U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

JUN 11 2008

Mr. Alan Greenstein
Phillips Medical Systems
2301 5th Ave., Suite 200
Seattle, WA 98121

Ref. No.: 08-0051

Dear Mr. Greenstein:

This is in response to your February 29, 2008 letter concerning the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to two configurations of lithium metal cells mounted into casing. Specifically you ask if your configurations of lithium metal cells constitute a lithium battery or a collection of individual cells.

In your letter, you enclose drawings and describe the configurations for two modules that contain several lithium metal cells, each containing less than 2 grams of lithium. The individual cells are permanently mounted in a module. The aggregate lithium content of the cells contained in each module is more than 2 grams. You state no electrical connections exist between the cells until the module is installed in the equipment.

Provided no electrical connections exist between the cells, the configurations described in your letter would constitute a collection of individual cells and not a battery. Once the module is installed into the device and electrical connections are made, these configurations should be described and transported as a lithium battery contained in equipment. You should note once installed in the device, the lithium metal cells are connected and the module constitutes a battery.

Prior to transportation in commerce, the cells in the module or the lithium battery installed in the device must meet all applicable HMR requirements including UN design type testing.

I hope this information is helpful. Please contact us if you require additional assistance.

Sincerely,

John A. Gale
Chief, Standards Development
Office of Hazardous Materials Standards

Leary
$173.185
Lithium Battery
08-0051

PHILIPS

Philips Medical Systems

Heartstream
2301 5th Ave., Suite 200
Seattle, WA 98121
206 664-5810 (direct)

SENT ELECTRONICALLY

February 29, 2008

Mr. Kevin Leary
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation

Re: Request for Interpretation of "lithium battery"

Dear Mr. Leary:
Thank you for taking the time to speak with me earlier this week. As you suggested, I am sending this description of some concepts regarding pre-packaged primary lithium cells . I am requesting an interpretation as to whether these assemblies would be considered a "lithium battery" or a collection of individual cells for transport purposes.

We are currently developing new equipment that will be powered by lithium primary cells. For user convenience, these cells would typically be assembled into a removable battery. As in most batteries, electrical connections inside the battery, between cells, would combine the cells into the required configuration of series and parallel cell stacks.

These batteries would contain sufficient cells to exceed 2 grams of lithium metal per battery and so would be subject to the more rigorous hazardous material regulations for shipping which are applicable to batteries of this size.

We would like to explore alternate designs that would provide the same convenience to the user as a battery, but could also be considered a collection of individual cells, rather than a "battery" for transport purposes. The key concept being proposed is a module comprising a collection of individual cells which are held in position in a housing. However, unlike a battery, the module contains no electrical connections between any of the cells. Connections between the cells are made only when the module is installed into the equipment.

Figures 1 and 2 show two possible concepts, although other variations are also possible. Both share the central feature that no cell-to-cell electrical connection exists within the modules. In figure 1, the module holds multiple individual cells with an enclosure. The enclosure has openings in one side so that when the module is installed in the equipment, contacts in the equipment housing extend into the module and make the required electrical connections with the cells. When the module is shipped not installed in the equipment, it contains no electrical connections between the cells.

Figure 2 also shows a module containing individual cells within an enclosure. Unlike the concept in figure 1, the individual cell terminals are electrically connected to individual contacts on the side of the enclosure. This has the advantage of consolidating the electrical interface to a more convenient location and eliminates openings in the module enclosure. However, it maintains the key feature that all the cells remain electrically isolated from each other until the module is installed in the equipment.

Please note that these figures are intended only to represent the basic concept being discussed. They do not represent complete designs.

I am requesting an interpretation as to whether these module concepts, which have no electrical connections between cells, would be considered "lithium batteries" or whether they could be treated as shipments of cells, assuming they are shipped not installed in equipment.

Please feel free to contact me if you need additional information.

