Transportation/Hazardous Materials: Pipeline and Hazardous Materials Safety Administration Interpretive Letter Addressing Wet Batteries

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The United States Pipeline and Hazardous Materials Safety Administration ("PHMSA") addressed in a June 10th interpretive letter the application of Hazardous Materials Regulations ("HMR") applicable to wet batteries transported via highway. See Reference No. 25-0058.

PHMSA was responding to an April 23rd letter from Invinity Energy Systems ("IES").

IES states that it designs and manufactures vanadium flow batteries classified under "UN2794 Batteries, Wet, Filled with Acid, electric storage, 8." The batteries are stated to contain a non-flammable aqueous electrolyte solution containing vanadium sulfate.

IES asked for confirmation that the transportation of such batteries in a manner described by the company and in accordance with the requirements of § 173.159(e), is not subject to any other requirement of the HMR.

The manner of shipment is described as:

- The battery is shipped fully discharged.
- The power and energy storage elements (i.e., the tanks) of the battery are physically separated and the power elements (i.e., stacks) contain no stored energy.
- No voltage on the terminals (0 V).
- Stacks have no exposed terminals to prevent short circuiting.
- Stacks are firmly secured within a rigid metal racking system that separates each stack to prevent short circuiting.
- The metal racking system containing the stacks is firmly secured and integrated into a 20-ft International Organization for Standardization/Convention of Safe Containers (ISO/CSC) certified steel container.
- The 20-ft ISO/CSC certified container has re-enforced structures, fixtures, and secondary containment.
- No other hazardous material is shipped with the complete unit.
- No other materials are transported on the vehicle.

Based on the information provided by IES and photographs the company provided, PHMSA states that the batteries meet the requirements of § 173.159(e) for highway transport. The agency does caution that the batteries transported in this manner are still subject to incident reporting requirements in § 171.15.

A copy of the interpretive letter can be downloaded here.