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Joint Meeting of the RID Safety Committee and the
Working Party on the Transport of Dangerous Goods
(Bern, 7-11 March 2005)

TANKS

Research Project on Emergency Pressure Relief Valves on Flammable Liquid Tankers

Transmitted by the Government of the United Kingdom */

SUMMARY	
Executive Summary:	To seek the views of RID / ADR Contracting Parties and European Industry on the value of research into the use of Emergency Pressure Relief Valves (EPRVs) on Flammable Liquid Low- Pressure Tank Vehicles.

Background

While ADR includes standards for the design and construction of tanks, requirements for emergency pressure relief devices are not addressed either through standards or directly in ADR. This situation has given rise to differing philosophies across Europe regarding the fitting of emergency pressure relief devices to low-pressure tank vehicles carrying class 3 goods and primarily UN1203 Motor Spirit or Gasoline or Petrol.

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There are generally two types of pressure relief devices fitted across Europe:

- a pressure / vacuum vent valve which operates under normal filling, discharge and transport activities, which caters for minor fluctuations in pressure and/or vacuum, and which may vent into a vapour recovery manifold;
- Emergency Pressure Relief Valve (EPRV) - sometimes known as a fire engulfment valve (FEV) which is an emergency venting system which operates under significant overpressures such as those encountered during fire engulfment.

In the United Kingdom low-pressure BOX/MAX section tank vehicles primarily, but not exclusively carrying UN1203, have been fitted with EPRVs in addition to pressure / vacuum vent valves for many years. Experience has suggested that, where EPRVs have been fitted, the valves have been effective in preventing catastrophic failure of the tank and subsequent explosion during fire engulfment. However, as far as the United Kingdom is aware, there have been no comprehensive scientific studies into fitting or not fitting EPRVs, which means that there is a lack of available data.

The United Kingdom commissioned its Health and Safety Laboratory (HSL) to review the information available relating to EPRVs on tank vehicles carrying Class 3 flammable liquids; this review is attached as an annex to this paper. While this report has provided an analysis of the current situation, the United Kingdom considers that there would be a benefit in pursuing a scientific study of the reactions of non-cylindrical (especially BOX/MAX section), low pressure tank vehicles used for the carriage of Class 3 flammable liquids including UN1203 fitted with and without EPRVs under emergency conditions including fire engulfment.

The United Kingdom is therefore interested to know the views of the Joint Meeting through the Tanks' Working Group on the following:

- Is there any existing data, other than detailed in the attached HSL report, on the effectiveness or otherwise of EPRVs?

- Should research be conducted into EPRV performance during fire engulfment of low pressure tanks carrying class 3 goods?

- How might any research be commissioned and funded?

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