



## **DANGEROUS GOODS PANEL (DGP) MEETING OF THE WORKING GROUP OF THE WHOLE**

**Abu Dhabi, United Arab Emirates, 7 to 11 November 2010**

### **REPORT OF THE MEETING OF THE WORKING GROUP OF THE WHOLE**

#### **1. INTRODUCTION**

1.1 The meeting of the Dangerous Goods Panel Working Group of the Whole (DGP-WG/10) was opened by Mr. Omar Bin Ghaleb, Deputy Director General, United Arab Emirates General Civil Aviation Authority (GCAA) on 7 November 2010. Mr. Geoff Leach was elected Chairperson of the meeting and Mrs. Kristel Vermeersch was elected Vice-Chairperson. Mr. Leach, on behalf of the working group, thanked Mr. Bin Ghaleb for the excellent hospitality provided by the United Arab Emirates.

#### **2. ATTENDANCE**

2.1 The meeting was attended by the following panel members, advisers and observers:

<b>Members</b>	<b>Advisers/Observers</b>	<b>State/International Organization</b>
B. Firkins	D. Bolton L. Willoughby	Australia
	M. Boehm Z. Welsersheimb	Austria
K. Vermeersch		Belgium
M. Paquette	T. Howard E. Servant D. Sylvestre	Canada

<b>Members</b>	<b>Advisers/Observers</b>	<b>State/International Organization</b>
K. Wu	J. Abouchaar T. Nie A. Song Q. Xu L. Fong K. Wan	China  (Hong Kong)
J. Le Tonqueze	M. Plassart P. Tatin	France
H. Brockhaus	G. Closhen L. Michels B.-U. Wienecke	Germany
M. Gelsomino	C. Carboni	Italy
M. Machida	M. Horie I. Uehara	Japan
S-W. Park		Republic of Korea
T. Muller		the Netherlands
M. Evans		New Zealand
D. Mirko	D. Kurdchenko	Russian Federation
L. Calleja		Spain
	B. Henzen R. Joss	Switzerland
H. Al Muhairi	W. Al-Obaidli K. Al Buoloshi P. Balasubramanian H. Jamil P. King T.S. Radhakrishnan A. Wagih	United Arab Emirates

<b>Members</b>	<b>Advisers/Observers</b>	<b>State/International Organization</b>
G. Leach	H. Gilson J. Hart R. McLachlan	United Kingdom
J. McLaughlin	C. Betts K. Miller D. Pfund	United States of America
D. Brennan	P. Oppenheimer	International Air Transport Association (IATA)
M. Rogers		International Federation of Air Line Pilots' Associations (IFALPA)
L. McGuigan K. Rooney		ICAO
	E. Sigrist	CEFIC
	N. McCulloch	DGAC
	R. Wichert	Fuel Cell Council
	A. McCulloch	Global Express Association
	F. Ueno	International Electrotechnical Commission (IEC)
	S. Charlier T. van der Rijt	North Atlantic Treaty Organization (NATO)

### 3. REVIEW OF THE REPORT

#### 3.1 Agenda Item 1: Development of proposals, if necessary, for amendments to Annex 18 — *The Safe Transport of Dangerous Goods by Air*

##### 3.1.1 Amendment to the Definition for UN Number (DGP-WG/10-WP/8)

3.1.1.1 A proposal to add “article” before “or substance” in the definition for “UN number” in Annex 18 was agreed, subject to a minor editorial change. The amendment would align the definition in Annex 18 with the definition in the UN Model Regulations and the Technical Instructions. It was also

agreed that the amendment would not be processed until more substantive amendments to the Annex could be included with it.

### **3.1.2 Security Requirements for “High Consequence Dangerous Goods” (DGP-WG/10-WP/18)**

3.1.2.1 The working group discussed whether the time was now right, in the light of views expressed by the Aviation Security Panel (AVSECP) at the time of adoption, to review the appropriate placement of text relating to the security of high consequence dangerous goods in Annex 17 or Annex 18. The meeting was reminded that the decision had been taken at DGP/19 to include the requirements for “high consequence dangerous goods” in Annex 18 and in the Technical Instructions, as at that time it was the most appropriate location in the absence of useful references to security of cargo aircraft in Annex 17.

3.1.2.2 Although there was little support to transfer the material at this time, it was agreed that the subject should be revisited and that AVSECP should be included in discussions. It was suggested that the most effective method of communication between AVSECP and DGP would be to have a joint meeting with representatives from both panels present. An information paper summarizing the discussions could then be presented to both groups. The next AVSECP meeting was scheduled for 21 to 25 March 2011 (AVSECP/22), and cargo aircraft security would likely be an important topic at that meeting. It was suggested that the meeting between DGP and AVSECP representatives take place after AVSECP/22 so that relevant recommendations from that meeting could be taken into account.

3.1.2.3 It was agreed that the Secretary would prepare a draft of an AVSECP working paper for the DGP’s review. She would then present the paper to AVSECP/22, drawing attention to the inclusion of security requirements in Annex 18 and the Technical Instructions. AVSECP representatives could then be asked to meet jointly with DGP representatives. The outcome would be reported at DGP/23.

### **3.1.3 State Oversight Responsibilities (DGP-WG/10-WP/34)**

3.1.3.1 The working group was informed that safety oversight audits have revealed a lack of awareness by some States of their inspection, surveillance and enforcement responsibilities beyond that of oversight of operators. A proposal to clarify this was made in the form of an amendment to paragraph 11.1 in Annex 18.

3.1.3.2 There was general support for the proposal in that it was agreed that shippers were a key component in a safe and secure supply chain. The difficulty in auditing shippers due to their sheer number was acknowledged, and it was felt by some members that it would be unrealistic for States to implement such a system. Other members reported that they already had oversight programmes in place in their States and offered examples of how they deal with the challenges. It was agreed that guidance material would need to be developed; two members offered to share material from their States which could be used to develop material for incorporation in the Supplement. The Secretary would work with these two members to prepare a paper for the next working group meeting.

### **3.1.4 Issues Related to Overflight (DGP-WG/10-WP/35)**

3.1.4.1 The working group was invited to revisit issues raised at DGP/22 and by the Air Navigation Commission in its review of the DGP/22 Report related to removing “State of Overflight” from the exemption process (paragraph 1.4 of the DGP/22 Report on Agenda Item 1). It was reported that the ANC requested that in future deliberations on State of Overflight, the panel consider the issue of en-route alternate aerodromes and diversions or re-routings in consultation with appropriate expertise.

3.1.4.2 There were opposing views on the issue. It was recognized that flexible aircraft routings made it virtually impossible to predict which States a flight may overfly and caused a practical problem for operators when seeking exemptions. On the other hand, a State's sovereignty had to be recognized.

3.1.4.3 A number of potential solutions were discussed. The possibility of removing State of Overflight from the exemption process while providing States the opportunity of filing a difference to Annex 18 should they wish to maintain it was explored. It was suggested that perhaps removing State of Overflight from the exemption process for certain classes or divisions would be more effective, recognizing that certain classes and divisions, such as explosives and high activity radioactive material, were sometimes considered to be more sensitive. It was thought by limiting the complete exemption process to these classes or divisions, transport of other items requiring exemptions might be facilitated.

3.1.4.4 The working group was asked to provide further comments to the Secretary through correspondence. A new paper would be presented at DGP-WG/11 based on comments received.

### **3.2 Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2013/2014 Edition**

#### **3.2.1 Amendment to the UN Number Reference for Lithium Battery or Lithium Cells in Attachment 2 (DGP-WG/10-WP/5)**

3.2.1.1 A proposal to amend the UN number reference for lithium battery or lithium cells in Attachment 2 of the Technical Instructions was made. It was noted that new UN numbers for lithium ion batteries (including lithium ion polymer batteries) were added to the 2009-2010 Edition of the Technical Instructions, but that these numbers were not added to the reference in Attachment 2. The proposal was agreed.

#### **3.2.2 Clarification of the Reference System for Attachments (DGP-WG/10-WP/9)**

3.2.2.1 A proposal to clarify the reference system for attachments in the Foreword to the Technical Instructions was presented. It was noted that the current text explains the system as it relates to parts, but that no reference is made to the attachments of the Technical Instructions. It was suggested that an explanation for attachments would help eliminate confusion and enhance the user-friendliness of the Technical Instructions. The group was reminded that the attachments were considered as supplementary material as defined in Annex 18 and that they should be distinguished this way in the new text. The amendment was revised to take this into account and agreed.

