U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

NextGen Organization
William J. Hughes Technical Center

ORDER
NG 6980.35

Effective Date:
06/08/2015

SUBJ: Technical Center Policy – Equipment Containing Electrolyte (ECE)

1. Purpose of This Order. The purpose of this order is to prescribe the requirements for the management of Equipment Containing Electrolyte (ECE) within the buildings and laboratory facilities located at the Federal Aviation Administration (FAA) William J. Hughes Technical Center (WJHTC). The primary objective of this order is to ensure the amount of electrolytes from WJHTC buildings is in compliance with the local safety codes, International Building Code (IBC) and International Fire Code (IFC). This order is also to ensure that existing ECE is properly accounted for by the Technical Center Facilities staff and maintained by the property owner. It addresses the responsibilities of both the owner of the ECE, the Center Operations Division and Laboratory Services Division, through the Infrastructure Management Control Board (IMCB).

2. Audience. This order applies to all new requests, existing ECE and/or alterations to existing ECE within the buildings managed by the WJHTC.

3. Where to Find This Order. You can find this order on the FAA.GOV website under the "Regulations & Policies" tab and select "Orders & Notices" or on the MyFAA Employee website**.** Use "Tools & Resources" tab and select "Orders & Notices."

4. Definitions.

a. Equipment Containing Electrolyte – Any piece of equipment that houses electrolytes. This equipment includes, but is not limited to, Uninterruptable Power Sources (UPS), Inverters, lifting equipment, transportation devices and any piece of equipment with an integrated battery system containing electrolytes.

b. Electrolyte – A conducting medium in which the flow of electric current takes place. The electrolyte in a lead acid battery is sulfuric acid (H2SO4) in water. The electrolyte in a nickel cadmium-alkaline cell is a solution of potassium hydroxide (KOH) in water.

c. ECE Owner – The local Manager (up to Branch) of the organization responsible for the purchase, operation and upkeep of ECE. A good indicator of this ownership is the responsible organization listed in the Automated Inventory Tracking System (AITS).

d. Battery System, Stationary – A system which consists of three interconnected subsystems:

(1) A battery with electrolyte.

(2) A battery charger.

(3) A collection of rectifiers, inverters, converters, and associated electrical equipment as required for a particular application.

e. Nickel cadmium, (Ni-Cd) battery – An alkaline storage battery in which the positive active material is nickel oxide, the negative contains cadmium and the electrolyte is potassium hydroxide.

f. Stationary storage battery – A group of electrochemical cells interconnected to supply a nominal voltage of DC power to a suitably connected electrical load, designed for service in a permanent location.

g. Valve-regulated lead acid (VRLA) battery – A lead-acid battery consisting of sealed cells furnished with a valve that opens to vent the battery whenever the internal pressure of the battery exceeds the ambient pressure by a set amount. The liquid electrolyte in the cells is immobilized in an Absorptive Glass Mat (AGM cells or batteries) or by the addition of a gelling agent.

h. Vented (Flooded) lead acid battery – A lead-acid battery consisting of cells that have electrodes immersed in liquid electrolyte. Flooded lead-acid batteries have a provision for the user to add water to the cell and are equipped with a flame-arresting vent, which permits the escape of hydrogen, and oxygen gas from the cell in a diffused manner such that a spark or other ignition source outside the cell will not ignite the gases inside the cell.

i. Uninterruptable Power Supply (UPS) – A device that provides battery backup when the electrical power fails or drops to an unacceptable voltage level. For this order, this also includes equipment that has built-in batteries.

j. Inverter – Equipment that changes Direct Current (DC) from the Battery System (BaS) to Alternating Current (AC)

k. Infrastructure Management Control Board (IMCB) – A committee consisting of the branch managers of the Facilities Engineering, Facilities Operations, Laboratory Portfolio Management, and Laboratory Engineering.

5. Compliance.

a. All buildings must have a total of less than 50 gallons of electrolyte in an open area. An open area is defined as a space enclosed by fire rated walls. This may include a building or a portion of a building with fire rated walls enclosing a room.

b. Electrolyte concentrations greater than 50 gallons must be in an enclosure with 1 hour rated firewalls, adequate ventilation per the IBC and IFC safety codes, spill protection and mitigation, and adequate fire suppression.

6. Roles and Responsibilities.

a. Equipment Containing Electrolyte (ECE) Owners must:

(1) Avoid using ECE for new or existing projects.

(2) Provide a mitigation plan for eliminating or containing ECE from existing projects to allocated levels within 90 days of email notification from the IMCB through their Laboratory Engineering or Facilities Engineering representative engineer.

(3) If a project requires ECE, provide a plan for ensuring ECE will not violate building and fire codes.

(4) Provide documentation that the ECE is being properly maintained per the manufacturer or FAA standards minimum recommendations.

(5) Create, track and share ECE inventory with the IMCB. Tracking shall be performed by having ECE barcoded and entered into the AITS inventory system.

b. Infrastructure Management Control Board (IMCB) shall:

(1) Receive and review ECE requests and mitigation plans within 60 days.

(2) Provide written response to the originator detailing decision. Included is the decision and justification for arriving at that decision.

(3) Provide a forum for requestors to get additional information concerning their request.

(4) Educate WJHTC organizations of these requirements.

(5) Maintain inventory of required ECE and ensure all ECE meets existing building and fire codes.

(6) Develop allocation levels for electrolytes for ECE owners.

(7) Educate organizations on WJHTC campus concerning electrolytes, associated building codes and their impact on buildings.

7. Related Publications.

a. FAA Order JO 6980.29 – Maintenance of Static Uninterruptible Power Supply Systems

b. FAA Order JO 6980.25 – Maintenance of Batteries for Standby Power

c. New Jersey Building Code - http://www.ecodes.biz/ecodes_support/Free_Resources/NewJersey/2009/09NJ_Bldg/09NJBldg_main.html

d. International Fire Code - http://publicecodes.cyberregs.com/icod/ifc/2012/index.htm

8. Distribution. This order is available electronically, as described in paragraph 3.

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William J. Hughes Technical Center