



DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING (DGP-WG/15)

Montreal, 27 April to 1 May 2015

REPORT OF THE MEETING

1. INTRODUCTION

1.1 The meeting of the Dangerous Goods Panel Working Group Meeting (DGP-WG/15) was opened by Mr. C. Radu, Deputy Director, Aviation Safety, Air Navigation Bureau on 27 April 2015. Ms. M. Paquette was elected Chairperson of the meeting and Mr. B. Firkins was elected Vice-Chairperson.

2. ATTENDANCE

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

Members	Advisers/Observers	State/International Organization
	M. Böhm	Austria
B. Firkins		Australia
B. Carrara	H. Guedes	Brazil
M. Paquette	M. Casas-Cordero D. Evans T. Howard P. Juneau	Canada
	J. Abouchaar S. Aidong C. Chan (Hong Kong SAR) C. Donghao	China
	J. Wiren Bengtsson H. Thaarup	Denmark
P. Tatin	V. Royou	France
	G. Closhen	Germany
M. Gelsomino	C. Carboni	Italy
H. Sugimoto	A. Awano N. Iki H. Shima N. Takahashi	Japan

Members	Advisers/Observers	State/International Organization
T. Muller	R. Dardenne K. Vermeersch	the Netherlands
D. Mirko	D. Kurdchenko	Russian Federation
	N.W. Mathonsi T. Zembe	South Africa
P. Ros		Spain
	R. Joss	Switzerland
H. Al Muhairi	H. Al Obaidli P. Balasubramanian P. King A. Wagih	United Arab Emirates
R. McLachlan	J. Hart D. Warden	United Kingdom
	R. Bornhorst J. Gardlin M. Givens R. Hill K. Leary J. McLaughlin D. Pfund H. Webster	United States
D. Brennan	P. Oppenheimer B. Sullivan D. Tindley J. Wyatt	International Air Transport Association (IATA)
	D. Ferguson P. Rohrbach	International Coordinating Council of Aerospace Industries Associations
M. Rogers	S. Schwartz	International Federation of Air Line Pilots' Associations (IFALPA)
K. Rooney	L. McGuigan	International Civil Aviation Organization (ICAO)
	E. Sigrist	European Chemical Industry Council (CEFIC)
	A. Altemos G. Leach N. McCulloch	Dangerous Goods Advisory Council (DGAC)
	B. McClelland A. McCulloch	Global Express Association (GEA)
	C. Updyke	National Electrical Manufacturers Association (NEMA)

Members	Advisers/Observers	State/International Organization
	G. Kerchner	The Rechargeable Battery Association (PRBA)
	D. Cortez	Universal Postal Union (UPU)
	J. Le Tonqueze	Worldwide Flight Services (WFS)
	B. Bonnardel-Azzarelli	World Nuclear Transport Institute (WNTI)

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 Infected live animals (DGP-WG/15-WP/22)

3.1.1.1.1 Inconsistencies with respect to the provisions for the transport of infected live animals between the Technical Instructions and the Supplement were reported. The Technical Instructions allowed for the transport of infected live animals under the terms and conditions of an approval granted by the appropriate national authority, while the Supplement indicated that infected live animals can only be transported by air when an exemption is granted by the States concerned.

3.1.1.1.2 Although there was support for revising the Supplement to align with the Technical Instructions by making transport subject to an approval rather than an exemption, the Secretary suggested that the misalignment should be given further consideration particularly in relation to Annex 18 and believed the World Health Organization (WHO) should be contacted for guidance. Representatives of the World Health Organization (WHO) and the World Organisation for Animal Health advised that transport of infected live animals should be subject to prior approval from, at a minimum, the States of Origin, Transit and Destination. It was suggested that further consideration be given to distinguishing between animals infected with Category A infectious substances versus Category B.

3.1.1.1.3 Discussions between the Secretary and the proposer would continue with the aim of developing a revised proposal for DGP/25.

3.2 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 2017-2018 Edition

3.2.1 Agenda Item 2.1: Part 1 — General

3.2.1.1 Draft Amendments to the Technical Instructions to Align With the UN Recommendations — Part 1 (DGP-WG/15-WP/11)

3.2.1.1.1 Draft amendments to Part 1 were proposed to reflect the decisions taken by the UN Sub-Committee. The only issue raised during discussion of the working paper related to the inclusion into the Technical Instructions of definitions for items not permitted for transport by air. Whether or not to include definitions for such items had been discussed at DGP/24 (see paragraph 2.1.1.2 of the DGP/24 Report). That discussion related specifically to large salvage packagings. Although it was agreed to include this definition in the Technical Instructions, there was no definitive conclusion on whether all terms should be included. DGP-WG/15 was invited to consider whether to include the definitions for other items included in Part 1;3 which were not permitted in transport by air. It was agreed that they would be included and that the words “Not permitted for air transport” would be maintained as a preamble to each of these definitions.

3.2.1.2 It was agreed that DGP-WG/15-WP/11 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.1.3 Review and Approval of Dangerous Goods Training Programmes — State of the Operator (DGP-WG/15-WP/28)

3.2.1.3.1 It was noted that Part S-7;5.6.1 of the Supplement to the Technical Instructions referred to the requirement in the Technical Instructions for an operator’s dangerous goods training programme to be approved but did not specify which State was to approve it. This had led some to believe that approval was needed by the State of Origin or Destination, neither of which were necessarily the State of the Operator, resulting in the potential for an operator’s training programme being reviewed and approved by several States. An amendment to Part S-7;5.6.1 of the Supplement was proposed to specify that the operator’s training programme was required to be approved by the State of the Operator. This was agreed.