#### **3.2.3 Dangerous Goods not Subject to these/other Additional Requirements of these Instructions (DGP-WG/10-WP/31)**

3.2.3.1 The working group was invited to consider the extent to which the use of the phrase "not subject to (other additional requirements of) these Instructions" applies. An example demonstrating the possibility of unintended alleviations to the Instructions was given whereby a passenger could potentially carry batteries and equipment meeting the Section II requirements of an applicable lithium battery packing instruction, not because the passenger/crew provisions allow for their carriage but rather because

compliance with Section II of the packing instruction meant that the passenger/crew provisions did not apply. Similar examples with special provisions were also provided.

3.2.3.2 There was general agreement that this was an issue which needed to be resolved, and that there were multiple ways of solving it. Some suggested adding “carried as cargo” on a case-by-case basis, but others felt that this approach was risky in that instances could be overlooked either now or during future amendments to the Instructions. Another potential solution was to add text in the applicability section of Part 1 explaining the scope of the passenger provisions. The Secretary noted that passenger provisions were originally included in Part 1 of the Instructions, thus suggesting that all other provisions were applicable to cargo only.

3.2.3.3 It was agreed that this was an issue that needed to be looked at carefully and comprehensively. A new paper would be submitted at the next working group meeting taking account of comments received.

## **Part 1 — General**

### **3.2.4 Proposal to Provide a Definition for “Strong Outer Packaging” (DGP-WG/10-WP/21)**

3.2.4.1 A proposal to introduce a definition for “strong outer packaging” was discussed. It was noted that this expression is used throughout the Instructions and that the current lack of a definition could result in differences in interpretation. A definition was presented with the intent of establishing a minimum level of performance for dangerous goods requiring “strong outer packaging”. It was felt by most that the level of performance established in the proposal was excessive, and that if such a definition were to be developed it should be at the UN level. Applying the definition would remove a degree of flexibility that currently exists, and the low level of danger present for articles or substances permitted in strong outer packaging did not warrant this loss. It was felt that if the items of dangerous goods were dangerous enough to warrant such a performance level, they would require UN specification packaging. The paper was withdrawn; a new one would be prepared for DGP-WG/11 based on comments received.

### **3.2.5 Recurrent Training (DGP-WG/10-WP/38)**

3.2.5.1 An amendment to the provisions for recurrent dangerous goods training which would allow training to be completed within the month of expiry rather than by a specific date was proposed. The amended text would be consistent with existing “24-month validity period” terminology and would be consistent with other training requirements from other Annexes as well. It was noted that “date” was also referenced in 1;4.2.5 b) and should also be replaced with “month”. The proposal was agreed, although some felt that it would not fully solve the problem. Most, however, felt that it would provide for greater flexibility, particularly in the aviation world where shift work is common.

3.2.5.2 The paper generated discussion on issues related to recurrent versus basic training. It was questioned whether a person who is very knowledgeable with the Instructions should be required to take an initial dangerous goods course if they miss their training date by only a few days. Conversely, it was questioned whether a person who rarely uses the Technical Instructions should be considered adequately trained through a recurrent training course simply because they passed the course within their training period. It was suggested that guidance on the relationship between initial and recurrent training could be developed for incorporation in the Supplement. The working group was asked to provide comments on this issue to the author of the working paper which would be incorporated in a DGP-WG/11 working paper.

## **Part 2 — Classification**

### **3.2.6 Aviation Regulated Materials (DGP-WG/10-WP/26)**

3.2.6.1 It was suggested that the introduction of criteria for environmentally hazardous substances (EHS) in the Instructions made it unclear as to how to classify aviation regulated substances which also meet the EHS criteria. A proposal to incorporate text from the UN Model Regulations was made to provide clarification. Although there was agreement that a problem existed, it was felt that the proposed text did not solve it and that the issue would have to be discussed at the UN. There were differences in opinion on whether or not a substance which met the EHS criteria but was also an aviation regulated substance should be classified as EHS or if it should be assigned to aviation regulated liquids or solids (UN 3334 and 3335). Most felt that if a substance meets EHS criteria, it should be classified as such in order to align with other modes of transport. Others felt that if a substance posed a danger to aviation, the appropriate description would be to UN 3334 or 3335. It was suggested that the packaging requirements for aviation regulated substances and EHS were identical, making the safety case debatable. It was counter-argued that aviation regulated substances are assigned Special Provision A27, identifying them as noxious, which is not the case for EHS.

3.2.6.2 The proposal was withdrawn; the proposer would prepare a new paper for DGP-WG/11.

### **3.2.7 Environmentally Hazardous Substances (DGP-WG/10-WP/40)**

3.2.7.1 It was reported that the new criteria for EHS provided in the 16th Edition of the UN Model Regulations and the 2011/2012 Edition of the Technical Instructions will only be adopted in the next edition of the IMDG Code, since IMO must amend a convention before adopting the criteria. The new criteria will only become mandatory in the IMDG code on 1 January 2014. A proposal to harmonize the effective date for revised criteria for substances hazardous to the aquatic environment was therefore made. The proposal was supported as it would provide an opportunity to harmonize modal regulations. It was agreed that the amendment should be adopted in a corrigendum to the 2011-2012 Edition of the Technical Instructions and that the current criteria should be authorized until December 2013. Wording for inclusion in the next edition of the Technical Instructions would be proposed at the next working group meeting.

## **Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities**

### **3.2.8 Packing Instructions for Chlorosilanes (DGP-WG/10-WP/20)**

3.2.8.1 A proposal to prohibit the transport of certain chlorosilane entries on passenger aircraft was agreed.

### **3.2.9 Use of the Term "Forbidden" (DGP-WG/10-WP/30)**

3.2.9.1 Use of the term "FORBIDDEN" as it appears in Table 3-1 was discussed. It was noted that the word is used in three different ways in the table: forbidden under any circumstances; forbidden unless exemptions are granted (either passenger or cargo aircraft); and forbidden unless approvals are granted (Special Provision A1 or A2). The Oxford dictionary definition of "forbidden" is defined as something that is "not allowed, banned". The fact that only "forbidden under any circumstances" meets this definition could therefore cause confusion. The working group was therefore invited to consider

whether adoption of different terminology should be used for entries in Table 3-1 which are forbidden unless exemptions or approvals are granted.

3.2.9.2 There was little support for the proposal as it was felt that the new wording would take emphasis away from the fact that the substance would normally be forbidden whilst adding emphasis to the exception to the rule. The current wording had been in place for many years, and changing it could cause confusion. It was felt that changing the wording would only be of benefit to those who had never been trained. The proposal was not agreed.

### **3.2.10 UN Number for ID 8000 Consumer Commodities (DGP-WG/10-WP/32)**

3.2.10.1 The working group was asked to consider whether a request should be made to the UN Subcommittee of Experts on the Transport of Dangerous Goods to introduce a new UN number for “ID 8000 Consumer Commodities”. There was some sympathy for the proposal, but it was felt that now was not the right time to make such a request. It had been a debate at the UN for many years; it was felt that harmonization of excepted quantities and limited quantities with the UN and the assignment of a limited quantity packing instruction number to consumer commodities addressed many of the earlier issues. Opening up the subject again would not be beneficial at this time, but perhaps it could be after more experience with the harmonized provisions and the new limited quantity packing instruction for consumer commodities is gained. The presenter welcomed any future comments from panel members.

### **3.2.11 Application of Special Provision A70 (DGP-WG/10-WP/33)**

3.2.11.1 Confirmation that Special Provision A70 would apply to newly manufactured flammable liquid-fuelled devices such as lawnmowers and chainsaws was sought. The panel was reminded that A70 applies to engines and vehicles and sets out conditions by which such articles may be excluded from the provisions of the Technical Instructions and as such be presented for transport and carried as non-dangerous goods. The basic principle of the provision is that the fuel tank must never have contained fuel and the fuel system is completely empty of fuel. It was noted that although a small amount of fuel is used for testing of these newly manufactured devices, by the time the assembly process has been completed and the equipment is packed for distribution, the fuel system should be empty of fuel.