Regards,

Alan Greenstein
Project Manager

alan.greenstein@philips.com

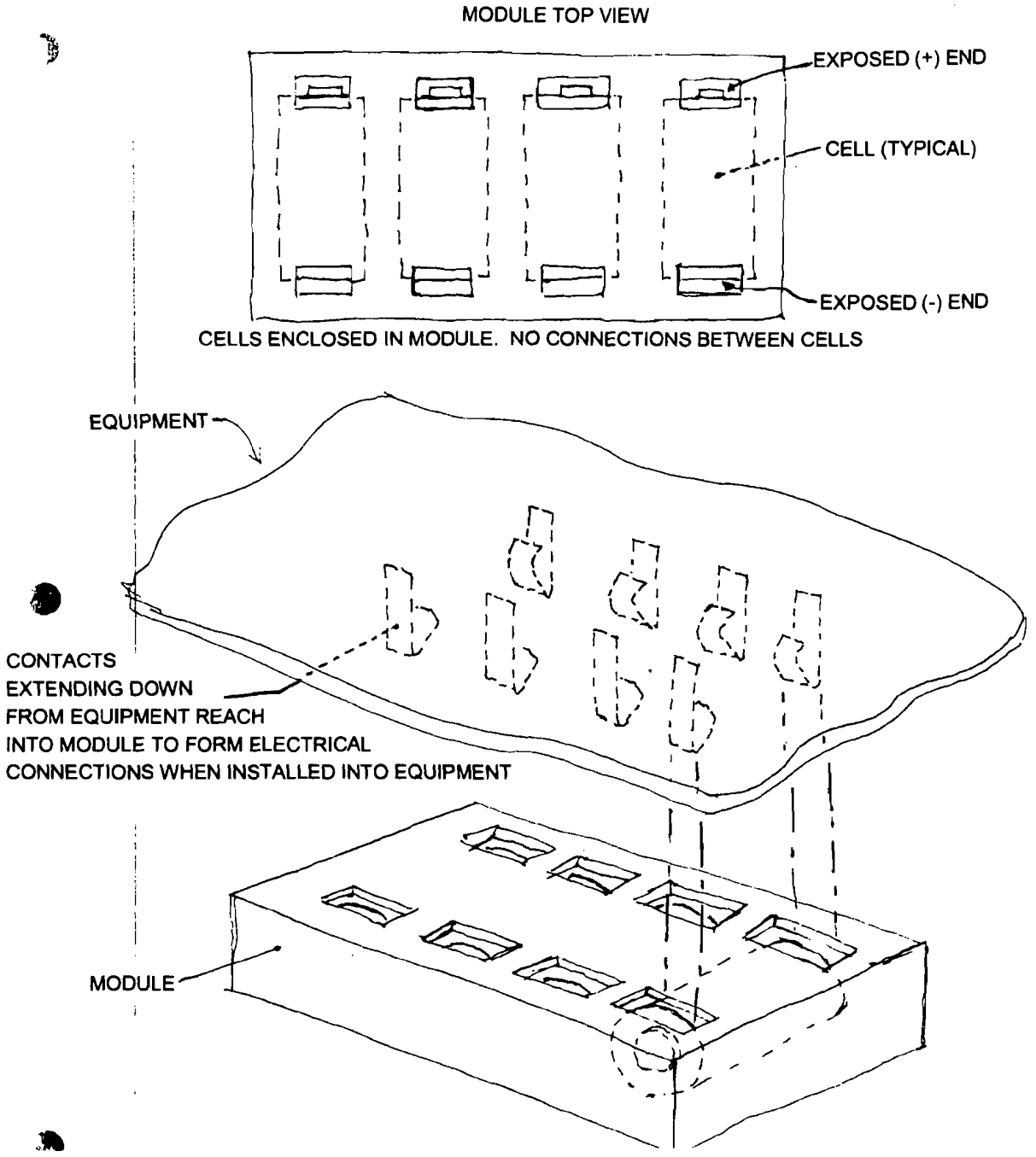

Figure 1.
Battery module with individual cells. Contacts in equipment make contact directly with cell terminals