3.2.1.3.2 It was suggested that Part 1;4.1 of the Technical Instructions included provisions for establishing and maintaining dangerous goods training programmes and reviewing and approving them. A revision to the heading of Part 1;4.1 and the introduction of two new headings in the section were proposed to clearly indicate this. These amendments were agreed. The proposal also included a specific reference to the State of Origin in relation to the national authority responsible for reviewing and approving training programmes other than those for the operator and designated postal operators. There was no support for this part of the proposal and it was therefore withdrawn.

3.2.2 Part 2 — Classification

3.2.2.1 Draft Amendments to the Technical Instructions to Align With the UN Recommendations — Part 2 (DGP-WG/15-WP/12)

3.2.2.1.1 Draft amendments to Part 2 were proposed to reflect the decisions taken by the UN Sub-Committee. The following issues were raised during the discussion:

- a) It was agreed that a requirement for a copy of the document of approval granted by the appropriate national authority to accompany a consignment shipped under the new provision in Part 1;1.2 b) should be included;
- b) References to competent authority would be replaced with appropriate national authority as applicable;
- c) There was a lack of consistency when referring to the UN Model Regulations and the United Nations Recommendations. The Secretariat would ensure consistent use of the references throughout the Technical Instructions;
- d) References to Special Provision A208 would be replaced with A209 under the new provisions for substances not accepted for transport (paragraphs 2.6, 3.5, 6.2.5 and 8.3) as this was the special provision which applied to these provisions;
- e) The heading to the new provisions for substances not accepted for transport (paragraphs 2.6, 3.5, 6.2.5 and 8.3) would be modified to read “...forbidden for transport” to align with wording used throughout the Technical Instructions.
- f) It was questioned whether it was appropriate to include the new provisions for viscosity determination under 3;3.2.2 a) in a footnote. It was noted that the UN recognized footnotes as regulatory text, although it was suggested that the provision was more of an explanatory rather than a regulatory nature. The issue would be raised at the UN Sub-Committee.

3.2.2.1.2 A representative of the World Nuclear Transport Institute (WNTI) referred to the reclassification of UN 3507 — **Uranium Hexafluoride, Radioactive Material, Excepted Package** as a Division 6.1 toxic substance of Packing Group I with radioactive and corrosive subsidiary risks. The subject had been discussed at DGP-WG/14 in relation to concerns that the reclassified substance would not be permitted for transport by air if it were considered to be toxic by inhalation (see paragraph 3.2.3.2 of the DGP-WG/14 Report). The UN Sub-Committee had decided against assigning SP 335 (“This substance is toxic by inhalation”) to the substance, and the proposed amendment to the entry in Table 3-1 aligned with the Model Regulation. Members were encouraged to contact the Secretary if they needed further information on the subject.

3.2.2.1.3 It was agreed that DGP-WG/15-WP/12 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.2.2 **Classification and Alignment with the UN Model Regulations (DGP-WG/15-WP/25)**

3.2.2.2.1 A number of inconsistencies between the UN Model Regulations and the Technical Instructions in relation to mandatory versus recommended classification provisions were reported. A list of these inconsistencies was provided and the working group was asked to consider each inconsistency and determine whether changes to the Technical Instruction were necessary or if it should be brought to the attention of the UN Sub-Committee.

3.2.2.2.2 The Secretary noted that an exhaustive exercise comparing the UN Model Regulations with the Technical Instructions had been undertaken in the late 1990s. The goal was to harmonize the Technical Instructions as much as possible with the UN Model Regulations and that necessary deviations were consciously determined at that time. Reference to the Dangerous Goods Panel Guidance Document was made, noting that the document should be updated whenever the Technical Instructions deviated from the UN Model Regulations but that this was not always done. Noting that the DGP had determined the need for an editorial working group to carefully review amendments to the Technical Instructions, it was suggested that this group could look at the issues raised in the working paper in more detail and that updating the Dangerous Goods Panel Guidance Document should become a recurring task for the group.

3.2.2.3 **Format and Structure: Instructions versus Recommendations (DGP-WG/15-WP/26)**

3.2.2.3.1 It was noted that Standards and Recommended Practices had a distinctive style and format in Annexes, including Annex 18, which made it easy to differentiate between the two. Standards appeared in normal typeface while Recommended Practices appeared in italic typeface prefaced by the word “Recommendation”. It was suggested that the approach taken to distinguish between recommendatory versus mandatory text was not standard in the Technical Instructions. Mandatory text did appear as normal type face, but recommendatory text was sometimes shown in italic typeface prefaced by the word “Note” and sometimes shown in normal typeface. It was noted that the terms “should”, “shall” and “must” were not always interpreted accurately, which sometimes led to improper translation into the other language versions of the Technical Instructions. It was suggested that a distinctive standardized format would facilitate accurate translation. The working group was therefore invited to consider whether applying a consistent style and format to distinguish between mandatory and recommendatory text in the Technical Instructions should be considered. Examples of how this could be accomplished were provided.