3.2.11.2 The working group was asked to confirm if the process described where engines were bench-tested prior to final assembly met the intent of Special Provision A70. There was general agreement that the current wording of A70 does not adequately address this scenario and that there should be some text that would make it clear that it must be demonstrated that no residual fuel remains in the fuel system. It was suggested that as text has now been added to A70 to address purging of flammable gas powered engines, that similar text should be developed for the flammable liquid powered engines

3.2.11.3 A new paper would be prepared for DGP-WG/11.

### **3.2.12 Considerations for Limited Quantities Contained in one Outer Packaging (DGP-WG/10-WP/37)**

3.2.12.1 The group was reminded that dangerous goods in Classes 2 and 9 are not required to be taken into account of in the “Q” value calculation when packed in the same outer packaging as dangerous goods of other classes provided that the gross mass of the completed package does not exceed 30 kg. It was suggested that the basis for this exception appears to be the assumption that the maximum net quantity for all substances and articles in Class 2 and Class 9 which are permitted in limited quantities is 30 kg G per package. It was reported, however, that some Class 2 and Class 9 substances and articles have clear net mass limits and as such, should be taken into account of in the “Q” value calculation if they

are packed together in the same outer packaging with dangerous goods of other classes. A proposal to add these substances and articles as exceptions in Part 3;4.3.3 a) and b) was therefore made. The proposal was agreed, subject to the removal of reference to UN 3316 and to the placing of the amendment in square brackets pending editorial changes.

### **3.2.13 Table 3-1 Requirement for Gross Mass (DGP-WG/10-WP/39)**

3.2.13.1 A proposal to require the shipper to declare the net mass or volume for all substances and articles on the dangerous goods transport document was made. It was reported that despite attempts at clarifying quantity requirements, there was still confusion with shippers and airline acceptance staff in relation to the use of gross weight associated either with reference to “G” in columns 11 and/or 13 of Table 3-1 or for articles when Table 3-1 shows a packing instruction number or “no limit” in those columns. Although there was sympathy for the proposal, it was felt that it may not always be possible to determine the net weight, and including the packaging in the weight might encourage shippers to use lesser packaging to be within the weight limit. It was also felt that limited quantities should not be considered.

3.2.13.2 A new paper will be prepared for DGP-WG/11.

## **Part 4 — Packing Instructions**

### **3.2.14 Fuel Cell Industry Update — International Electrotechnical Committee (IEC) 62282-6-100 International Standard for Micro Fuel Cells (DGP-WG/10-WP/2)**

3.2.14.1 An update on the adoption by the IEC of an international standard for micro fuel cells was presented. The working group was asked to replace references in the Technical Instructions to IEC PAS 62282-6-1 with the new standard and to provide a transition period to allow time for industry to conform in an orderly manner to the new standard. This would allow fuel cell units and cartridges built to the old standard to be transported without hindrance. The group was also invited to discuss how they wish to review the standard.

3.2.14.2 The working group requested that a summary of substantive changes to the specification be provided so that a review could be made ensuring that requirements continue to be met. The meeting was informed that the new standard contained more stringent requirements, thus implying new fuel cells would meet with existing IEC specifications. In terms of a transition period, shelf life would need to be taken into consideration.

3.2.14.3 A working paper would be prepared as soon as possible for submission at the DGP-WG/11 meeting. It would summarize substantive changes and provide information relevant to a transition period. Any additional comments or queries the working group might have between now and the next meeting would be welcomed by the presenter.

### **3.2.15 Revision to Packing Instruction 869 for Mercury in Manufactured Articles (DGP-WG/10-WP/3)**

3.2.15.1 It was noted that Packing Instruction 869, which applies to mercury in manufactured articles, contains some very specific limits, none of which need be shown on the dangerous goods transport document. It was suggested that the absence of this information on the transport document makes it impossible to determine that quantity limits have been complied with. It was also noted that

some of the requirements in the packing instruction were ambiguous. An amendment to the packing instruction was proposed addressing these issues. An amendment to Special Provision A69 was also proposed, incorporating the provisions for exceptions for thermometers, switches and relays in Packing Instructions 869, as A69 already excepts small articles containing mercury.

3.2.15.2 It was agreed that clarification was needed but that more time was needed for review. It was noted that a request for a new UN number for mercury contained in manufactured articles would be discussed at the upcoming UN meeting and that should this be successful, it would facilitate the issue. The presenter welcomed any future comments from panel members which he would incorporate into a new paper for DGP-WG/11.

3.2.15.3 The inclusion of “inert gas” in Special Provision A69 was queried; the Secretary agreed to research the issue before the next working group meeting.

### 3.2.16 **Amendment of Provisions for the Classes/Divisions of Dangerous Goods not Assigned to Packing Groups (DGP-WG/10-WP/7)**

3.2.16.1 A proposal to add self-reactive substances of Division 4.1 to Note 1 (Packing groups) of the Introductory Notes to Part 4 was made. The amended text would make provisions for the classes/divisions of dangerous goods not assigned to packing groups consistent with the relevant provisions of the UN Model Regulations and throughout the Technical Instructions.

3.2.16.2 It was noted that similar text appeared in the Introductory Chapter of Part 2 and that this text replicates text in Part 2 of the UN Model Regulations. The text in Note 1, however, did not exist in the UN Model Regulations. It was felt it might be worth evaluating whether or not it was needed in the Technical Instructions, or if it should be modified to be more relevant to packing instructions.

3.2.16.3 The amendment was agreed, subject to the placement of the amendment in square brackets pending investigation by the Secretary of whether or not the Note is required.

### 3.2.17 **Proposed Changes to Packing Instruction 565 for UN 3356, Oxygen Generator, Chemical (DGP-WG/10-WP/22)**

3.2.17.1 Editorial changes to Packing Instruction 565 in response to a dangerous goods incident were proposed. It was felt that the requirement for positive means of preventing unintentional actuation required when an **Oxygen generator, chemical** is equipped with an actuation device needed to be clarified. It was also proposed that an addendum to both the 2009-2010 and the 2011-2012 Editions be issued adopting the amendment.

3.2.17.2 There was overwhelming support for the proposal. It was observed that a lack of understanding and/or training at the line engineer level at repair stations contributed to the problem. One member reported that most incidents of non-compliance discovered in their State were by airlines offering company material containing dangerous goods to each other. Some of these airlines had repeated violations three or four times.

3.2.17.3 Although the proposal provided indicative methods for two positive means of preventing unintentional actuation, it was agreed to make the methods mandatory following an explanation provided by one member regarding experience gained in their State. It was also suggested that the new text should precede the PBE requirement of the same paragraph.

3.2.17.4 Two separate errors in the packing instruction were noted: the heading of the packing instruction indicated “Passenger and cargo aircraft”, even though Packing Instruction 565 is forbidden on passenger aircraft, and a gross total quantity per package was indicated for cargo aircraft, even though Table 3-1 indicated net.

3.2.17.5 It was noted that the information in the UN packing instruction for oxygen generators (P500) was unsubstantial; it was recommended that the Secretary raise this at the UN.

3.2.17.6 The amendment, as modified, was agreed. The Secretary would request the ANC to issue a corrigendum to both the 2009-2010 and 2011-2012 Editions on the basis this was a safety-based amendment.

### **3.2.18 Packing Instruction 954 — “Description of the Goods” (DGP-WG/10-WP/24)**

3.2.18.1 The meeting was reminded that the documentation requirements of 954 do not apply when dry ice is used as a refrigerant for non-dangerous goods, provided that the shipper supplies alternative documentation describing the contents. A proposal to remove the additional packing requirement for a description of the goods in Packing Instruction 954 was made, as it was reported that this requirement is sometimes interpreted to apply to the goods being refrigerated, e.g. frozen fish, meat etc. It was felt that the text could be clarified, as its intent was to ensure that if a description of the goods did exist, it should be indicated in the location provided on the document for the description of the goods. An amended proposal was agreed.

### **3.2.19 Requirement for Secondary Means of Securing Closures on Packagings (DGP-WG/10-WP/42)**

3.2.19.1 The working group was reminded of the revised provisions for closures on packagings, including those for liquids, which were made in Part 4;1.1.4 in conjunction with the process of reformatting the packing instructions. It was queried whether the requirement for closures to be securely in place by secondary means only applied to inner packagings containing liquids. It was agreed that Part 4;1.1.4.1 is intended to apply to inner packagings and not to single packagings. An amendment to clarify this intention was agreed, subject to an editorial change.

