U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

JUN 1 5 2012

Mr. Harold Sackett
INOVA Geophysical Equipment Ltd.
850 N Dorothy Drive, STE 504
Richardson, TX 75081

Ref. No.: 12-0097

Dear Mr. Sackett:

This is in response to your April 10, 2012 email requesting clarification of requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to design-type testing of lithium ion batteries. The requirements you address are contained in Section 38.3 of the United Nations Manual of Tests and Criteria and are implemented through the provisions of § 173.185 of the HMR.

In your letter you describe an assembly comprised of 1-3 lithium ion battery packs in an aluminum enclosure. Each battery pack is less than 100 Wh and comprised of twelve (12) component cells in a 3s4p configuration. Each battery pack is equipped with individual safety circuits, each with its own connector. The battery packs are tied together when assembled in the aluminum enclosure. Specifically, you ask if your configuration constitutes a single lithium ion battery pack or separate lithium ion battery packs.

Based on your description and the information enclosed with your letter it appears that the assembly described in your letter comprised of two or three electrically connected battery packs in an aluminum enclosure meets the defining criteria for a battery as described in Section 38.3 of the United Nations Manual of Tests and Criteria. The definition states that a battery means one or more cells which are electrically connected together by a permanent means, including case, terminals and markings.

I hope this information is helpful. If you have further questions, please do not hesitate to contact this office.

Sincerely,

Robert Benedict
Chief, Standards Development
Standards and Rulemaking Division

Leary
§173.185
Batteries
12-0097

Drakeford, Carolyn (PHMSA)

From: Leary, Kevin (PHMSA)
Sent: Wednesday, April 18, 2012 10:00 AM
To: Drakeford, Carolyn (PHMSA)
Subject: FW: UNIATA regulations for shipping LiIon batteries
Attachments: Class 9 not required.pdf; Dual Battery ASM.pdf; 100-20040.tiff

Please log this in for an interp request.

From: Harold Sackett [mailto:Harold.Sackett@inovageo.com]
Sent: Tuesday, April 10, 2012 4:12 PM
To: Leary, Kevin (PHMSA)
Cc: John Lybarger
Subject: UNIATA regulations for shipping LiIon batteries

Dear Mr. Leary,

As part of our product offering, we supply a modular LiIon battery assembly to power equipment for our customers. This allows our customers to leave the equipment in situ and just swap out the batteries and recharge the spent batteries. Our original battery pack supplier, Nexergy, worked with us to create a battery that would be compliant to UNIATA regulations and still ship without the requirement of a class 9 hazardous material classification. They even supplied a reference letter to back up their opinion.

Since that time, we have taken on other suppliers and the regulations have also been updated some. Some of the suppliers have questioned us this year whether the original configuration is still compliant with current regulations. Could you give us guidance as to if we are compliant and, if not, what we would need to change to become compliant?

INOVA battery background
Our battery suppliers build a 3s4p LiIon battery pack with a built-in safety circuit that will shut down the battery in events of overcurrent (or shorts), overvoltage and under voltage. The battery pack capacity is under the 100 WHr limit to be compliant with the lithium content portion of the UNIATA regulations. Each of the suppliers must then submit samples of their design to a test house and pass the UNIATA testing requirements. Then they must supply us with a certificate of compliance before they can be added to our approved vendor list.

We then designed a modular battery assembly out of extruded aluminum that can be configured to house 1, 2 or 3 of these battery packs. It was our understanding that having individual packs, each compliant with UNIATA regulations and individual safety circuits, each with its own connector, tied together to prevent an imbalance and assembled inside a metal enclosure would allow the modular battery assembly to keep its classification of separate battery packs that are compliant and not require the class 9 shipping classification.

Attached, you will find the following:

- The letter we based our earlier classification on
- The assembly drawing of our modular battery assembly
- A drawing of the cable (for clarification of how the packs are connected)

This is a new product line which will soon be commercialized, and we need to try to get a definitive answer on this question. Is the assembly still compliant? If not, what is required to bring the assembly into compliance?

Thanks for your help,
Harold Sackett

Hardware Engineering Manager Cable-less Systems

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