3.2.2.3.2 Although there was support for any effort to clarify the provisions, it was felt that the revisions proposed in the working paper would significantly alter paragraph numbering in the Technical Instructions; might cause an unintentional change; and would result in the need to ensure references were up-to-date. This would be an onerous task, and unlikely to be achievable in time for DGP/25. The working paper was withdrawn.

3.2.2.4 **Special Provision A44 (DGP-WG/15-WP/27)**

3.2.2.4.1 An inconsistency between what is permitted in UN 3316 — **Chemical kit** and **First aid kit** in accordance with Special Provision 251 of the UN Model Regulations versus Special Provision A44 of the Technical Instructions was identified. The UN special provision only allowed dangerous goods permitted in limited quantities in the kits whereas the Technical Instructions allowed dangerous goods which were permitted either in limited quantities or in excepted quantities, making the Technical

Instructions less restrictive than the UN Model Regulations. An amendment to Special Provision A44 which removed the reference to excepted quantities was proposed so as to align the Technical Instructions with the UN Model Regulations.

3.2.2.4.2 Although there was support for harmonization with the UN Model Regulations, it was felt that more consideration was needed before agreeing to the amendment including determining if the UN Model Regulations should instead align with the Technical Instructions for this particular provision. Although the deadline for submitting formal papers to the UN Sub-Committee had passed, the proposer agreed to submit an informal paper to the Sub-Committee seeking opinions on the issue raised in his paper.

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

3.2.3.1 Review of Special Provisions A302 and A324 to remove State of Destination from Approval (DGP-WG/15-WP/1)

3.2.3.1.1 The working group was reminded that Special Provision A302 allowed for the carriage of cylinders containing compressed oxygen or compressed air for the purpose of providing life support for aquatic animals during transport with the prior approval of the States of Origin, Destination and of the Operator. It was suggested that justification for requiring approval from the State of Destination was no longer valid as it was originally included with the recognition that the need for transport was restricted to just one region of the world, but that the need had since spread to other regions. Difficulties for shippers and operators obtaining approval from the State of Destination were reported; it was suggested that a contributing factor was the fact that the State of Destination had no oversight authority over the shipper or the operator and had little interest in the potential value of the shipments to the shipper or the operator. The working group was therefore asked to remove State of Destination from the approval process.

3.2.3.1.2 A question related to the quantity of oxygen needed to support the animals during transport was raised, but it was decided that this was not relevant to the specific proposal and that if there were concerns, they should be raised in a separate paper. Although two panel members did not support removing State of Destination from the approval process, most believed that requiring an approval from that State was not necessary and did not provide any additional safety measures. The amendment was therefore agreed.

3.2.3.1.3 Recognizing that Special Provision A302 was used as the basis for developing Special Provision A324, which applied to the transport of a symbolic flame, it was agreed to also remove the requirement for approval from the State of Destination in Special Provision A324.

3.2.3.1.4 Panel members who opposed the proposal were reminded that State variations extending the requirement for approval from other States could be filed.

**3.2.3.2 Draft Amendments to the Technical Instructions to Align
With the UN Recommendations — Part 3
(DGP-WG/15-WP/13)**

3.2.3.2.1 Draft amendments to Part 3 were proposed to reflect the decisions taken by the UN Sub-Committee. The following issues were raised during the discussion:

- a) It was noted that a new provision was added to SP225 of the UN Model Regulations in the form of a note. The same provision was added to Special Provision A19 in the Technical Instructions, but as a regular provision since the provision included regulatory text. It was questioned whether it was appropriate for it to appear in a note in the UN Model Regulations. This would be raised to the UN Sub-Committee.
- b) New entries for UN 3531 and UN 3532 were marked as forbidden on passenger aircraft by the Secretariat in the list of amended entries for Table 3-1. It was suggested that these Division 4.1, Packing Group III entries should be permitted on both passenger and cargo aircraft. It was further suggested that the new special provision assigned to UN 3531 and UN 3532 might need further clarification. The special provision, packing instruction and the quantities assigned to UN 3531 and UN 3532 would be further reviewed by panel members prior to DGP/25.
- c) A general provision referring to special provisions that included a requirement for package marking in the form of specific wording indicated in quotation marks was added to the introductory section of 3;3 in alignment with the UN Model Regulations. It was suggested that the requirement be added to the specific special provisions where this applied instead of the introductory text, recognizing the limited number of special provisions to which it would apply. This would be considered prior to DGP/25.
- d) New and revised provisions for UN 3166, which included reclassification of engines and new entries for machines, new special provisions and new packing instructions, would be carefully reviewed by panel members. It was suggested that some of the special provisions assigned to these articles could be merged, some redundant provisions could be deleted, and some new provisions would be inappropriate for transport by air. A complete review of all provisions related to vehicles, engines and machinery would be undertaken by panel members prior to DGP/25.
- e) Reference to the quantity limits shown in columns 11 and 13 of Table 3-1 in Special Provision A66 would be deleted as it only applied to the UN Model Regulations.
- f) Whether or not the revision to Special Provision A88, which applied to prototype or low-production lithium batteries and referred to a new packing instruction, should be adopted was considered. It was proposed that as these can only be transported under an approval, the new packing instruction should be included in the Supplement to the Technical Instructions instead of the Technical Instructions. This would be further reviewed by panel members prior to DGP/25.
- g) The new text in Special Provision A102 would be removed as it applied to bulk consignments which were not permitted by the air mode.