### **3.2.20 Packagings for Solids which may become Liquid during Transport (DGP-WG/10-WP/43)**

3.2.20.1 The working group was reminded of provisions in Part 4;1.1.17 for solids which may become liquid during transport and the requirement that the packagings used for such solids must be capable of containing the substance in the liquid state. It was reported that the text of this paragraph had been interpreted by some shippers as permitting, or even requiring, the use of packagings approved for liquids where the packing instruction for the substance permits the use of single packagings. It was stated that the provisions of the Technical Instructions and the UN Model Regulations made no reference or provision for a shipper to be able to use a single packaging approved for liquids to ship solid substances, although there were reports of such provisions appearing in at least one State’s national regulations.

3.2.20.2 It was agreed that this was an issue which needed to be addressed, but that more time was needed to consider it. The subject would be revisited at DGP-WG/11 with the intent of raising the issue at the UN at the June meeting which would permit further discussion at DGP/23.

## **Part 5 — Shipper's Responsibilities**

### **3.2.21 Aid in Recognition of Undeclared Dangerous Goods (DGP-WG/10-WP/10)**

3.2.21.1 A new note under the general requirements for shippers (Part 5;1.1) was proposed. The note would specify to shippers that shipments containing items listed in Part 7;6:6.1 are considered items of dangerous goods unless otherwise confirmed on documents presented to the operator. Although there was sympathy for the intent of the proposal, it was felt that the responsibility which would be placed on shippers who did not ship dangerous goods would be inappropriate and could result in legal ramifications for them. The working group therefore felt that such a note should not be included in Part 5.

3.2.21.2 A new proposal would be prepared for DGP-WG/11, based on comments received.

## **Part 6 — Packaging Nomenclature, Marking, Requirements and Tests**

3.2.22 No papers were submitted under this agenda item.

## **Part 7 — Operator's Responsibilities**

### **3.2.23 Loading of UN 2211 Polymeric Beads, Expandable and UN 3314 Plastics Moulding Compound (DGP-WG/10-WP/11)**

3.2.23.1 A proposal to revise the title of 7;2.12 — “Loading of Expandable Polymeric Beads” — to include “plastics moulding compound” and the UN numbers for both items was agreed.

### **3.2.24 Obstructed Labels and Markings (DGP-WG/10-WP/13)**

3.2.24.1 A proposal to add a requirement in 7;2 to ensure that labels and markings remain visible during storage and transport while in the care of the air operator and any ground handling agents acting on its behalf was supported, although some felt that the words “while in storage and during transport” needed to be clarified. It was suggested that providing examples of the types of labels and markings would clarify that the requirement referred to non-dangerous goods labels and markings. The proposed amendment was agreed, subject to an editorial amendment and the placing of the new text in square brackets until such examples are provided.

3.2.24.2 It was further suggested that a similar amendment be made to the 1;1.3 requirement relating to dangerous goods packages opened by customs and other authorities. Although some felt that it would be difficult to raise awareness of such a requirement to customs staff, security screeners, etc., it was also felt that adding a requirement would allow for enforcement. The issue could be raised at the next working group meeting.

### **3.2.25 Compartment vs. Hold (DGP-WG/10-WP/25)**

3.2.25.1 Use of conflicting terms “compartment” and “hold” was discussed. It was noted that the two terms are used at various places in the Technical Instructions, but appear in some instances to be referring to the same space within an aircraft. This caused confusion for operator personnel in trying to comply with the requirements. Adopting the industry definitions for “hold” and “compartment” and applying those terms consistently in the Technical Instructions to remove any ambiguity on their intent and application was suggested. As these terms were only used in Part 7 (with one exception), it was

suggested to consider applying the definitions within Part 7 to avoid any confusion with use of “hold” or “compartment” in contexts unrelated to aircraft loading. A list of references where the terms were used within the Instructions was provided along with a suggested intended meaning for each. The working group examined the list to evaluate whether or not the intention of each instance was clear. It was determined that the only instance which wasn’t clear was in relation to the stowage of toxic and infectious substances.

3.2.25.2 There was sympathy for the issue, but a number of concerns were raised including:

- a) difficulties in developing a standard definition because of inconsistent use of the terms by different airlines/manufacturers/States;
- b) defining the terms specifically for Part 7 or generally for the entire document;
- c) consequential changes to the Supplement; and
- d) effect on translated versions of the Instructions.

3.2.25.3 A new paper would be prepared for DGP-WG/11 based on the discussions.

### **3.2.26 Reporting of Dangerous Goods Found in Crew Baggage (DGP-WG/10-WP/29)**

3.2.26.1 It was noted that although the provisions in Part 8 apply to passengers and crew, the requirement in Part 7;4.5 for an operator to report to the appropriate authority any occasion when dangerous goods are found which are not permitted under Part 8 refers to *passenger* baggage only. It was also noted that no reference is made to the need to report instances of dangerous goods being found *on* the person of a passenger or crew member. An amendment to 7;4.5 was made to address this issue. It was also suggested that reports should be made to the State of Origin in addition to the State in which the finding was made.

3.2.26.2 The extension of reporting occasions when dangerous goods are found on crew members and on the person was agreed. However, requiring that reports be made to the State of Origin in addition to the State in which the finding was made was not agreed. It was felt that this would cause complications and increased workload, as determining the State of Origin would be difficult.

### **3.2.27 Carriage of Cryogenic Liquids (DGP-WG/10-WP/44)**

3.2.27.1 The meeting was informed of an industry service letter outlining recommended practices for the carriage of cryogenic liquids aboard aircraft. It was noted that cryogenic liquids present two hazards in transportation: in the event of a spill, the extremely low temperatures of the liquids can damage neighboring equipment, and the resulting gas can pose an asphyxiation hazard to animals and persons. The industry service letter recommended that cryogenic liquids be transported only in the aft or bulk cargo compartments, in closer proximity to the outflow valve. It recommended not transporting cryogenic liquids in the forward cargo compartment, because leaking gasses could enter the recirculation system and enter the passenger cabin. It also recommended that cryogenic liquids are not placed near cargo heat temperature sensors or switches in the sidewall and floors. It was noted another aircraft manufacturer did not have such concerns because of their ventilation systems.

3.2.27.2 The working group was invited to consider whether requirements similar to those currently prescribed for dry ice should apply to cryogenic liquids. These could be added to the operator requirements or, alternatively, incorporated in the dry ice section.

3.2.27.3 There was general support for including recommendatory text in the Instructions. It was noted mandating the requirements would be difficult due to the many variables which would need to be considered, such as the size of the receptacles and the size of the aircraft.

3.2.27.4 A new paper will be prepared for DGP-WG/11.

### **3.2.28 Date on the Dangerous Goods Transport Document — Transitional Arrangements (DGP-WG/10-WP/47)**

3.2.28.1 The working group was reminded of transitional provisions for the new marking provisions for dangerous goods in limited quantity and for packages prepared for transport in accordance with the packing instructions contained in the 2009-2010 Edition. It was reported that shippers have queried whether the transport document accompanying a package prepared for transport in 2010 but shipped in 2011 could be dated with the date of shipment or whether a 2010 date must be indicated. It was agreed that the transport document could be signed after 1 January even though the package was prepared for transport before 31 December. A note clarifying this was developed for publication on the ICAO website (see Appendix C).

## **Part 8 — Provisions Concerning Passengers and Crew**

### **3.2.29 Number of Package Orientation Handling Labels on a Packaging Containing the Spillable Battery of a Wheelchair or other Battery-Powered Mobility Aid (DGP-WG/10-WP/14)**

3.2.29.1 A proposal to clarify the text associated with the labelling of a packaging containing the spillable battery of a wheelchair or other battery-powered mobility aid and the application of orientation labels was made. It was proposed that a reference to Part 5;3 be provided in 8;1.1.2 f) 3). The proposal was agreed.

### **3.2.30 Reformatting Part 8 (DGP-WG/10-WP/16)**

3.2.30.1 A proposal to restructure the Part 8 provisions for passengers and crew in a more practical and user-friendly format was discussed. The working group was provided with a version of the passenger provisions structured in a table format as an example, with columns providing the following information:

- a) permitted in checked baggage;
- b) permitted in carry-on baggage;
- c) air operator approval required;
- d) information to pilot-in-command required; and
- e) restrictions.

