



## **DANGEROUS GOODS PANEL (DGP)**

### **TWENTIETH MEETING**

**Montréal, 24 October to 4 November 2005**

#### **Agenda Item 2: Development of recommendations for amendments to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) for incorporation in the 2007-2008 Edition**

#### **INSPECTION OF RADIOACTIVE SHIPMENTS**

(Presented by W. Schuurman)

#### **1. INTRODUCTION**

1.1 On December 27, 2001, a shipment of Iridium-192 was sent from Studsvik, Sweden to New Orleans, USA, via Paris, France and Memphis, USA. At some point during the road and air journey, there was a problem within the container. Although there was an intact seal on the container and no external evidence of failure of the packaging, the Nuclear Information and Resource Service (NIRS) estimated that at one foot from the top of the package, a lethal dose would be given every 15 to 20 minutes. One of the pilots aboard the Paris to Memphis flight received a dose of 75 millirem, or about 15 times the normal dose of radiation for a transatlantic flight, and the dosimeter for the truck driver in Memphis showed full scale deflection while he was loading the package.

1.2 Part 7;3.1.1 of the Technical Instructions state that, “It is the operator’s responsibility to ensure that a package or overpack containing dangerous goods is not loaded onto an aircraft or into a unit load device unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage.” Additionally, part 7;3.1.3 of the Technical Instructions state, “Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device.”

1.3 After a failure within the packaging, a radioactive shipment may emit dangerous levels of radiation, without any external indications of leakage or damage. The only reliable method to detect a packaging failure for radioactive material is to make a measurement of the actual radiation emitted from the package. For any materials that have an activity greater than that required for Type A packagings, the level of radiation following package failure may endanger the health and safety of loading personnel and the occupants of the aircraft. Measurements of a package’s radiation may be accomplished using a dosimeter at the loading and unloading location, or may be read from a device attached to the package itself.

1.4 IFALPA believes that with new technologies available, operators should now be in a position to adequately monitor and measure radioactive shipments with a higher activity. Such measurements can be achieved by the use of a monitoring device on the package which is capable of providing real-time data regarding radiation levels during transport.

## 2. PROPOSAL

2.1 Amend part 7;3.1.1 of the Technical Instructions to read:

3.1.1 It is the operator's responsibility to ensure that a package or overpack containing dangerous goods is not loaded onto an aircraft or into a unit load device unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage. For each radioactive shipment contained in a Type B(U), Type B(M) or Type C package and for each package containing fissile material, an actual measurement of the radiation emitted must be performed immediately prior to loading to ensure the package or overpack is not emitting radiation in excess of allowable limits for normal conditions of transport.

2.2 Amend part 7;3.1.3 of the Technical Instructions to read:

3.1.3 Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device. For each radioactive shipment contained in a Type B(U), Type B(M) or Type C package and for each package containing fissile material, an actual measurement of the radiation emitted must be performed immediately after unloading to ensure the package or overpack is not emitting radiation in excess of allowable limits for normal conditions of transport. If evidence of damage or leakage is found, the position where the dangerous goods or unit load device was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. The special responsibilities of operators regarding infectious substances are detailed in 3.1.4 and 3.1.5.

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