- h) The wording related to the transition period provided in Special Provision A132 was unclear and would be reviewed.
- i) The new provision in Special Provision A134 related to batteries meeting the requirements of 2.9.3 would be removed as it already appeared in the applicable packing instructions, i.e. Packing Instructions 950 and 951.
- j) It was suggested that the wording in new Special Provision A202 referring to “may be transported” placed an inappropriate responsibility on the operator since it was the shipper’s responsibility to apply the provisions. The wording would be replaced with “offered for transport”. It was also suggested that the required statement on the transport document provided in sub-paragraph g) was too prescriptive and that the wording should be modified in line with other special provisions, i.e. “Transport in accordance with this special provision must be noted on the dangerous goods transport document.” The UN Sub-Committee would be advised of these changes.
- k) The transition period for the new hazard label for lithium batteries that was included in a note in new Special Provision A206 would be moved to form part of the mandatory provision. This would ensure that the transition period would be available in States which might not otherwise consider relaxation from requirements provided in notes. Some members noted that although they recognized the need for harmonization with other modes, they did not support a transition period for the hazard label and suggested that shippers be encouraged to apply the new label. It was noted that the label name provided in column 5 of Table 3-1 would need to refer to the specific miscellaneous label for lithium batteries.

3.2.3.2.2 It was agreed that DGP-WG/15-WP/13 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.3.3 **Requirements for Sterilization Devices Containing Nitrogen Dioxide or Nitric Oxide (DGP-WG/15-WP/21)**

3.2.3.3.1 The working group was asked to consider adopting new special provisions to allow for the transport of sterilization devices required for medical response in disaster relief that contain UN 1067 — **Nitrogen dioxide**, UN 1660 — **Nitric oxide, compressed** and UN 2031— **Nitric acid**, other than red fuming, with more than 20% and less than 65% nitric acid (Packing Group II) on passenger and cargo aircraft. It was reported that sterilization with these gases or liquids did not require electricity and offered improved compatibility and safety over other materials used for sterilization of medical equipment and devices. This would be useful in emergency and disaster response scenarios. The wording of the proposed special provisions was based on Special Provision A131.

3.2.3.3.2 Although there was support for efforts to facilitate transport of devices needed for public health and welfare, there were concerns with developing separate special provisions for each new device entering the market, recognizing that other special provisions for sterilization devices had already been incorporated in the Technical Instructions. The proposer would work with panel members who raised concerns and develop a new proposal for DGP/25.

3.2.4 Part 4 — Packing Instructions

3.2.4.1 Draft Amendments to the Technical Instructions to Align With the UN Recommendations — Part 4 (DGP-WG/15-WP/14)

3.2.4.1.1 Draft amendments to Part 4 were proposed to reflect the decisions taken by the UN Sub-Committee. The following issues were raised during the discussion:

- a) It was suggested that the structure of Packing Instruction 200 needed to be reviewed, specifically in relation to handling of provisions in the UN packing instruction for substances which were forbidden in the air mode. This would be done prior to DGP/25.
- b) A misalignment between Packing Instruction 203 of the Technical Instructions and the corresponding packing instruction in the UN Model Regulations was raised whereby the Technical Instructions referred to receptacles being “tightly” packed whereas the UN Model Regulations did not refer to “tightly”.
- c) It was questioned whether the new provision in Packing Instruction 451 for packagings of other material with a small amount of metal which applied to UN 3474 was appropriate for the air mode. This would be considered prior to DGP/25.
- d) An error in the amendments to Packing Instructions 965 through 970 was noted in relation to the requirement for the lithium battery handling label (which would now be referred to as a mark in alignment with the UN Model Regulations) whereby it was inadvertently included in Section I. The requirement would be removed from Section I.

3.2.4.1.2 It was agreed that DGP-WG/15-WP/14 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.4.2 Packing Instruction 650 (DGP-WG/15-WP/19)

3.2.4.2.1 A proposal to remove the requirement for the name and telephone number of a person responsible for consignments of UN 3373 — **Biological substance, Category B** to be provided on a written document from Packing Instruction 650 was presented. It was reported that even though formal acceptance checks in accordance with Part 7;1 were not required for UN 3373, consignments were sometimes refused carriage if this information was missing or if it was believed to be incomplete. Noting that name and telephone number were not required in accordance with the UN Model Regulations, it was suggested that the information provided was not essential and could be removed.

3.2.4.2.2 Although there was some support from members who believed there was little value in having a phone number when there was no requirement for it to be a 24-hour emergency number, the majority did not support removing the requirement. These members believed that in the event of an incident, having the name and telephone number of a person responsible on a written document was helpful in order to determine exactly what the Category B substance was. The proposal was withdrawn.

