



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

JUN 26 2002

Mr. Michael Burdette, P.E.  
Burdette & Associates, Inc.  
P.O. Box 264  
Milton, LA 70558

Ref No. 02-0095

Dear Mr. Burdette:

This responds to your letter dated March 31, 2002, regarding whether a nozzle on an IM 101 portable tank, which is in place solely for diesel fuel return, can be considered a "fill" nozzle in accordance with the requirements in 49 CFR 178-270-12(a) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

An IM 101 dedicated, diesel generator fuel tank is equipped with a fuel return nozzle located in the vapor space. This nozzle is a ½ inch threaded opening with a "tee" fitting equipped with screwed plugs for closure during transport. A "tee" fitting is required in order to be able to connect two diesel engine fuel return lines to the tank -- 100% backup is often required for emergency situations. Specifically, you asked if this nozzle can be considered as a fill nozzle and thus not require a manually operated stop valve.

Paragraph (a) of § 178.270-12 requires all tank nozzles, thermometer wells and inspection openings to be fitted with manually operated stop valves located as near the shell as practicable, either internal or external to the shell. However, a tank nozzle installed in the vapor space to provide a filling or cleaning opening, which is closed by a blank flange or other suitable means, is not required to be provided with a manually operated stop valve. It is our opinion that a diesel engine fuel return line nozzle located in the vapor space for the sole purpose of returning excess diesel fuel from the engine back to the fuel tank, although technically not a fill line, is an inlet opening in the vapor space for product to be returned to the fuel tank, and thus would be considered a filling opening in accordance with § 178.270-12. Therefore, the IM 101 dedicated, diesel generator fuel tank equipped with a fuel return nozzle located in the vapor space need not be provided with a manually operated stop valve.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,

Delmer F. Billings  
Chief, Standards Development  
Office of Hazardous Materials Standards



020095

178.270-12

Burdette & Associates, Inc. P.O. Box 264 Milton, LA 70558  
Michael Burdette, P.E. Phone (337) 893-8652 Fax (337) 893-5655

Mr. Ed Mazzullo  
RSPA - Office of Hazardous Materials Standards  
US DOT  
400 7<sup>th</sup> Street, S.W.  
Washington, DC 20590-0001  
DHM-10

March 31, 2002

Enghum  
§ 107.14 (b)(1)  
§ 178.270-12 (a)  
Tanks  
02-0095

Reference: Written Interpretation of packaging requirements in accordance with 49 CFR 107.14(b)(1).

Dear Mr. Mazzullo:

This letter is a written request for clarification of the requirements for hazardous materials packaging requirements - specifically 49 CFR 178.270-12 (a). I have discussed this issue with Mr. Gary McGinnis and he has suggested I request this written interpretation.

An IM 101 dedicated diesel generator fuel tank is equipped with a fuel return nozzle located in the vapor space. This nozzle is a ½ inch threaded opening with a "tee" fitting equipped with screwed plugs for closure during transport. A "tee" fitting is required in order to be able to connect two diesel engine fuel return lines to the tank - 100% backup is often required for emergency situations.

The interpretation requested is: Can a nozzle which is in place solely for diesel fuel return be considered a fill nozzle?

Mr. McGinnis has interpreted that this nozzle is not a fill nozzle and therefore requires a manually operated stop valve. Based upon the wording in 49 CFR 178.270-12(a), it does seem that if a nozzle is used solely to place fuel into the tank it could be classified as a fill nozzle. If it cannot be classified as a fill nozzle, I would respectfully ask what other classification could it have?

The fuel tanks and diesel generator systems are rental items supplied by the equipment owner and are transported via road or ship. These systems are

usually not rigged up on site by the owner or the owners representatives. Having a valve in place on the fuel return nozzle, which could be left closed during the equipment rigging up phase, could have serious safety and pollution issues. A diesel engine fuel system typically returns 50% to 80% of the fuel drawn to the transfer pump (reference the Cummins Diesel letter of 3/28/02 - enclosed). The amount of liquid returned varies according to engine size and load, data for fuel consumption is enclosed with this request. From the fuel consumption chart it can be noted that the largest generator set, 1250 KW, at full load consumes approximately 87.3 gallons per hour (GPH). If the fuel returned is taken as the minimum (50%) of the fuel drawn to the system and 87.3 gallons per hour is consumed by the engine, the amount returned via the fuel return line would be approximately 87.3 gallons per hour. This calculation assumes the fuel pump transfers approximately 175 GPH to the engine with 50% of this amount returned back to the tank. A flow into a tank nozzle of this magnitude (approximately 1.5 gallons per minute), should allow that nozzle to be classified as a secondary fill nozzle. As mentioned above, the only purpose for this nozzle is the return of excess diesel fuel from the engine back to the fuel tank.

The safety implications due to the possibility of the valve remaining closed while the engine is being run could be fairly grave:

- 1) The fuel system could be overpressurized causing the engine to overspeed (also known as "run away"), and destroy itself due to excessive engine speed (rpm),
- 2) The fuel system could overpressurize causing failure of the injector seals, ruining the engine injection system and possibly the engine, or
- 3) The return line hose could become overpressured, causing it to rupture and continue to pump diesel through the return line hose and pump the contents of the fuel tank onto an offshore platform deck and consequently into the offshore waters.

The possibility exists that this nozzle cannot be classified as a filling nozzle, therefore Mr. McGinnis has advised that an emergency exemption should be applied for in conjunction with this interpretation request. In order to limit the amount of paperwork and RSPA resources involved in this effort, I would like to obtain the interpretation first. It is my opinion that this nozzle

can be classified as a fill nozzle and therefore would not require a manually operated stop valve, since it is closed by screw caps which are a suitable means of closure.

Thank you for your attention to this very serious matter. Your response to this issue will be appreciated and hopefully an exemption request will not be required. My office address is:

Burdette & Associates, Inc.

P.O. Box 264

Milton, LA 70558

My daytime telephone number is 337 893 8652 and my fax number is 337 893 5655. I can also be contacted via email at [msbpe@bellsouth.net](mailto:msbpe@bellsouth.net).

Thank you again for your assistance to resolve this issue. Please contact me if you have any questions or need further clarification of any facts.

Sincerely,



Michael Burdette, P.E.

Mechanical Engineer

DOT Approval Agency #IM-9702

Enclosures:

Cummins Diesel Pressure Timed Fuel Systems - dated 3/28/02

Fuel Consumption Chart 15 KW through 1250 KW Generator sizes

cc: Kevin Wiemann, Zipper Cantrelle & Carson McElroy - Welch Rentals