There was support for the idea and for inclusion of an additional column referring to dangerous goods permitted on one's person. A working group by correspondence was established to review the contents of the table. A new working paper would be presented at [DGP-WG/11].

**3.2.31 Acceptance of Medical Gaseous Oxygen or Air Cylinders Occasionally Carried by Medical Trained Personnel of the OPCW (DGP-WG/10-WP/17)**

3.2.31.1 Clarification that the provision in Part 8;1.1.2 a) could also apply to medical gaseous oxygen or air cylinders carried by medically-trained inspectors of the OPCW was sought. Adding text to specify that the provision applied to OPCW was proposed. It was agreed that 8;1.1.2 a) would apply to OPCW, as the current text does not specify personal use. It was felt that specifically adding OPCW to the provision would suggest that other organizations would be precluded from the provision. No action was required.

**3.3 Agenda Item 3: Development of recommendations for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2013/2014 Edition**

**3.3.1 Separation of Explosives (DGP-WG/10-WP/19)**

3.3.2 A proposal to add a chapter to Part S-7 describing separation requirements, including a separation table for explosives, was discussed. The proposal was in follow up to text adopted by DGP/22 for the separation requirements of explosives in the Technical Instructions. It was suggested at DGP/22 that a similar table for the Supplement be developed. Although there was much support for guidance, it was felt that the text was incomplete. Members were invited to submit comments to the presenter of the paper and, based on these comments, a new proposal would be prepared for the next working group meeting.

**3.3.3 New Chart for Class 1 Dangerous Goods in the *Supplement to the Technical Instructions for the Safe Transport Of Dangerous Goods By Air* (Doc 9284) (DGP-WG/10-WP/50)**

3.3.4 A proposal to revise the content and format of the Supplement was presented. It was agreed that a revision to the Supplement was needed and that there were many areas where guidance material could be provided. The working group was asked to consider the contents of the proposal as preliminary and to provide comments to the presenter. A working group would be set up to continue the work.

**3.4 Agenda Item 4: Amendments to the *Emergency Response Guidance for Aircraft Incidents involving Dangerous Goods* (Doc 9481) for incorporation in the 2013/2014 Edition**

3.4.1 No working papers were submitted under this agenda item.

**3.5 Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel**

**Agenda Items 5.1: Approvals and Exemptions**

**3.5.1 Final Review of Proposed Amendment to Annex 18 arising from DGP/22 Regarding Approvals and Exemptions (DGP-WG/10-WP/46)**

3.5.1.1 The working group discussed comments from States and international organizations to State letter AN 11/27.1.10-10/44 concerning amendments to Annex 18, which were proposed by DGP/22 and modified by the Air Navigation Commission during its review of the DGP/22 Report. A number of comments were received which disagreed with the language used in the amendments to paragraph 2.1.3 of the Annex, in particular the words “provides an adequate means of safe transport”. The working group was asked to comment on the modified text so that the Secretary could provide the Air Navigation Commission with the DGP’s position for consideration when it conducted its final review of the amendment to Annex 18 at the end of November.

3.5.1.2 There was significant support for keeping “equivalent level of safety” as it is a higher standard to apply and is the appropriate approach to use in this context. The working group noted that the Instructions establish a safety system which integrates a number of detailed provisions to establish an overall high degree of safety. This system allows for an assessment of the risk an item of dangerous goods might pose in air transport through the material classification, packaging, hazard communication, quantity limits, stowage, etc. By mandating an “equivalent” level of safety determination, an exemption might need to prescribe additional safety provisions, such as enhanced packaging or quantity limits, in order to achieve an overall safety level equivalent to the level established by the full provisions of the Instructions. The demonstration of safety should include the evaluation of all provisions within the safety system, not only a direct comparison to one provision within the system. Further, the current text provides States a measure of flexibility by providing that “...every effort shall be made to achieve an overall level of safety...” This approach is consistent with how other modes of transport apply these determinations which provides consistency in multimodal transport. The DGP has also developed guidance within the Supplement to assist competent authorities in producing consistent evaluations and safety determinations. The group considered the application of an “adequate” level of safety to provide a lower standard of safety determination. The working group recommended reinstating the text as highlighted below:

2.1.3 In instances of extreme urgency or when other forms of transport are inappropriate or when full compliance with the prescribed requirements is contrary to the public interest, the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided by these provisions. If none of the criteria for granting an exemption are relevant for the State(s) of Overflight, they may grant an exemption based on recognition of the authorization granted by another State concerned.

**Agenda Item 5.2: Review of provisions for dangerous goods relating to batteries**

**3.5.2 Lithium Battery Outreach (DGP-WG/10-WP/36)**

3.5.2.1 The working group was reminded that DGP/22 had agreed that efforts should be made by all Contracting States to improve education and outreach activities related to the safe transport by air of

lithium batteries. It was reported to the working group that one State would be producing an educational video which would be made freely available to States, operators and others. It would be appropriate for use on web sites, in training material, at airport check in areas, etc. The goal was to produce approximately five minutes of video for release by the end of September 2011. Although no definite structure had yet been planned, dividing the material into sections which would address various parties (e.g. shippers, senders (mail) and passengers) and enabling only the sections relevant to a particular party to be viewed was being considered.

3.5.2.2 A brainstorming session was set up whereby the working group was divided into four groups representing shippers, passengers, operators, and the post. Each group provided ideas for producing a useful and effective video targeting each of these groups.

3.5.2.3 There was much support for the project.

### **3.5.3 Lithium Battery Safety Bulletins and Guidance Material (DGP-WG/10-WP/41)**

3.5.3.1 The working group's attention was drawn to three safety bulletins on the risks in transporting lithium batteries. The group was reminded of the Air Navigation Commission's (ANC) request that the panel continue to monitor world activities and to consider any new initiatives that would assist in greater compliance with the relevant provisions in the Technical Instructions. It supported any efforts by the panel to develop a comprehensive outreach programme, including training to educate industry and the public on these matters. Based on this, the working group was invited to develop guidance material for the safe transport of lithium batteries.

3.5.3.2 A State letter was developed and reviewed by the working group (see paragraph 3.6.4 below).

### **3.5.4 Lithium Battery State Letter (DGP-WG/10-WP/48)**

3.5.4.1 A State letter highlighting the need for outreach and providing guidance on the safe handling of lithium batteries was drafted and presented to the working group for review. There was much appreciation expressed to the presenter of the paper. It was agreed that the safety bulletins recently published on the risks in transporting lithium batteries should be addressed. It was also agreed that the lithium battery handling label should be displayed in the State letter in order to strengthen familiarity with it. The Secretary would decide how best to include it in the letter.

3.5.4.2 It was agreed that the State letter should be distributed to States as soon as possible.

### **3.5.5 Prototype Lithium Battery Approvals Issued in Accordance with Special Provision A88 (DGP-WG/10-WP/49)**

3.5.5.1 Information related to the granting of approvals issued in accordance with Special Provision A88 (prototype/low production lithium batteries) was provided to the panel, along with a technical background relevant to the corresponding equivalent level of safety determination. The working group was reminded that at an earlier meeting, panel members from States with experience in issuing approvals for the transport of prototype lithium batteries were asked to share their experience with the panel.

3.5.5.2 The working group appreciated the information provided, recognizing that some States had little experience with the issuance of such approvals. The group was encouraged to review the

information and to provide comments to the presenters, with the goal of developing guidance material for inclusion in the Supplement.

### **Agenda Item 5.3: Carriage of dangerous goods on helicopters**

#### **3.5.6 Carriage of Dangerous Goods by Helicopters (DGP-WG/10-WP/27)**

3.5.6.1 The working group was briefed on discussions of the Ad Hoc Working Group on Helicopters which took place on 6 November. The ad hoc group reviewed DGP-WG/10-WP/27 which contained suggested amendments and/or additions to the Technical Instructions and the Supplement together with proposed text which included, where applicable, references to helicopter operations. The report of the ad hoc working group was presented. The subject of dangerous goods carried by helicopters had been raised by the Secretary at the ICAO Operations Panel (OPSP), who had undertaken to develop appropriate text for inclusion in Annex 6 Part 3. It was agreed that DGP-WG/10-WP/27 and the report of the ad hoc group would be forwarded to the OPSP for comment at their meeting in May 2011. Any comments received by them would be considered by DGP/23.

