries were onboard aircraft in two of these incidents. The FAA assumes that batteries caused those two incidents, and then develops the risk model from this basis. But no facts are presented that indicate any involvement of batteries in the incidents. The mere presence of batteries onboard certainly is not enough to justify this assumption and should not be used as the basis for subsequent studies on the cost benefit ratios for various mitigation strategies.
2. FAA assumes that "bulk shipment of lithium batteries (primary and secondary) were likely contributors to two of the freighter fire accidents that occurred on U.S.-registered airplanes." This assumption is unfounded. In fact, the NTSB's report on the 2006 UPS plane incident does not identify any "bulk shipments" (*e.g.*, pallets) of lithium ion or lithium metal batteries onboard the aircraft. While it is true there were several large consignments of lithium batteries on the UPS plane involved in the Dubai incident, there is nothing in the UAE GCAA reports that indicates bulk shipments of lithium batteries were "likely contributors" to the accident.
3. There is no distinction or attempt to account for what are very different shipping practices for lithium ion and lithium metal batteries. Instead, the study assumes, without substantiation, that 50% of the lithium ion and lithium metal batteries are shipped on U.S. all-cargo airlines for an average of 2,116 miles. This is not true. The bulk of lithium metal batteries are shipped by sea via cargo vessel, not by cargo aircraft. Furthermore, most of the lithium ion batteries shipped via U.S. airlines are either included in or shipped with products, not shipped as batteries, either individually or in bulk, thereby greatly overstating the risk.

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4. Many other FAA's assumptions are inconsistent with fact. For example, it appears that FAA assumed that 100% of lithium battery cell production is shipped by air in bulk form. That is a wrong assumption. As noted in paragraph 3 above, most bulk shipments of lithium metal batteries are shipped by sea via cargo vessel, not cargo aircraft. In addition, an economic analysis prepared for PRBA in 2010 in response to a U.S. Department of Transportation rulemaking on lithium batteries showed that only 67% of imported cellular phones, 81% of imported notebooks and 69% of imported lithium ion cells and battery packs moved via air to the United States in 2009.

5. The Total 2010 Battery RTM shown in Table 3 (164.5 million) is 40% smaller than the Battery RTM that is calculated using the method and values described in the text. The corrected calculation, making no other changes in methodology, is provided below. This is not to endorse that methodology, however. The methodology also is wrong at least because it makes use of erroneous estimates of U.S. carrier shipments and product weight. Other inputs also may be wrong, but are not facts with which PRBA is familiar.
 - Lithium ion cells in 2010 x Multiplier for lithium primary (metal) cells x percent carried by U.S. carriers x weight of a typical cell x average stage flight x tons per pound =
 - 3.5 billion* x 1.25 x 50% x 0.1 lbs x 2116 miles x 1 ton/2000 lbs = 231 million

(* Estimated from Figure 3. Error is +/- 0.2 billion)

6. FAA claims there is a big difference in risk between "battery related" and "non battery related" shipments. However, in fact there is no statistically significant difference between the "battery related" and "non-battery related" incident rates. (The appropriate statistical analysis is based on 2-sample Poisson rates and comparing 3 incidents per 21,286,040,868 RTM ("non battery related") and 2 incidents per 164,521,543 RTM ("battery related")). In fact, the 95% confidence interval indicates that the incident rate for "non-battery related" may be higher than the "battery related" incident rate.

7. The FAA assumes risk is proportional to RTM. However, in the Conclusion on page 25, the FAA notes that "RTMs may not be the best basis for the prediction of cargo fire accidents...." At the least, the study is inconsistent; in fact, since it is correct that RTMs are not a good basis for estimating accidents, the Agency's proportionality analysis is wrong.

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Please contact me if you would like to discuss this matter in more detail. I can be reached at 202.719.4109 or gkerchner@wileyrein.com.

Sincerely,

George A. Kerchner

George A. Kerchner
Executive Director

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