International Civil Aviation Organization

DGP/22-WP/4
8/6/09

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-SECOND MEETING

Montréal, 5 to 16 October 2009

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 2011-2012 Edition

DRAFT AMENDMENTS OF THE TECHNICAL INSTRUCTIONS TO ALIGN TO THE UN RECOMMENDATIONS — PART 1

(Presented by the Secretary)

SUMMARY

This working paper contains draft amendments to Part 1 of the Technical Instructions to reflect the decisions taken by the UN Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals at its fourth session (Geneva, 12 December 2008). It also reflects amendments agreed by DGP-WG08 (The Hague, 3 to 7 November 2008) and DGP-WG09 (Auckland, New Zealand, 4 to 8 May 2009).

The DGP is invited to agree to the draft amendments in this working paper.

Part 1

GENERAL

Chapter 1

SCOPE AND APPLICABILITY

Parts of this Chapter are affected by State Variations AE 3, BE 2, BE 4, BE 5, CA 6, CA 12, CH 3, DE 1, DE 4, FR 3, GB 2, IN 1, IR 1, IT 1, IT 5, NL 3, NL 6, US 1, VC 1, VC 2, VC 3, VU 2; see Table A-1

Note.— Recommendations on Tests and Criteria, which are incorporated by reference into certain provisions of these Instructions, are published as a separate Manual (*United Nations* Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria) *(ST/SG/AC.10/11/Rev.~~4~~5), the contents of which are:*

Part I. Classification procedures, test methods and criteria relating to explosives of Class 1;

Part II. Classification procedures, test methods and criteria relating to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2; and

Part III. Classification procedures, test methods and criteria relating to substances or articles of Class 2, Class 3, Class 4, Division 5.1, Class 8 and Class 9.

Appendices. Information common to a number of different types of tests and national contacts for test details.

Chapter 2

LIMITATION OF DANGEROUS GOODS ON AIRCRAFT

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2.2 EXCEPTIONS FOR DANGEROUS GOODS OF THE OPERATOR

2.2.1 The provisions of these Instructions do not apply to the following:

a) articles and substances which would otherwise be classified as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations or that are authorized by the State of the Operator to meet special requirements;

b) aerosols, alcoholic beverages, perfumes, colognes, safety matches and liquefied gas lighters carried aboard an aircraft by the operator for use or sale on the aircraft during the flight or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure;

c) dry ice intended for use in food and beverage service aboard the aircraft~~.~~;

DGP/22-WP/2, paragraph 3.2.2:

d) electronic devices such as electronic flight bags, personal entertainment devices, credit card readers, containing lithium metal or lithium ion cells or batteries and spare lithium batteries for such devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights, provided that the batteries meet the provisions of 8;1.1.2 q). Spare lithium batteries must be individually protected so as to prevent short circuits when not in use. Conditions for the carriage and use of these electronic devices and for the carriage of spare batteries must be provided in the operations manual and/or other appropriate manuals as will enable flight crew, cabin crew and other employees to carry out their responsibilities.

2.2.2 Unless otherwise authorized by the State of the Operator, articles and substances intended as replacements for those referred to in 2.2.1 a), or articles and substances referred to in 2.2.1 a) which have been removed for replacement, must be transported in accordance with the provisions of these Instructions, except that when consigned by operators, they may be carried in containers specially designed for their transport, provided such containers are capable of meeting at least the requirements for the packagings specified in these Instructions for the items packed in the containers.

2.2.3 Unless otherwise authorized by the State of the Operator, articles and substances intended as replacements for those referred to in 2.2.1 b) and c) must be transported in accordance with the provisions of these Instructions.

DGP/22-WP/2, paragraph 3.2.2:

2.2.4 Unless otherwise authorized by the State of the Operator, battery-powered devices with installed batteries and spare batteries intended as replacements for those referred to in 2.2.1 d) must be transported in accordance with the provisions of these Instructions.

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Chapter 3

GENERAL INFORMATION

Parts of this Chapter are affected by State Variation BE 1; see Table A-1

3.1 DEFINITIONS

Approval. An authorization issued by the appropriate national authority for:

a) transport of those entries listed in Table 3-1 as forbidden on passenger and/or cargo aircraft to which Special Provision A1, A2 or A109 has been assigned in column 7; or

b) other purposes as specified in these Instructions.