### **Agenda Item 5.4: Review of provisions for information to the pilot-in-command**

#### **3.5.7 Amendments to the Relevant Provisions for Information to the Pilot-In-Command and the Relevant Columns of Table 3-1 (DGP-WG/10-WP/6)**

3.5.7.1 The working group was asked to consider adding a requirement for emergency response drills in the information to the pilot-in-command and the addition of a new column for drill codes in Table 3-1 of the Technical Instructions. Although there was support for the idea in principle, the fact that alternative documentation was permissible made it impractical. There was also concern that too many columns would appear in Table 3-1.

3.5.7.2 It was agreed to wait for the outcome of the NOTOC working group before making any decision.

#### **3.5.8 Confirmation of no Evidence of any Damage to or Leakage from the Packages Loaded on the Aircraft (DGP-WG/10-WP/12)**

3.5.8.1 A proposal to include an indication in Part 7;4.1.3 that an external inspection of a unit load device has been conducted was presented. A number of members supported the intent of the paper, but had some concern that the actual wording might imply that any damage to a unit load device is unacceptable. Based on the comments received, the presenter advised that the paper would be withdrawn and a new proposal developed for DGP-WG/11.

#### **3.5.9 Dangerous Goods not Required to Appear on the Information to Pilot-In-Command (DGP-WG/10-WP/15 (Revised))**

3.5.9.1 It was noted that Part 7;4.1.1 of the Technical Instructions lists the information required to be present on the “information to pilot-in-command” document for dangerous goods that are to be carried as cargo. However, some dangerous goods are not required to appear on the “information to pilot-in-command” document. These exemptions are located throughout the Technical Instructions and not

obvious to find. A proposal to add a new table listing items of dangerous goods which do not need to appear on the “information to pilot-in-command” document was presented. The amendment, subject to minor editorial changes, was agreed.

### **3.5.10 NOTOC Review (DGP-WG/10-WP/28)**

3.5.10.1 The meeting was presented with a report of the Ad Hoc Working Group on Notifications to Captain (NOTOCs). It had been identified by the group that information provided in a NOTOC is also provided to emergency responders for use should an aircraft accident or serious incident occurs. As such, it was suggested that any future meeting should involve representation from airport rescue fire-fighting (ARFF) and air traffic service (ATS), and that for this reason any future meeting should probably be held in Montreal so representatives from those organizations/disciplines would be able to participate. The presenter of the paper proposed that panel members consider surveying pilots in their States using the questionnaire attached to DGP-WG/10-WP/28. It was suggested that panel members could also engage with ATS and ARFF to seek their input.

3.5.10.2 A questionnaire seeking information from pilots on what they would like to see in a NOTOC was provided with the working paper. It was suggested that the survey be conducted with a view to have the results available by the end of February 2011. Panel members should collate the results of the survey and then provide the collated data to the Secretary. One panel member, however, felt that a pilot survey would more likely reflect the training and awareness level of those surveyed and cautioned against its used to develop new regulatory text.

### **3.5.11 Timing of NOTOC Delivery (DGP-WG/10-WP/45)**

3.5.11.1 A proposal to introduce a requirement that the NOTOC be delivered to the flight crew prior to the aircraft moving under its own power was supported. It was recognized that the actual wording of the proposal could be improved and suggestions were welcome. If any were forthcoming, a new proposal would be prepared for DGP-WG/11.

## **Agenda Item 5.5: Performance standards for State employees**

### **3.5.12 DGP Training Working Group on the Competency Framework for State Employees (DGP-WG/10-IP/4)**

3.5.12.1.1 An update was provided on the initial results of the DGP training working group that was established on developing a competency framework for State employees involved in the regulation and oversight of the air transport of dangerous goods. It was agreed that the group should meet sometime before the next working group meeting. It was suggested and agreed that the group meet in Montreal so that members of ICAO’s training group could be present.

## **3.6 Agenda Item 6: Other business**

### **3.6.1 Approval to Carry/Handle Dangerous Goods (DGP-WG/10-WP/1) and Approval to Carry Dangerous Goods — Air Operator’s Certificate and Annex 6, Part I (DGP-WG/10-WP/23)**

3.6.1.1.1 The working group discussed the possibility of a) introducing requirements such that operators would only be permitted to carry dangerous goods by air if approved to do so by the State of the Operator; and b) introducing similar requirements for handling agents and possibly freight agents.

Attention was drawn to an appendix to Annex 6 which includes a template for the operations specifications associated with the air operator certificate. A reference to a “special authorization” in the template was noted. It was suggested that this reference suggests that operators need an authorization to carry dangerous goods, but that there is no corresponding requirement in Annex 6, Annex 18 or the Technical Instructions for such an authorization to be granted.

3.6.1.1.2 The benefits of introducing a requirement for approval to carry dangerous goods were discussed, the main one being the ability of States to ensure adequate training programmes and procedures were in place before granting such an approval. The ability for States to suspend or remove approvals for non-compliance was also recognized as an important benefit.

3.6.1.1.3 It was recognized that many States already require operator approval. One member offered to provide examples of OPS specifications from her State. It was also noted that certain State variations require approvals of operators coming into their States to carry dangerous goods. It was hoped that these would be eliminated should the requirements be introduced.

3.6.1.1.4 The Secretary reported on a paper she presented to the OPSP in which she had raised difficulties pertaining to lack of understanding of State of the Operator responsibilities with regard to dangerous goods which had been encountered during safety oversight audits. One example of such a difficulty related to the need for an operator to be approved to carry company material containing dangerous goods; this was frequently misunderstood. It had been suggested by the Secretary that future consideration might be given to the development of a separate chapter on dangerous goods provisions in Annex 6, Volume I but noted this work would require close cooperation between the OPSP and the DGP. She therefore recommended that panel members consult with their OPSP counterparts in their States or organizations. It was reported that the OPSP would add an item related to dangerous goods to their work programme which would be submitted to the ANC for approval.

3.6.1.1.5 There was support for the adoption of requirements for operators, some for handling agents, but none for freight forwarders. It was agreed that the focus should be on operator approval for now and that work would continue through correspondence. A new working paper would be presented at DGP-WG/11.

### **3.6.2 Revision of the Guidance Material for the Panel (DGP-WG/10-WP/4)**

3.6.2.1.1 A proposal was made to update the *Guidance Material for the Panel* document. A draft new version was provided as a basis for initial review, recognizing that much work was needed. The working group was reminded that the current document included a statement that the dangerous goods list, special provisions and the packing instructions contained in the Supplement would be deleted from the Supplement and instead incorporated into the body of the Technical Instructions. There was no support for this statement. On the contrary, it was felt that more information was needed in the Supplement. Incorporating information intended for items normally forbidden from transport in the Instructions could cause complications and provide users with the impression of permissions.

3.6.2.1.2 A working group by correspondence would continue the work initiated by the presenter.

## **4. LANGUAGE VERSIONS OF THE TECHNICAL INSTRUCTIONS**

4.1 Three panel members expressed frustration with not having the language versions of the Technical Instructions available. Difficulties with training inspectors and with incorporating the

provisions into their own regulations were reported. Receiving the document at the same time that the English version was published would alleviate the problems. The Secretary expressed sympathy and understanding for the issue and reported that every attempt was made each cycle for timely production, but the lack of language resources within ICAO made it difficult. She agreed to report the issue to the ICAO Secretariat.

**5. DGP-WG/11**

5.1 The meeting was informed of tentative plans to hold DGP-WG/11 in Atlantic City, New Jersey in the spring of 2011. Further information would be disseminated as soon as possible in order to facilitate travel.

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**APPENDIX A**  
**AMENDMENTS TO ANNEX 18**  
**CHAPTER 1. DEFINITIONS**

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DGP-WG/10-WP/8:

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*UN number.* The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a ~~(a)~~ substance ~~/or an article~~ or a particular group of substances ~~/or articles~~.

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## APPENDIX B

### CONSOLIDATION OF AMENDMENTS TO THE TECHNICAL INSTRUCTIONS AGREED AT WG/10

#### FOREWORD

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DGP-WG/10-WP/9:

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#### USE OF THE TECHNICAL INSTRUCTIONS

The Technical Instructions are divided into eight Parts **and supplemented by several attachments**, with each Part **and Attachment** divided into Chapters and each Chapter divided into paragraphs and subparagraphs.