3.2.5 Part 5 — Shipper's Responsibilities

3.2.5.1 Draft Amendments to the Technical Instructions to Align With the UN Recommendations — Part 5 (DGP-WG/15-WP/15)

3.2.5.1.1 Draft amendments to Part 5 were proposed to reflect the decisions taken by the UN Sub-Committee. The following issues were raised during the discussion:

- a) It was agreed that the new provision referring to the symbol in the case of the Class 9 label for lithium cells and batteries in paragraph 3.5.1 c) should be turned into a stand-alone sentence.
- b) The lithium battery handling “label” provisions would be moved to Chapter 2 and references to the lithium battery handling “label” would be replaced with lithium battery “mark” for the sake of alignment with the new “mark” adopted in the UN Model Regulations.
- c) A transition period allowing for the use of either the handling label required by the current edition of the Technical Instructions or the new mark adopted in the UN Model Regulations until 31 December 2018 would be included under the new mark.
- d) The new documentation requirement for UN 3528, 3529 and 3530 shown as new 4.1.4.10 would be incorporated in existing 4.1.5.8.1 b) by adding A208 to the list of special provisions. This, along with a review of other special provisions (including new A202) which should be referenced in 4.1.5.8.1 b), would be done prior to DGP/25.

3.2.5.1.2 It was agreed that DGP-WG/15-WP/15 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.5.2 Determination of Transport Index (DGP-WG/15-WP/2 and DGP-WG/15-WP/32)

3.2.5.2.1 At DGP-WG/14, a recommendation based on advisory material from the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material was proposed for inclusion as a note under Part 5;1.2.3 of the Technical Instructions. The note clarified that the transport index for packages of radioactive material where the measured dose rate comprised more than one type of radiation should be based on the sum of all the dose rates from each type of radiation. Although there had been support for the proposal from a safety perspective, the amendment was not agreed as it was believed to be a multi-modal issue which needed further consideration. A revised proposal was presented to DGP-WG/15 in the form of a new note under Part 7 — Operator's Responsibilities, Chapter 2 — Storage and loading, paragraph 2.9.1 — Limitation of exposure of persons to radiation. An alternate proposal suggested that the note would be more appropriate in Part 5 — Shipper's Responsibilities as it was the shipper's responsibility to determine the transport index.

3.2.5.3 There was strong support for including the note in Part 5. Recognizing that it was a multi-modal issue, the normal process would be for the issue to first be reviewed by the IAEA Transport Safety Standards Committee (TRANSSC) and a proposal brought to the UN Sub-Committee if deemed

appropriate. The six-year IAEA amendment cycle would mean that the amendment would not be processed in time for the 2017-2018 Edition of the Technical Instructions. It was agreed that the Secretary would bring the proposal to the summer sessions of TRAANSC and the UN Sub-Committee and that she would bring comments from those meetings to DGP/25. Recognizing that the amendment referenced existing guidance material and did not introduce any new requirements, it was felt that it may be acceptable to introduce it into the 2017-2018 Edition of the Technical Instructions provided there were no objections from these bodies.

3.2.5.4 Packing Instruction 101 — Authorized versus Approved (DGP-WG/15-WP/10)

3.2.5.4.1 Inconsistent use of the terms “approved” and “authorized” in the general packing provisions for Class 1, which referred to “approved” (Part 4;3.3.1.12), Packing Instruction 101 which also referred to “approved”, and the documentation requirements for explosive substances where Packing Instruction 101 had been adopted by an appropriate national authority, which referred to “authorized” (Part 5;4.1.5.8.2). It was noted that this inconsistency came to light after a consignment was rejected for using the term “approved” on the dangerous goods transport document. It was suggested that this was a minor discrepancy which should not have resulted in rejection and that Note 1 under Part 7;1.3.1 advised against such rejections. However, for the sake of consistency and to help prevent future rejected consignments, the working group was asked to consider amending the Technical Instructions and was provided with the following options to consider:

- a) Replacing “approved” with “authorized” in Packing Instruction 101 and the related text in Part 4;3.3.1.12;
- b) Replacing “authorized” with “approved” in Part 5;4.1.5.8.3;
- c) Removing the prescriptive text requirements from Packing Instruction 101, Part 4;3.3.1.2 and Part 5;4.1.5.8.3; or
- d) Allowing for either word by providing examples of both in a note under 5;4.1.5.8.2.

The meeting agreed that the term “approved” should be applied. An amendment to Part 5;4.1.5.8.3 to replace “authorized” with “approved” was agreed.

3.2.6 Part 6 — Packaging Nomenclature, Marking, Requirements and Tests

3.2.6.1 Draft Amendments to the Technical Instructions to Align With the UN Recommendations — Part 6 (DGP-WG/15-WP/16)

3.2.6.1.1 Draft amendments to Part 6 were proposed to reflect the decisions taken by the UN Sub-Committee. The following issues were raised during the discussion:

- a) A misalignment between the Technical Instructions and the UN Model Regulations in 2.3 was noted whereby the Technical Instructions included an optional provision for the “/” symbol in the UN specification marking while the UN Model Regulations did not. It was agreed that the provision should be maintained in the Technical Instructions so as to prevent unnecessary rejection of packages which did not include

the symbol. The UN Sub-Committee would be asked to consider whether the provision should be included in the UN Model Regulations.

- b) It was noted that a new reference to ISO 11515-2013 was inadvertently omitted from 5.2.1.1. It would be added to the DGP/25 working paper.

3.2.6.1.2 It was agreed that DGP-WG/15-WP/16 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.2.7 **Part 7 — Operator’s Responsibilities**

3.2.7.1 **Provision of Information to Passengers (DGP-WG/15-WP/8)**

3.2.7.1.1 An amendment to the provisions requiring operators to ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft was proposed (Part 7;5.1) (see paragraph 3.2.7.3 of the DGP-WG/14 Report). A proposal was made at DGP-WG/14 to take into account technological changes being adopted by large airlines which simplified and improved the processes around issuing boarding passes and baggage tags and the deposit of checked baggage with the airline. The outcome of the DGP-WG/14 discussions was that thought should be given to revising the entire section by making it less prescriptive and more goal-oriented. This would include a requirement for operators to provide information to passengers on the types of dangerous goods which a passenger was forbidden to carry on board an aircraft and a method to ensure passengers had acknowledged receiving it.

