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The Clerk to the Joint Fire and Rescue Board  
The Chief Executive, Dumfries and Galloway  
The Chief Executive, Fife Council  
The Chief Officer

12 May 2008

Dear Sir/Madam

**SCOTTISH FIRE AND RESCUE SERVICE CIRCULAR 8/2008**  
**SWITCH LOADING OF PETROL AND DISTILLATE FUELS**

**1. The practice of switch loading**

- 1.1 Switch loading is the terminology used to describe the practice of loading a distillate fuel e.g. diesel or gas oil, into a tank compartment which has previously contained petrol. Switch loading can also be practiced between petrol and kerosene but this practice is normally discouraged because of the risk of residual petrol (liquid or vapour) lowering the flash point of the kerosene.
- 1.2 In the UK the practice of switch loading road tankers is very common with perhaps as many as 95% of petrol/distillate fuel tankers undertaking it in order to minimise unnecessary journeys e.g. by discharging one load and returning with another. Compartments of tankers which have been switch loaded will not only contain the liquid distillate product but also an amount of petrol vapour remaining from the previous load/loads.
- 1.3 Road tankers that transport petrol are designed and constructed for bottom loading with vapour recovery and in addition to the compartment ullage spaces, petrol vapour will be retained in the associated vapour manifold and pipework, together with small amounts of petrol in other associated pieces of equipment.
- 1.4 Distillate fuels have a greater density than petrol and in many cases a nominal 'full load' of distillate will require a tanker to run with an empty or partially filled compartment, to ensure that the vehicle does not exceed its maximum authorised mass on the road.

- 1.5 Large volumes of petrol vapour will be retained in the empty and/or partially filled compartments of a tanker carrying distillates in which petrol has been previously loaded. Even in compartments not previously loaded with petrol there is a risk that vapour will be present, due to the inter-compartment connection afforded by the vapour manifold and the vapour transfer valves, all of which are open during the bottom loading process. It is possible that a tanker may arrive at a site with a full load of diesel and leave with a full load of petrol vapour.
- 1.6 Where a mixed load of liquid products comprises petrol, diesel, kerosene or aviation fuels the tanker will be marked with the UN number of the product with the greatest hazard i.e. the lowest flashpoint. In the case of empty uncleaned tanks, the tanker is marked as if it still contained the original product. However, there are no specific provisions for marking where the transport of a single substance with the residual vapour of a product with a greater hazard (lower flashpoint) is undertaken even though this may present a similar hazard to that of an empty uncleaned tanker.
- 1.7 Under the current regulations, a compartment that was previously filled with petrol and then refilled with diesel and subsequently emptied of the diesel would have to be marked UN 1202 (diesel) to reflect the last load in the uncleaned tank, but in fact could be filled with petrol vapour.
- 1.8 These hazards are recognised by the petroleum industry and as a result it has become widespread practice in the UK for road tanker operators to retain the petrol marking (UN 1203) on tankers for a number of full loads of diesel or gas oil (UN 1202) after carrying petrol in order to reflect the presence of the retained petrol vapour and the greater danger this may pose.

## 2. Actions for Fire and Rescue Services

- 2.1 FRs should be aware that, when dealing with incidents involving petrol/distillate tankers, any of the tank compartments may contain mixtures of distillate and petrol vapour. Therefore, all the tanks should be treated as if they contained petrol vapour until information to the contrary is obtained.
- 2.2 This also means that tanks may contain diesel/gas oil as the main load but still marked as petrol to better reflect the greater danger from any residual petrol vapours.
- 2.3 The emergency action code for all such tankers should therefore be taken to be **3YE** (indicating a possible public safety hazard beyond the immediate area of the incident) even though the emergency action code for the distillates will be 3Y and some tankers may still be marked as such.
- 2.4 As there are no movements of petrol/distillate tankers to and from Europe this will not be an issue for non UK registered tankers i.e. those marked with Kemler Hazardous Identification Numbers.

Yours faithfully



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