Within each Chapter, the Chapter number is incorporated into all of the paragraph numbers; thus, in Chapter 3, paragraph 2 carries the number "3.2". When referring to a paragraph, it is necessary to identify the appropriate Part **or Attachment**; if the above example were located in Part 2, the reference to it would be shown as "2;3.2" (that is, Part 2; Chapter 3, paragraph 3.2). **If the above example were located in Attachment 3, the reference to it would be shown as "A3;3.2" (that is, Attachment 3; Chapter 3, paragraph 3.2).**

Figures and Tables are numbered sequentially within the Part **or Attachment** in which they appear. Thus the second figure appearing in Part 4 is identified as "Figure 4-2" **and** the first table appearing in Part 3 is identified as "Table 3-1" **and the first table appearing in the attachments is identified as "Table A-1" and it appears in Attachment 3.**

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## Part 1

### GENERAL

#### Chapter 1

#### SCOPE AND APPLICABILITY

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DGP-WG/10-WP/38:

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4.2.3 Recurrent training must 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~~ **month** on which the recurrent training was completed until 24 months from the expiry ~~date~~ **month** of that previous training.

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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 month**;
- 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.

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

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DGP-WG/10-WP/40:

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## Part 2

### CLASSIFICATION OF DANGEROUS GOODS

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*Note.— The following amendment will be incorporated in an corrigendum to the 2010/2011 Edition.*

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## Chapter 9

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9.2.1 Class 9 includes, inter alia:

- a) Environmentally hazardous substances (aquatic environment) are those that meet the criteria in 2.9.3 of the UN Model Regulations, **15th revised edition**, or that meet criteria in international regulations or national regulations established by the appropriate national authority in the State of Origin, transit or destination.

Substances or mixtures dangerous to the aquatic environment not otherwise classified under these Instructions must be assigned to Packing Group III and designated:

UN 3077 Environmentally hazardous substance, solid, n.o.s.; or  
UN 3082 Environmentally hazardous substance, liquid, n.o.s.

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## Part 3

Table 3-1

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DGP-WG/10-WP/20:

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*Insert "Forbidden" in column 10 of Table 3-1 for the following substances:*

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UN No.	Name
1162	Dimethyldichlorosilane
1196	Ethyltrichlorosilane
1250	Methyltrichlorosilane
1298	Trimethylchlorosilane
1305	Vinyltrichlorosilane
2985	Chlorosilanes, flammable, corrosive, n.o.s.

UN No.	Name
3361	Chlorosilanes, toxic, corrosive, n.o.s.
3362	Chlorosilanes, toxic, corrosive, flammable, n.o.s.

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## Chapter 4

### DANGEROUS GOODS IN LIMITED QUANTITIES

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#### 4.3 QUANTITY LIMITATIONS

4.3.1 The net quantity per package must not exceed the quantity specified in column 11 of Table 3-1 against the packing instruction number identified by the prefix letter "Y" in column 10.

4.3.2 The gross mass per package must not exceed 30 kg.

4.3.3 When different dangerous goods are contained in one outer packaging, the quantities of such dangerous goods must be so limited that:

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DGP-WG/10-WP/37:

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- a) for classes other than Classes 2 (except UN 2037, UN 3478 and UN 3479) and 9 (except UN 3316), the total net quantity in the package does not exceed the value of 1, where "Q" is calculated using the formula:

$$Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} + \dots$$

where  $n_1$ ,  $n_2$ , etc., are the net quantities of the different dangerous goods and  $M_1$ ,  $M_2$  etc., are the maximum net quantities for these different dangerous goods shown in Table 3-1 against the relevant "Y" packing instructions; and

- b) for Classes 2 (except UN 2037, UN 3478 and UN 3479) and 9 (except UN 3316):
- 1) when packed together without goods of other classes, the gross mass of the package does not exceed 30 kg; or
  - 2) when packed together with goods of other classes, the gross mass of the package does not exceed 30 kg and the total net quantity in the package of goods other than in Classes 2 (except UN 2037, UN 3478 and UN 3479) or 9 (except UN 3316) does not exceed the value of 1 when calculated according to a) above.
- c) carbon dioxide, solid (dry ice), UN 1845 may be packed together with goods of other classes, provided that the gross mass of the package does not exceed 30 kg. The quantity of dry ice does not need to be taken into account in the calculation of the "Q" value. However, the packaging containing the carbon dioxide, solid (dry ice) and the outer packaging must permit the release of carbon dioxide gas.

- 4.3.4 Where the different dangerous goods in the outer packaging consist only of those with the same UN number, packing group and physical state (i.e. solid or liquid), the calculation in 4.3.3 a) does not need to be made. However, the total net quantity in the package must not exceed the maximum net quantity according to Table 3-1.

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## Part 4

# PACKING INSTRUCTIONS

## INTRODUCTORY NOTES

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DGP-WG/10-WP/7:

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**I** Note 1.— *Packing groups*

For packing purposes, dangerous goods ~~of all classes~~, other than Classes 1, 2 and 7, ~~self-reactive substances of Division 4.1, and~~ Divisions 5.2 and 6.2, have been divided among three packing groups according to the degree of danger they present. The packing groups have the following meanings:

of classes 3, 8, 9 and divisions

- Packing Group I — Substances presenting high danger
- Packing Group II — Substances presenting medium danger
- Packing Group III — Substances presenting low danger

Some substances in Class 9 and liquids in Division 5.1 have been assigned to packing groups by experience rather than through application of technical criteria. The packing group to which a substance is assigned is listed in Table 3-1. The criteria for the packing groups are given in Part 2, Chapters 3, 4, 5, 6 and 8.

**I**

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DGP-WG/10-WP/42:

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1.1.4 The body and the closure of any packaging must be so constructed as to be able to adequately resist the effects of temperature and vibration occurring in normal conditions of transport. The closure device must be so designed that it:

- a) is unlikely that it can be incorrectly or incompletely closed, and must be such that it may be checked easily to determine that it is completely closed; and
- b) remains securely closed during transport.

1.1.4.1 In addition, for ~~inner packagings containing~~ liquids ~~substances~~, closures must be held securely, tightly and effectively in place by secondary means. Examples of such methods include: adhesive tape, friction sleeves, welding or soldering, positive locking wires, locking rings, induction heat seals and child-resistant closures. When secondary means of closure cannot be applied ~~to an inner packaging containing liquids~~, the inner packaging must be securely closed and placed in a leakproof liner and then placed in an outer packaging.

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DGP-WG/10-WP/22 and Flimsy No. 2

Note.— If an addendum/corrigendum is issued for the 2009/2010 edition, the same amendments will apply to Packing Instruction 523:

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### Packing Instruction 565

~~Passenger and e~~Cargo aircraft for UN 3356 only

#### General requirements

Part 4, Chapter 1 requirements must be met, including:

#### 1) Compatibility requirements

- Substances must be compatible with their packagings as required by 4;1.1.3.
- Metal packagings must be corrosion resistant or be protected against corrosion.

2) Closure requirements

— Closures must meet the requirements of 4;1.1.4.

COMBINATION PACKAGINGS				SINGLE PACKAGINGS
UN number and proper shipping name	Packing conditions	Total quantity per package — passenger	Total quantity per package — cargo	
UN 3356 <b>Oxygen generator, chemical</b>	The generators must be tightly packed in the outer packagings listed below.	Forbidden	25 kg-G	Unpackaged No

**ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS**

- a) The generator, without its packaging, must be capable of withstanding a 1.8 m drop test onto a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause actuation, without loss of its contents and without actuation. For portable breathing equipment (PBE), which are in a vacuum-sealed bag as part of their containment system, this test may be conducted on the PBE in the vacuum-sealed bag.
- b) When a generator is equipped with an actuating device, it must have at least two positive means of preventing unintentional actuation. ~~For PBE, which are in a vacuum-sealed bag as part of their containment system, the vacuum-sealed bag may be considered the second positive means of preventing unintentional actuation, as follows:~~
  - 1) mechanically actuated devices:
    - i) two pins, installed so that each is independently capable of preventing the actuator from striking the primer;
    - ii) one pin and one retaining ring, each installed so that each is independently capable of preventing the actuator from striking the primer; or
    - iii) a cover securely installed over the primer and a pin installed so as to prevent the actuator from striking the primer and cover.
  - 2) electrically actuated devices: The electrical leads must be mechanically shorted and the mechanical short must be shielded in metal foil.
  - 3) For PBE:
    - i) a pin so as to prevent the actuator from striking the primer; and
    - ii) placed in protective packaging such as a vacuum-sealed bag;
- c) The generator(s) must be transported in a package which will meet the following requirements when one generator in the package is actuated:
  - 1) other generators in the package will not be actuated;
  - 2) packaging material will not ignite; and
  - 3) the outside surface temperature of the completed package will not exceed 100°C.

