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From: M. Edwards, CAPT
COMDT (CG-CVC)

To: Distribution

Subj: CARRIAGE OF LITHIUM-ION BATTERIES ON SMALL PASSENGER VESSELS

Ref: (a) 46 Code of Federal Regulations (CFR) Chapter I, Subchapter T
(b) 46 CFR Chapter I, Subchapter K

1. **PURPOSE.** This policy letter provides Officers in Charge, Marine Inspection (OCMI) and Marine Inspectors (MI) guidance regarding carriage of lithium-ion (Li-ion) batteries on small passenger vessels (SPV) subject to inspection per references (a) and (b). This policy letter does not add extra requirements to the marine or SPV industry. Rather, it is internal guidance to OCMI and MI on best practices while conducting SPV inspections.
2. **ACTION.** OCMI and MI shall use this guidance to identify potential safety risks on SPVs relating to the hazards associated with the carriage of portable Li-ion batteries. This policy letter expires on January 1, 2024.
3. **DIRECTIVES AFFECTED.** None
4. **BACKGROUND.** The Coast Guard Office of Engineering and Design Standards (CG-ENG) examined how different modes of transportation address risks associated with the carriage of Li-ion batteries. CG-ENG benchmarked industry safety standards and other federal regulatory regimes to assess the potential hazards that Li-ion batteries may pose on an SPV. The aviation industry, in particular, has adopted wide spread measures to include passenger flight restrictions on the carriage of portable Li-ion batteries to carry-on luggage only and the limitation to the maximum amount of energy capable of being stored in a Li-ion battery to less than 100 Watt hours (with limited exceptions).¹

The number and type of Li-ion devices and batteries that a passenger brings on board may not be readily apparent to SPV operators. Further, the introduction of Li-ion batteries onto a SPV may also create fire hazards stemming from electronic failure of battery management or chargers, use of

¹ 49 CFR 175.10(a)(18)

multiple chargers at the same time (“daisy chain” of power strips), water ingress into batteries, battery damage, or failure to follow manufacturer’s instructions for charging or use.²

5. POLICY. OCMIs and MIs should determine how portable Li-ion batteries are used on board a SPV and assess if the storage, charging, or use of these batteries creates potentially hazardous conditions. This policy is limited to small battery applications including portable batteries or battery powered equipment such as rechargeable batteries for diving equipment, cameras, cell phones, video and audio recording devices, lights, computers, portable radio communications (handheld VHF radios), electric scooters, skateboards and bicycles, and portable power tools.

This policy does not cover Li-ion battery installations used for propulsion or electrical power on commercial vessels. These installations must be approved by the Coast Guard Marine Safety Center as per CG-ENG Policy Letter 02-19: *Design Guidance for Lithium-ion Battery Installations Onboard Commercial Vessels*.

- a. If Li-ion batteries are on board a SPV, MIs should assess the storage, charging and use, during the course of a routine inspection:

(1) Storage.

- (a) Li-ion batteries and devices should be securely stored in a dry and cool location away from combustible material.

(2) Charging.

- (a) Battery charging should be restricted to regularly occupied spaces or other spaces with continuous monitoring such as smoke detection.

- (b) Li-ion batteries should not be charged in paint lockers or hazardous areas.

- (c) Charging stations should be single outlet use without linking or combining together multiple power strips or extension cords (“daisy chains”).

- (d) Prior to charging, batteries should be inspected for signs of damage, such as bulging/cracking, hissing, leaking, rising temperature, or smoking. Immediately remove a device or battery from service and place it in an area away from flammable materials if any of these signs are present.

- (e) Lithium-powered devices and batteries should be removed from the charger once they are fully charged.

(3) Use and Maintenance.

² OSHA Safety and Health Information Bulletin (SHIB 06-20-2019): *Preventing Fire and/or Explosion Injury from Small and Wearable Lithium Battery Powered Devices*

- (a) Li-ion batteries, chargers, and associated equipment should be tested in accordance with an appropriate test standard (e.g., UL 2054), rated for their intended use, and, where applicable, certified by a Nationally Recognized Testing Laboratory (NRTL).³
 - (b) The vessel owner or operator should follow the manufacturer's instructions for use, storage, charging, and maintenance of Li-ion batteries.
 - (c) Batteries should be purchased from the device's manufacturer or a manufacturer authorized reseller. When replacing batteries and chargers for an electronic device, ensure they are specifically designed and approved for use for that device.
 - (d) Damaged Li-ion batteries and devices should be removed from service. Signs of damage include, but are not limited to: bulging, cracking, dents, punctures, heat, sound of gas venting, and/or smoking. If batteries are damaged, they should be immediately removed from service, placed in a fire resistant container (e.g. metal drum) with sand or other extinguishing agent, and disposed of in accordance with local, state, and federal regulations. A local battery recycling center should be contacted for disposal instructions.
- b. The MI should verify that the crew understands how to extinguish small Li-ion battery fires, which may include purchasing, installing, and training the crew on the use of ABC dry chemical extinguishers, Class D fire extinguishers (for lithium-metal), or dirt or sand as a smothering agent based on the manufacturer's guidance. During the safety brief, it is recommended that passengers are advised of safe charging locations and any Li-ion battery restrictions on board. This may include procedures for passengers to immediately stow portable batteries upon embarkation in designated locations and for the crew to verify that batteries brought on board meet an applicable UL standard.
- c. If a MI witnesses an unsafe practice or improper installations on board, for example, "daisy chaining," charging in hazardous locations, use of damaged batteries, or use of burnt, frayed, or exposed wiring, the condition should be documented on a CG-835V using one of the following regulatory cites:
- (1) 46 CFR §§ 176.840/ 115.840 Additional test and inspections (Def Code: 99101),
 - (2) 46 CFR §§ 176.830/ 115.830 Unsafe Practices (Def Code: 09298),
 - (3) 46 CFR §§ 183.340/ 120.340 Cable and Wiring Requirements (Def Code: 02108),
 - (4) 46 CFR §§ 176.806/ 115.806 Electrical (Def Code: 09209), or
 - (5) 46 CFR §§ 177.405/ 116.405 Fire Hazards (Def Code: 07199).

Failure to mitigate or properly manage severe unsafe electrical or fire hazards may be grounds for issuance of a Code 30, detainable deficiency.

³ For a list of NRTLs, please go to: <https://www.osha.gov/dts/otpca/nrtl/nrtllist.html>

6. APPEALS. Appeals regarding deficiencies issued should follow the procedures within 46 CFR §1.03.
7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. Environmental considerations were examined in the development of this policy letter and have been determined not to be applicable.
8. DISCLAIMER. This policy letter guidance is neither a substitute for applicable legal requirements, nor a rule. It is not intended nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current position on this topic as applied to OCMI and MI, and may assist OCMI and MI in applying statutory and regulatory requirements during SPV inspections. An alternative approach may be used for complying with these requirements if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative approach (you are not required to do so), you may contact the Coast Guard Office of Commercial Vessel Compliance, COMDT (CG-CVC) who is responsible for implementing this guidance.
9. QUESTIONS. Questions concerning this policy letter and guidance should be directed to Office of Commercial Vessel Compliance, COMDT (CG-CVC), Domestic Compliance Division at CG-CVC@uscg.mil. This policy letter and other Domestic Vessel Policy documents are posted on the CG-CVC website at http://www.uscg.mil/hq/cgcvc/cvc/policy/policy_letters.asp.

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