3.2.7.1.2 A revised proposal allowing for the operator to determine the method to achieve this and requiring that the method be detailed in the operations manual or other appropriate manual approved by the appropriate national authority of the State of the Operator was considered.

3.2.7.1.3 While there was strong support for the amendment in principle, there were some concerns with the specific wording in relation to requiring the operator to include their methods for providing the information in the operations manual or other appropriate manuals approved by the appropriate national authority. There was concern that responsibility was being placed entirely on the air operator since references to the airport operator had been removed in the proposed amendment.

3.2.7.2 A small working group was convened to address concerns raised during the discussion. It was reported that progress was made and that guidance material to support the revised provisions was being developed. A revised amendment to the Technical Instructions and guidance material for inclusion in the Supplement would be submitted to DGP/25 for consideration.

3.2.7.3 **Information to the Pilot-in-Command for Consumer Commodities (DGP-WG/15-WP/23)**

3.2.7.3.1 It was noted that for consignments of **Consumer commodities** — ID 8000, either the actual gross mass of each package or the average gross mass of all packages was permitted on the dangerous goods transport document in accordance with Packing Instruction Y963, sub-paragraph l). A similar provision was provided in Part 7;4 in relation to the information required to the pilot-in-command, but only when consumer commodities were presented to the operator by the shipper in a unit load device. A revision to Part 7;4.1.1 f) to align with the provisions in Packing Instruction Y963 was proposed.

3.2.7.3.2 The proposal was agreed, subject to the addition of the words “as appearing on the dangerous goods transport document”.

3.2.7.4 **Dry ice as a Refrigerant for Certain Dangerous Goods** (DGP-WG/15-WP/31, Revision No. 2)

3.2.7.4.1 An amendment to allow for shippers to ship UN 1845 — **Carbon dioxide, solid** or **Dry ice** with UN 3373 — **Biological substance, Category B** or **ID 8000 — Consumer commodity** in unit load devices (ULDs) was proposed. It was noted that shippers were permitted to ship UN 1845 — **Carbon dioxide, solid** or **Dry ice** in unit load devices in accordance with Packing Instruction 954, provided the dry ice was not used for dangerous goods. UN 3373 and ID 8000 were also permitted in unit load devices prepared by shippers and these were often shipped under refrigeration using dry ice. However, while UN 3373 and ID 8000 were permitted in ULDs prepared by shippers, dry ice was not permitted in the ULD with either of these dangerous goods because of the restriction against shippers loading dry ice in an ULD with other dangerous goods.

3.2.7.4.2 The amendment, which included revisions to Part 5;1.1 g), Packing Instruction 954 and Part 7;1.4.1 c), was agreed.

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

3.2.8.1 **Flameless Electronic Lighters (DGP-WG/15-WP/20)**

3.2.8.1.1 It was questioned whether small flameless lighters powered by lithium batteries should be considered a portable electronic device containing a lithium battery or a lighter under Table 8-1 of the provisions for passengers and crew. It was noted that these devices were designed to be charged via a USB cable whereby stored energy was released through a heating coil to ignite cigarettes or cigars. It was suggested that they should be included as a consumer article under Item 15) of Table 8-1 which included articles such as small cigarette lighters, lighter fuel and lighter refills. A proposal to this effect was presented which limited carriage to one per person, required that they be carried on the person and required that the batteries be of a type to have met the requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

3.2.8.1.2 The amendment was supported in principle, but some concerns were raised:

- a) Recognizing that Item 15) applied to several different types of cigarette-lighting devices, some members believed that a further amendment restricting the carriage of one sub-device per person should be made.
- b) There was concern that too many specific items were being added to Table 8-1 making it difficult to navigate through the provisions.
- c) It was suggested that there were similar devices fuelled by different energy sources and that specifically mentioning lithium battery-powered would exclude the other types from the provisions; and
- d) It was suggested that some of the other restrictions normally applied to lithium batteries should be considered.

3.2.8.1.3 The proposer would develop a new proposal based on comments received for submission to DGP/25.

3.2.8.2 Restrictions for E-Cigarettes Carried by Passengers and Crew (DGP-WG/15-WP/24)

3.2.8.2.1 Safety concerns related to the carriage of e-cigarettes by passengers were raised at DGP-WG/14. Several incidents had been reported involving e-cigarettes overheating by way of their heating element being accidentally activated resulting in a fire in checked baggage. The working group had agreed that a new entry based on the specific risks posed was necessary, recognizing that the restrictions placed on PEDs in Table 8-1 of the passenger provisions did not adequately address the risks posed and the provisions for battery-powered equipment capable of generating extreme heat (Table 8-1, item 16), while more adequately addressing the risks, were inappropriate since the devices were permitted in checked baggage and operator approval was required. DGP-WG/14 decided against developing an amendment in haste and that a proposal for consideration at DGP-WG/15 would be more appropriate. To ensure that the safety risks were known, an electronic bulletin was issued to all States recommending that e-cigarettes be carried in the cabin and not in checked baggage (EB 2014/074).