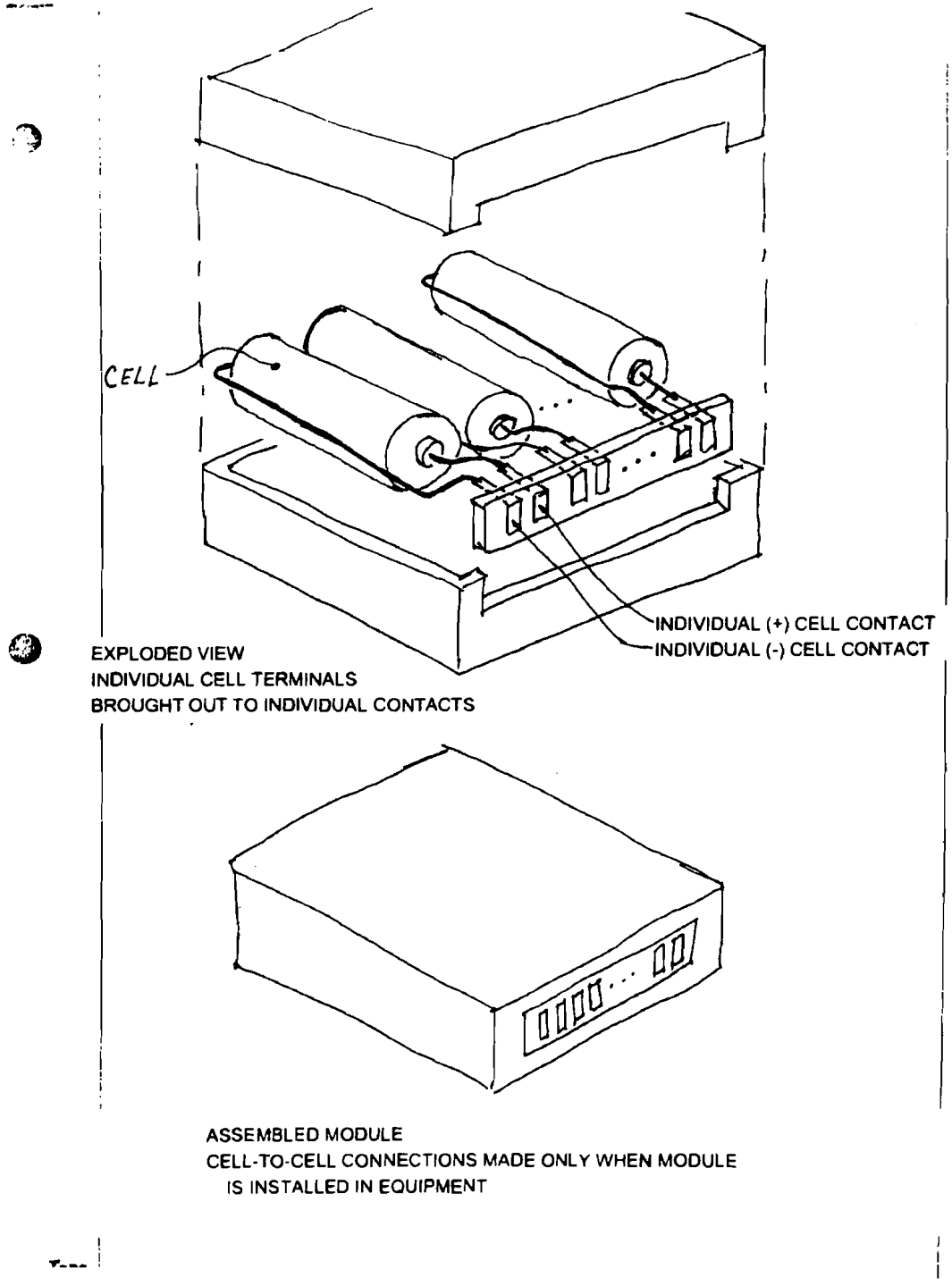

Figure 2
Battery module where individual cell terminals are connected to individual external contacts.