DGP/22-WP/3, paragraph 3.5.1.2:

Note.— Unless otherwise indicated, approval is only required from the State of Origin. Such an approval applies to a flight or series of flights departing from that State but is not required from any State which is transited en route to final destination.

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Approval. For the transport of Class 7 material:

Multilateral approval. The approval by the relevant competent authority of the country of origin of the design or shipment, as applicable, and also, where the consignment is to be transported through or into any other country, approval by the competent authority of that country. ~~The term "through or into" specifically excludes "over", i.e. the approval and notification requirements must not apply to a country over which radioactive material is carried in an aircraft, provided that there is no scheduled stop in that country.~~

Unilateral approval. The approval of a design which is required to *be* given by the competent authority of the country of origin of the design only.

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ASTM. The American Society for Testing and Materials (ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States).

DGP/22-WP/2, paragraph 3.2.3:

Baggage. Personal property of passengers or crew carried on an aircraft by agreement with the operator.

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Cargo aircraft. Any aircraft, other than a passenger aircraft, which is carrying goods or property.

Cargo transport unit. [A road transport tank or freight vehicle, a railway transport tank or freight wagon], a multimodal freight container [or portable tank, or a MEGC].

Closed cargo transport unit. A cargo transport unit which totally encloses the contents by permanent structures with complete and rigid surfaces. Cargo transport units with fabric sides or tops are not considered closed cargo transport units.

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Freight forwarder. A person or organization who offers the service of arranging the transport of cargo by air.

Fuel cell. An electrochemical device that converts the chemical energy of a fuel to electrical energy, heat and reaction products.

DGP/22-WP/2, paragraph 3.2.1:

Fuel cell cartridge. An article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell.

Fuel cell engine. A device used to power equipment and which consists of a fuel cell and its fuel supply, whether integrated with or separate from the fuel cell, and includes all appurtenances necessary to fulfil its function.

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GHS. The first revised edition of the *Globally Harmonized System of Classification and Labelling of Chemicals*, published by the United Nations as document ST/SG/AC.10/30/~~Rev. 2~~Rev. 3.

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ISO (standard). An international standard published by the International Organization for Standardization (ISO — 1, rue de ~~Varembé~~Voie-Creuse, CH-~~1204~~ 1211 Geneva 20, Switzerland).

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Liquids. Dangerous goods which at 50°C have a vapour pressure of not more than 300 kPa (3 bar), which are not completely gaseous at 20°C and at a pressure of 101.3 kPa, and which have a melting point or initial melting point of 20°C or less at a pressure of 101.3 kPa. A viscous substance for which a specific melting point cannot be determined must be subjected to the ASTM D 4359-90 test; or to the test for determining fluidity (penetrometer test) prescribed in section 2.3.4 of Annex A of the *European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)* (United Nations publication: ECE/TRANS/~~175~~202).

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Manual of Tests and Criteria. The ~~fourth~~ fifth revised edition of the United Nations publication entitled *Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria* (ST/SG/AC.10/11/~~REV.4~~REV.5).

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Maximum normal operating pressure. For the transport of Class 7 material, the maximum pressure above atmospheric pressure at mean sea level that would develop in the containment system in a period of one year under the conditions of temperature and solar radiation corresponding to environmental conditions in the absence of venting, external cooling by an ancillary system, or operational controls during transport.

Metal hydride storage system. A single complete hydrogen storage system, including a receptacle, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transport of hydrogen only.

Multiple-element gas containers (MEGCs). (See UN Recommendations Chapter 1.2). Not permitted for air transport.

DGP/22-WP/3, paragraph 3.2.24:

Net explosive mass (NEM). Also known as net explosive quantity (NEQ) or net explosive weight (NEW) for Class 1 articles is the total mass of the explosive substances contained in the article, without the packaging, casings, bullets, etc.

Net quantity. The mass or volume of the dangerous goods contained in a package excluding the mass or volume of any packaging material, except in the case of explosive articles and of matches where the net mass is the mass of the finished article excluding packagings.

