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

1200 New Jersey Ave., S.E.
Washington, DC 20590

JUN 28 2007

Mr. Cliff Bartley
Horizon Lines
Blount Island
5800-1 William Mills Street
Jacksonville, FL 32226

Ref. No.: 07-0037

Dear Mr. Bartley:

This responds to your February 1, 2007, letter regarding requirements under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) as they apply to hazardous cargo moving in refrigerated/heated cargo containers (reefers) in the Alaska trade during the winter months.

You state that heating hazardous cargo is sometimes necessary to avoid freeze damage to items such as Class 3 (flammable) paints and other common hazardous cargo shipments that would not normally require temperature control during the warmer parts of the year in the Alaska market. These products can be damaged and rendered useless if subjected to the freezing weather during the winter months. A reefer is required to provide heat to avoid cargo damage. You ask if a standard refrigerated container operating in the heat mode may be used to transport hazardous cargo that requires temperature control for quality during the winter months.

Section 177.834(l) establishes conditions for the use of cargo heaters when transporting certain hazardous materials by motor carrier. Paragraph (l)(2)(iii) of this section sets forth restrictions for the use of automatic cargo-space-heating temperature control devices. Such a device may be used when transporting Class 3 or Division 2.1 materials only if the conditions in paragraph (l)(2)(iii)(A) of § 177.834 are met: (1) the electrical apparatus in the cargo compartment must be non-sparking or explosion proof; (2) there must be no combustion apparatus in the cargo compartment; (3) there must be no connection for return of air from the cargo compartment to the combustion apparatus; and (4) the heating system may not heat any part of the cargo to more than 54° C (129° F). In addition, the automatic cargo-space-heating temperature control device must conform to heater requirements in 49 CFR 393.77.

In accordance with § 176.76(d), a transport vehicle or freight container equipped with heating or refrigeration equipment may be operated on board a vessel. However, the equipment may not be operated in any hold or compartment containing a flammable

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173.21
176.76(d)
177.834

liquid or gas unless it is designed to operate within an environment containing flammable vapors.

If the temperature-control equipment you utilize does not conform to the requirements specified in the HMR, you may need to apply for a special permit under the procedures prescribed in 49 CFR 107.105.

I hope this information is helpful. If we can be of further assistance, please contact us.

Sincerely,

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

HORIZON LINES™

Engrum
§173.21 (G)(iii)
§177.834
Loading & Unloading
07-0037

February 1, 2007

Mr. Ed Mazzullo
Director Office of Hazardous Materials
Hazardous Materials Standards
USDOT / PRMSA / DHM10
400 7th Street S.W.
Washington, DC 20590

Re:
Dear Mr. Mazzullo,

We, Horizon Lines, LLC, are a domestic containerized ocean transportation company that has roots that go back as far as the late 1950's when containerization originated with Malcolm Mclean. We have and are currently serving the containerized transportation needs of the domestic locations of Alaska, Hawaii, Guam and Puerto Rico. Hazardous cargo has been moving in refrigerated/heated cargo containers (reefers) in the Alaska trade during the winter months for many years. Heating hazardous cargo is sometimes necessary to avoid freeze damage to items such as class 3 paints and other common hazardous cargo shipments that would not normally require temperature control during the warmer parts of the year in the Alaska market. These products can be damaged and rendered useless if subjected to the freezing weather during the winter months. Care has to be taken even in the lower 48 during the winter to protect some hazardous cargo subject to freeze damage. A reefer is required to provide heat to avoid cargo damage.

Is there an issue with using a standard refrigerated container operating in the heat mode to transport hazardous cargo that require temperature control for quality during the winter months.

The HMR references 49CFR 177.834(L) and 173.21(G)(ii) in dealing with temperature control. Section 173.21(G)(ii) directs you to the IMDG section chapter 7.7. The guidance in the IMDG under section 7.7.6.1 – "Special provisions for flammable gases or liquids having a flashpoint below 23^{0}C c.c. transported under temperature control read as follows:

"When flammable gases or liquids having a flashpoint below +23^{0}C c.c. are packed or loaded in a cargo transport unit equipped with a refrigerating or heating system, the cooling or heating equipment shall comply with 7.7.3."

Section 7.7.3 provide methods of temperature control but perhaps the method used most frequently used is a single mechanical refrigeration unit. Section 7.7.3.2 paragraph 3 reads as follows:

"Single mechanical refrigeration, provided that the unit is thermally insulated and , for substances with a flashpoint lower than the sum of the emergency temperature plus 5^{0}C , explosion-proof electrical fittings are used within the cooling compartment to prevent ignition of flammable vapors from the substances;"

It is clear the IMDG regulation was written for organic peroxides or self reactive substances and does not really apply to general hazardous cargo since you generally are not looking at emergency temperatures with standard flammable hazardous cargo. You will also note that this section is written with the intent of keeping a product cool rather than heating it. This cargo is shipped in refrigerated containers to maintain stability for safety as opposed to being shipped under temperature control for quality purposes and to eliminate cargo losses.

I have checked with several refrigeration container manufactures and they do not make equipment that is considered explosion proof. Their units maintain temperatures between -20F and 80F. The temperature maintenance is thermostatically controlled.

Thank you for your consideration of my question.

Sincerely,

Cliff Bartley,
Manager Hazardous Materials

Cc: United States Coast Guard
Attn: Rick Bornhorst
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Washington, DC 20593
Routing CG-3PSO-3