*Note.— To enable tests 1), 2) and 3) to be conducted on PBE, it is acceptable to break the vacuum-sealed bag to actuate the generator before placing it in the package.*

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DGP-WG/10-WP/24:

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### Packing Instruction 954

Passenger and cargo aircraft for UN 1845 only

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- c) the dangerous goods transport document requirements of 5.4 are not applicable provided alternative written documentation is provided describing the contents. The information on the document must be shown in the location provided for the description of the goods. Where an agreement exists with the operator, the shipper may provide the information by electronic data processing (EDP) or electronic data interchange (EDI) techniques. The information required is as follows and should be shown in the following order:

1) UN 1845;

2) **Carbon dioxide, solid** or **Dry ice**;

3) the number of packages and the net quantity of dry ice in each package; and

d) the net mass of the **Carbon dioxide, solid** or **Dry ice** must be marked on the outside of the package; ~~and~~

e) ~~the information must be included with the description of the goods.~~

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## Part 7

### OPERATOR'S RESPONSIBILITIES

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#### Chapter 2

#### STORAGE AND LOADING

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DGP-WG/10-WP/13:

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#### 2.6 VISIBILITY OF MARKINGS AND LABELS

While in storage and during transport, all required markings and labels must not be covered or obscured by any part of or attachment to the packaging or any other label or marking.

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DGP-WG/10-WP/11:

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## 2.12 LOADING OF UN 2211 EXPANDABLE, POLYMERIC BEADS, EXPANDABLE OR UN 3314, PLASTICS MOULDING COMPOUND

A total of not more than 100 kg net mass of expandable polymeric beads (or granules), or plastic moulding materials, referenced to Packing Instruction 957, may be carried in any inaccessible hold on any aircraft.

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DGP-WG/10-WP/29:

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## 4.5 REPORTING OF UNDECLARED OR MISDECLARED DANGEROUS GOODS

An operator must report any occasion when undeclared or misdeclared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the Operator and the State in which this occurred. An operator must also report any occasion when dangerous goods not permitted under 8;1.1.1 are discovered ~~in passengers' baggage~~ either in the baggage or on the person of passengers or crew members. Such a report must be made to the appropriate authority of the State in which this occurred ~~and the State of Origin~~.

## 4.1 INFORMATION TO THE PILOT-IN-COMMAND

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DGP-WG/10-WP/45:

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4.1.1 The operator of an aircraft in which dangerous goods are to be carried must provide the pilot-in-command, as early as practicable before departure of the aircraft, but in no case later than when the aircraft moves under its own power, with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo.

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DGP-WG/10-WP/15 Revised:

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4.1.9 In the event that the volume of information provided to the pilot-in-command is such that in-flight radiotelephony transmission would be impracticable in an emergency situation, a summary of the information should also be provided by the operator, containing at least the quantities and class or division of the dangerous goods in each cargo compartment.

4.1.10 The following dangerous goods **need not** appear on the information provided to the pilot-in-command:

**[Table 7-X  
Dangerous goods not required to appear  
on the information to pilot-in-command]**

<b>UN Number</b>	<b>Proper Shipping Name</b>	<b>Reference</b>
	<b><u>Dangerous goods packed in excepted quantities</u></b>	<b><u>3;5.1.1</u></b>
<b><u>UN 2807</u></b>	<b><u>Magnetized material</u></b>	<b><u>Packing instruction 953</u></b>
<b><u>UN 2908</u></b>	<b><u>Radioactive material, excepted package — empty packaging</u></b>	<b><u>1;6.1.5.1 (a)</u></b>
<b><u>UN 2909</u></b>	<b><u>Radioactive material, excepted package — articles manufactured from natural uranium or depleted uranium or natural thorium</u></b>	<b><u>1;6.1.5.1 (a)</u></b>
<b><u>UN 2910</u></b>	<b><u>Radioactive material, excepted package — limited quantity of material</u></b>	<b><u>1;6.1.5.1 (a)</u></b>
<b><u>UN 2911</u></b>	<b><u>Radioactive material, excepted package — instruments or articles</u></b>	<b><u>1;6.1.5.1 (a)</u></b>
<b><u>UN 3090</u></b>	<b><u>Lithium metal batteries (including lithium alloy batteries) when meeting the requirements of Packing Instruction 968, Section II</u></b>	<b><u>Packing instruction 968, Section II</u></b>

<u>UN Number</u>	<u>Proper Shipping Name</u>	<u>Reference</u>
<u>UN 3091</u>	<u>Lithium metal batteries contained in equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 970, Section II</u> <u>or Lithium metal batteries packed with equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 969, Section II</u>	<u>Packing instruction 970, Section II</u> <u>Packing instruction 969, Section II</u>
<u>UN 3245</u>	<u>Genetically modified micro-organisms</u> <u>or Genetically modified organisms</u>	<u>Packing instruction 959</u>
<u>UN 3373</u>	<u>Biological substance, Category B</u>	<u>Packing instruction 650, point 11</u>
<u>UN 3480</u>	<u>Lithium ion batteries (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 965, Section II</u>	<u>Packing instruction 965, Section II</u>
<u>UN 3481</u>	<u>Lithium ion batteries contained in equipment (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 967, Section II</u> <u>or Lithium ion batteries packed with equipment (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 966, Section II</u>	<u>Packing instruction 967, Section II</u> <u>Packing instruction 966, Section II</u>

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DGP-WG/10-WP/14:

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## Part 8

### PROVISIONS CONCERNING PASSENGERS AND CREW

#### Chapter 1

#### PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

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##### 1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

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- f) with the approval of the operator(s), battery-powered wheelchairs or other similar mobility aids with spillable batteries, for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), as checked baggage, provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position and that the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container) and the battery is securely attached to the wheelchair or mobility aid. The operator(s) must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo. If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction. The removed battery must be carried in strong, rigid packagings as follows:

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- 3) these packagings must be marked "Battery, wet, with wheelchair" or "Battery, wet, with mobility aid" and be labelled with a "Corrosive" label (Figure 5-22) and with a package orientation labels (Figure 5-26) as required by 5.3.

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## ATTACHMENT 2

# GLOSSARY OF TERMS

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DGP-WG/10-WP/5:

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<i>Term and explanation</i>	<i>UN Number(s), when relevant</i>
<b>LITHIUM BATTERY OR LITHIUM CELLS.</b> A battery is one or more cells which are electrically connected together by a permanent means. A cell is a single encased electromechanical unit which exhibits a voltage differential across its two terminals.	3090, 3091, <u>3480, 3481</u>

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**APPENDIX C**

**DATE ON THE DANGEROUS GOODS TRANSPORT DOCUMENT — TRANSITIONAL  
PROVISIONS: GUIDANCE DOCUMENT FOR THE WEB  
(DGP/22-WP/47)**

**Guidance Document**

**Date on the Dangerous Goods Transport Document – Packages Shipped under Transitional  
Provisions**

The 2011-2012 Edition of the ICAO Technical Instructions implements the reformatted packing instructions for Class 3, 4, 5, 8 and 9 and Division 6.1 and also the new marking for packages containing dangerous goods in limited quantities and ID 8000, Consumer commodity.

To facilitate the transport of packages prepared for transport prior to 1 January 2011 in accordance with the provisions of the 2009-2010 Edition of the Technical Instructions, the 2011-2012 Edition of the Technical Instructions permits the transport of these packages until 31 March 2011.

When the transitional provisions are being used, the dangerous goods transport document must show the packing instruction number applicable in the 2009-2010 Edition of the Technical Instructions. In this instance the date on the dangerous goods transport document should be the date the document was prepared, i.e. any date up to and including 31 March 2011.

— END —