Open cryogenic receptacle. ~~A metal vacuum insulated vessel, dewar or flask that is vented to the atmosphere to prevent pressure build-up~~ A transportable thermally insulated receptacle for refrigerated liquefied gases maintained at atmospheric pressure by continuous venting of the refrigerated liquefied gas.

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Pressure drums. *(*See UN Recommendations, Chapter 1.2). Not permitted for air transport.

Pressure receptacle. A collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal hydride storage systems and bundles of cylinders;

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Remanufactured packagings include:

a) metal drums that:

i) are produced as a UN type from a non-UN type;

ii) are converted from one UN type to another UN type; or
iii) undergo the replacement of integral structural components (such as non-removable heads);

b) plastic drums that:

i) are converted from one UN type to another UN type (e.g. 1H1 to 1H2); or

ii) undergo the replacement of integral structural components.

Remanufactured drums are subject to the same requirements of these Instructions as apply to a new drum of the same type.

Remanufactured large packaging. (See UN Recommendations, Chapter 1.2). Not permitted for air transport.

Reused large packaging. (See UN Recommendations, Chapter 1.2). Not permitted for air transport.

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Tank. A tank container, portable tank, a road tank-vehicle, a rail tank-wagon or a receptacle intended to contain solids, liquids, or gases and has a capacity of not less than 450 litres when used for the transport of ~~substances of Class 2~~ gases as defined in 2;2.1.1. ~~A tank container must be capable of being carried on land or on sea and of being loaded and discharged without the need of removal of its structural equipment, must possess stabilizing members and tie-down attachments external to the shell, and must be capable of being lifted when full.~~

Note ~~1~~. — These Technical Instructions *do not permit the use of a tank for the transport of radioactive material by air.*

~~*Note 2. — The definition of "tank" does not include packages of uranium hexafluoride.*~~

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Transport index (TI) assigned to a package, overpack or freight container. For the transport of Class 7 material, a number which is used to provide control over radiation exposure.

Through or into. Through or into the countries in which a consignment is transported but specifically excluding countries "over" which a consignment is carried by air, provided that there are no scheduled stops in those countries.

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Chapter 4

TRAINING

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4.2 TRAINING CURRICULA

4.2.1 Personnel must ~~receive~~ be ~~training~~ trained in the requirements commensurate with their responsibilities. They must be trained in accordance with this section before assuming responsibilities and must only perform functions, for which required training has not yet been provided, under the direct supervision of a trained person. Training requirements specific to security of dangerous goods in Chapter 5 must also be addressed. Such training must include:

a) general familiarization training — which must be aimed at providing familiarity with the general provisions;

b) function-specific training — which must provide detailed training in the requirements applicable to the function for which that person is responsible; and

c) safety training — which must cover the hazards presented by dangerous goods, safe handling and emergency response procedures.

4.2.2 ~~Training must be provided or verified upon the employment of personnel identified in the categories specified in Table 1-4.~~Personnel identified in the categories specified in Table 1-4 must be trained or such training must be verified upon prior to performing any covered function.

4.2.3 Recurrent training must ~~take place~~ be provided within 24 months of previous training to ensure knowledge is current. However, if recurrent training is completed within the final three months of validity of previous training, the period of validity extends from the date on which the recurrent training was completed until 24 months from the expiry date of that previous training.

4.2.4 A test to verify understanding must be ~~undertaken~~ provided following training. Confirmation that the test has been completed satisfactorily is required.

4.2.5 A record of training must be maintained which must include:

a) the individual's name;

b) the most recent training completion date;

c) a description, copy or reference to training materials used to meet the training requirements;

d) the name and address of the organization providing the training; and

e) evidence which shows that a test has been completed satisfactorily.

The records of training must be retained by the employer for a minimum period of 36 months from the most recent training completion date and must be made available upon request to the employee or appropriate national authority.

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Chapter 5

DANGEROUS GOODS SECURITY

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5.2 DANGEROUS GOODS SECURITY TRAINING

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5.2.4 Records of all dangerous goods security training undertaken should be kept by the employer and made available to the employee or appropriate national authority, ~~if~~ upon request~~ed~~. Records should be kept by the employer for a period of time established by the appropriate national authority.