3.2.8.2.2 DGP-WG/15 was presented with a proposed new entry in Table 8-1 for battery-powered portable electronic smoking devices. "Lithium battery" was deliberately left out of the title so that the provision could be applied to e-cigarettes powered by battery sources other than lithium batteries. The proposal prohibited carriage in checked baggage and restricted the charging of the devices while on board the aircraft as there were concerns with batteries exploding or catching fire while being charged. The working group was invited to consider the lithium metal content and watt-hour rating limits.

3.2.8.2.3 There was strong support for the amendment. One member provided a report from a fire and rescue government agency within his State which examined incidents involving e-cigarettes which strengthened the need for early implementation of new restrictions. It was agreed that the new provisions, subject to a revision restricting the carriage of the devices for personal use only and a revision to the wording of paragraph d), should be incorporated in the 2015-2016 Edition of the Technical Instructions by way of an addendum.

3.2.8.3 Cordless Hair Styling Devices Including Hair Curlers and Hair Straighteners (DGP-WG/15-WP/34)

3.2.8.3.1 A more generic title for the passenger provision for hair curlers containing hydrocarbon gas in Table 8-1 was proposed to allow for other types of cordless hair styling devices and to differentiate between devices containing hydrocarbon gas and those powered by lithium batteries. Although there was sympathy for the intent of the proposal, the amendment was not agreed. Some members believed the article could be considered as a personal electronic device, recognizing that additional restrictions might be necessary. Concerns that too many specific items were being added to Table 8-1 making it difficult to navigate through the provisions were reiterated (see paragraph 3.2.8.1 of this report). There was general agreement that an overall review of the structure of Table 8-1 needed to be revisited. One panel member offered to perform such a review prior to DGP/25. The proposer would consult with this member and develop a revised amendment would for DGP/25.

3.2.8.4 Proposal to add some examples of “Portable Electronic Devices” in Table 8-1 (DGP-WG/15-WP/35)

3.2.8.4.1 An amendment to the passenger provision for portable electronic devices was proposed which extended the list of examples of what would be considered portable electronic devices. It was suggested that the word “portable” caused some confusion in the proposer’s State since there were some larger commodities containing lithium batteries or non-spillable batteries which they considered not to be portable such as small battery-powered toy vehicles for children and electronic scooters. The working group did not support the proposal, recognizing that a review of the structure of Table 8-1 would be undertaken prior to DGP/25 with the intent of developing a simplified list that would limit the need to for additional entries (see paragraph 3.2.8.3). The proposer would consult with the panel member undertaking the review and develop a new proposal for DGP/25.

3.2.8.5 Portable Medical Electronic Devices (DGP-WG/15-WP/36)

3.2.8.5.1 It was noted that the format of the entry for portable medical electronic devices in Table 8-1 — Provisions for Passengers and Crew could imply that the restrictions applied only to portable medical electronic devices containing lithium metal cells or batteries not exceeding 2 grams or lithium ion cells or batteries not exceeding 100 Wh and not to spare batteries or to larger batteries. The Secretariat indicated that a formatting error had been inadvertently introduced into the published version of the Technical Instructions and agreed that the format did not allow for the intended interpretation of the provisions. On the basis that this was an editorial error, it would be corrected through a corrigendum to the current edition of the Technical Instructions.

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 2017-2018 Edition

3.3.1 Guidance for States when Inspecting Dangerous Training Programmes (DGP-WG/15-WP/3)

3.3.1.1.1 Enhanced guidance material for States in assessing operators’ training programmes was proposed for inclusion in Part S-7;5.6. The material highlighted the importance of assessing the currency, relevancy and consistency of training material, the knowledge and capability of those responsible for creating and delivering and/or overseeing training programmes, and the need for effective assessment, and record keeping.

3.3.1.1.2 Amendments to Attachment II to Part S-7;7 (Dangerous Goods Manual and Training Programme Checklists) were also proposed. These included:

- a) replacing references to “approval checklist” with “assessment checklist”; and
- b) adding new entries to these checklists.

3.3.1.1.3 The working group expressed its appreciation for the work done and supported the addition of guidance material for States inspecting dangerous training programmes. There was general agreement, however, that efforts needed to be taken to align any new guidance material with the competency-based principles provided in DGP-WG/15-WP/30 (see paragraph 3.6.1.5 of this report).

There were some specific comments related to the content including queries related to distinguishing between the terms inspection, assessment and approvals. Some believed any new material should be processed with the revised training provisions developed by the competency-based training working group which would be considered for incorporation in the 2019-2020 Edition of the Technical Instructions rather than introducing the material on its own in the next edition of the Supplement. The proposer believed that efforts could be taken to align his proposed guidance material with the competency-based training provisions and that he would prepare a revised proposal for submission to DGP/25 to for incorporation in the 2017-2018 Edition.

3.3.1.2 Draft Amendments to the Supplement to the Technical Instructions to Align With the UN Recommendations (DGP-WG/15-WP/17)

3.3.1.2.1 Draft amendments to the Supplement to the Technical Instructions were proposed to reflect the decisions taken by the UN Sub-Committee. Applicable issues raised during discussion of DGP-WG/15-WP/13 would be reflected in the Supplement.

