Presentation To:

INTERNATIONAL AIRCRAFT SYSTEMS FIRE PROTECTION WORKING GROUP MEETING

Transport Canada
Lithium Batteries Working Group

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Why are Lithium Batteries of Concern?

- Increased demand for more powerful batteries = increase in shipping
- Undeclared and counterfeit batteries becoming more common
- Lithium batteries contain flammable materials
- Battery failure can lead to: heat, fire, explosion, thermal runaway and failure of adjacent cells/batteries
- Lithium battery incidents have resulted from:
  - Poor manufacturing and design
  - Improper handling and abuse during transport and by users
  - Improper packaging and lack of external short circuit protection
  - Exposure to high-temperature environments and fire
Transportation of Lithium Batteries - Background

TC Lithium Batteries Working Group

Mandate:

• The TC Lithium Batteries Working Group aims to consolidate Transport Canada’s knowledge base on this topic and identify, discuss and analyse issues relating the transport and handling of lithium batteries.

• The Working Group may make recommendations to the TDG Director General on ways to improve the safety of lithium battery transport in Canada.
Transportation of Lithium Batteries - Background

- Identified as an emerging issue (along with oil on rail) in 2012 and continues to be in 2014

- TC Lithium Batteries Working Group established in 2012

- Developed cost-effective awareness material in 2012 and 2013:
  - TDG website material to target shippers and general travelers
  - Sent material to Canada Post, Canada Border Services Agency, TDG General Policy Advisory Council members
  - One-pager distributed during inspection campaign

- 2013 TC National Lithium Battery Targeted Inspection Campaign – highlighted significant non-compliance and awareness issues that could increase the risk of a lithium battery incident in air transport

- An increase in consumer demand is driving the production and subsequent transport of more and more batteries. Higher volumes imply an increasing number of incidents
Aim of the TC Lithium Batteries WG:
Reduce the risk of a lithium battery incident during transport and handling

How significant is the risk?
AND
What can we do to reduce the risk?

GOAL: Reduce the risk (probability x consequence) of a lithium battery incident in the transportation cycle.
Lithium Batteries Working Group Work Areas

A multimodal WG, with members from TDG, Civil Aviation, Road Safety and Marine Safety.

Our current work is focused on these areas:

• Compliance
• Awareness
• Regulations
• Research, Data Collection and Risk Analysis
Lithium Batteries Working Group Work Areas

Compliance

• Summer 2013 - **Assessed national compliance levels through inspection campaign** - Our goals were to:
  
  ✓ Monitor compliance with applicable regulations
  
  ✓ Raise awareness
  
  ✓ Collect and analyze data to better understand the lithium battery industry

• 106 companies that transported lithium batteries were inspected as part of this campaign
Lithium Batteries Working Group Work Areas

Compliance

Key findings from the inspection campaign:

• Awareness is very poor in general:
  • regardless of shipping mode and size of company
  • very low level of awareness of ICAO requirements by those shipping by air
  • very low awareness of the dangers associated with lithium batteries

• A surprising number of companies shipped damaged, defective and waste batteries by air in the past year

• 78% of companies who ship batteries by air were not declaring their shipments properly
Lithium Batteries Working Group Work Areas

Awareness

• Raise awareness that lithium batteries are dangerous goods and that they must be handled, shipped and transported safely

• Awareness material was created:
  • A two-pager document was distributed during the national inspection campaign
  • Lithium battery bulletin on the TDG website: http://www.tc.gc.ca/eng/tdg/lithium-batteries-are-dangerous-goods-1162.html

• Lithium battery awareness sessions were offered to inspectors who participated in the inspection campaign
Align Canadian regulations on lithium batteries with current international regulations. It is very important for the TDG Regulations to be up-to-date to ensure enforceability and consistency.

Planned Amendments to the **TDG Regulations**:

- UN 18 amendment of the TDG Regulations - Canada Gazette I publication September 2014
- Current projected timeline is for the amendment to Part 8, Reporting to be submitted for publication in Canada Gazette I in September-October 2014
Lithium Batteries Working Group Work Areas

Research, Data Collection and Risk Analysis

• Ongoing project with National Research Council - assess the key risk factors in the air shipping and handling of lithium batteries

• TDG Research is planning a suite of multi-year projects starting in 2014-15 f/y to assess impact, risk, mitigation, that could include:
  o Assessment of supply chain of lithium battery air shipments in Canada
  o A study of the environmental and abuse conditions during shipping and handling by air, and assessment of performance packaging and other mitigation measures for lithium batteries
  o A feasibility study of existing air cargo security screening technologies and applicability to lithium batteries (for detecting non-declared batteries)
Lithium Batteries Working Group

The TC Lithium Batteries WG identified recommendations stemming from the 2013 National Lithium Battery Inspection Campaign in the following areas:

- Awareness
- Inspector Education
- Regulations
- Compliance
- Research
- Data Collection and Risk Analysis
- Response

The recommendations were presented to and approved by the Management Team. TC is working towards implementing them.
Questions and Input?

Transport Canada - Transport Dangerous Goods Directorate

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