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5.4 RADIOACTIVE MATERIAL

For radioactive material, the provisions of this Chapter are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material[1] and ~~of~~ the IAEA ~~INFCIRC/225 (Rev.4) are applied.~~ circular on "The Physical Protection of Nuclear Material and Nuclear Facilities"[2] are applied.

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[1] IAEACIRC/274/Rev.1, IAEA, Vienna (1980).

[2] IAEACIRC/225/Rev.4 (Corrected), IAEA, Vienna (1999). See also "Guidance and Considerations for the Implementation of INFCIRC/225/Rev.4, the Physical Protection of Nuclear Material and Nuclear Facilities, IAEA-TECDoc-967/Rev.1.

Chapter 6

GENERAL PROVISIONS CONCERNING CLASS 7

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6.1 SCOPE AND APPLICATION

6.1.1 These Instructions establish standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to persons, property and the environment that are associated with the transport of radioactive material. These Instructions are based on the IAEA *Regulations for the Safe Transport of Radioactive Material*, (~~2005~~ 2009 Edition), Safety Standards Series No. TS-R-1, IAEA, Vienna (~~2005~~2009). Explanatory material ~~on the 1996 edition of TS-R-1~~ can be found in *Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material* (2005 Edition), Safety Standard Series No. TS-G-1.1 (~~ST-2~~Rev. 1), IAEA, Vienna (~~2002~~2008). The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risk.

6.1.2 The objective of these Instructions is to establish requirements that must be satisfied to ensure safety and to protect persons, property and the environment from the effects of radiation ~~during the~~ in the transport of radioactive material. This protection is achieved by requiring:

a) containment of the radioactive contents;

b) control of external radiation levels;

c) prevention of criticality; and

d) prevention of damage caused by heat.

These requirements are satisfied firstly by applying a graded approach to the limits of the contents for packages and aircraft and to the performance standards, which are applied to package designs depending upon the hazard of the radioactive contents. Secondly, they are satisfied by imposing requirements on the design and operation of packages and on the maintenance of the packagings, including consideration of the nature of the radioactive contents. Finally, they are satisfied by requiring administrative controls including, where appropriate, approval by competent authorities.

6.1.3 These Instructions apply to the transport of radioactive material by air, including transport that is incidental to the use of the radioactive material. Transport comprises all operations and conditions associated with and involved in the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination of the radioactive material and packages. A graded approach is applied to the performance standards in these Instructions that ~~is~~ are characterized by three general severity levels:

a) routine conditions of transport (incident free);

b) normal conditions of transport (minor mishaps); and

c) accident conditions of transport.

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6.1.5 Specific provisions for the transport of excepted packages

6.1.5.1 Excepted packages which may contain radioactive material in limited quantities, instruments, manufactured articles and empty packages as specified in 2;7.2.4.1.1 are subject only to the following provisions of Parts 5 to 7:

a) [the applicable provisions specified in 5;1.1 i), 5;1.2.4, 5;1.4, 5;1.6.3, 5;1.7, 5;2.2, 5;2.3, 5;2.4.2~~, 5;2.4.5.1 a), 5;2.4.5.1 e)~~, 5;3.2.11 b), 5;3.2.11 e), 5;3.3, 5;3.4~~5;4.1.4.1 a)~~, 5;4.4 and 7;3.2.2;]

b) the requirements for excepted packages specified in 6;7.3; and

c) if the excepted package contains fissile material, one of the fissile exceptions provided by 2;7.2.3.5 must apply and the requirement of 6;7.6.2 must be met.

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6.2 RADIATION PROTECTION PROGRAMME

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6.2.3 The nature and extent of the measures to be employed in the programme must be related to the magnitude and likelihood of radiation exposure. The programme must incorporate the requirements in 6.2.2 and 6.2.4 to 6.2.7[, 7;2.9.1.1 and 7;2.9.1.2]. Programme documents must be available, on request, for inspection by the relevant competent authority.

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6.2.7 Workers must ~~receive~~ be appropriately trained ~~concerning~~ in the radiation hazards involved and the precautions to be observed in order to ensure restriction of their exposure and that of other persons who might be affected by their actions.

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