3.3.1.2.2 It was agreed that DGP-WG/15-WP/17 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.4 Agenda Item 4: Development of recommendations for amendments to the *Emergency Response Guidance for Aircraft Incidents involving Dangerous Goods* (Doc 9481) for incorporation in the 2017-2018 Edition

3.4.1.1 Draft Amendments to the Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods to Align with the UN Recommendations (DGP-WG/15-WP/18)

3.4.1.1.1 Draft amendments to the Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods were proposed to reflect the decisions taken by the UN Sub-Committee. No issues were raised.

3.4.1.1.2 It was agreed that DGP-WG/15-WP/18 would be further reviewed by panel members, and any discrepancies would be incorporated in the DGP/25 working paper.

3.5 Agenda Item 5: Development of mitigating measures to address risks associated with the transport of lithium batteries including measures that address recommendations from the Second International Multidisciplinary Lithium Battery Transport Coordination Meeting

3.5.1.1 Agenda Item 5.1: “Bulk” shipments of excepted lithium batteries and cells

3.5.1.1.1 Additional Considerations for Section II of the Lithium Battery Packing Instructions (DGP-WG/15-WP/6) and Limitations on Overpacks, Consolidations and Shipper Loaded Units for Section II of Packing Instructions 965 and 968 (DGP-WG/15-WP/7)

3.5.1.1.2 Two working papers related to Section II of the lithium battery packing instructions were presented. Both proposed amendments developed after DGP-WG/14 based on discussions at that meeting and through follow-up discussions.

Additional Considerations for Section II of the Lithium Battery Packing Instructions (DGP-WG/15-WP/6)

3.5.1.1.3 Revisions to the lithium battery packing instructions to address suggested discrepancies between the requirements for lithium batteries shipped in accordance with Section II of the lithium battery packing instructions and thus not subject to most of the requirements of the Technical Instructions and the requirements for other types of dangerous goods where exceptions could be applied were proposed at DGP-WG/14 (see paragraphs 3.5.2.1.5 to 3.5.2.1.8 of the DGP-WG/14 Report). Preventing “bulk” shipments of lithium batteries (i.e. multiple packages of lithium batteries placed in an overpack or a unit load device) prepared under Section II of Packing Instructions 965 and 968 from being offered for transport was also the subject of lengthy discussion at DGP-WG/14. DGP-WG/14 decided that addressing the issues raised concerning Section II lithium batteries needed more concentrated consideration from a dedicated group of members and that a working group through correspondence would work on developing a comprehensive proposal for DGP-WG/15.

3.5.1.1.4 These included:

- a) the requirement for the name and address of the shipper and the consignee to appear on the outside of each package or if the packages were placed in an overpack, only the overpack would be required to be marked with that information;
- b) a more specific description of the types of packagings permitted; and
- c) an indication of the number of packages in a consignment containing lithium batteries on the airway bill, when an airway bill was used.

3.5.1.1.5 During the presentation of the proposal, it was noted that text which had been proposed at DGP-WG/14 relating to the package being a large enough size for the handling label to be applied on one

side without being folded was inadvertently omitted. The working group was invited to consider this text as part of the proposal.

Limitations on Overpacks, Consolidations and Shipper Loaded Units for Section II of Packing Instructions 965 and 968 (DGP-WG/15-WP/7)

3.5.1.1.6 Preventing the “bulk” (i.e. multiple packages of lithium batteries placed in an overpack or a unit load device) shipments of lithium batteries prepared under Section II of Packing Instructions 965 and 968 from being offered for transport was the subject of lengthy discussion at DGP-WG/14. The need for operators to be aware of large quantities of lithium batteries so that they could determine their own mitigating strategies against the risks they posed was agreed. The Second Meeting of the International Multidisciplinary Lithium Battery Transport Coordination Working Group (Cologne, Germany 9 to 11 September 2014) had identified bulk shipments of excepted lithium batteries as a risk to safety and developed a recommendation to prohibit packages of such cells and batteries from being overpacked or consolidated.

Discussion of the proposals provided in DGP-WG/15-WP/6 and DGP-WG/15-WP/7

3.5.1.1.7 Before fully discussing the proposals, the working group was invited to consider a comparative analysis between provisions for lithium batteries prepared for transport in accordance with Section IB of Packing Instructions 965 and 968 and those prepared for transport in accordance with Section II of the same packing instructions which was developed by another panel member. It was noted that Section II was intended to be a simple-to-use, standalone exception, but that individual provisions required for fully regulated consignments of dangerous goods had been and continued to be incorporated into Section II. The original intent of Sections IB and II and whether or not the current provisions were addressing this content was discussed. It was noted that the intent of Section II was to allow for the average person to ship very small quantities of lithium batteries without being subject to full regulation, but that the unforeseen consequence was that some shippers had been taking advantage of the Section II provisions to facilitate the shipment of such items in bulk. Section IB was added with the intent of eliminating bulk shipments, but some shippers continued to exploit the minimal requirements in Section II. Some questioned whether maintaining the exceptions was justified, noting that the number of differences between provisions was diminishing. A representative of the express carriers argued against the notion of there being little difference between the sections when it came to the operator’s responsibilities, noting that Section II shipments were treated as general cargo and were not subject to acceptance checks. Some members cautioned against lengthy discussions on Section II batteries separately from the discussions on the recommendations from ICCAIA and IFALPA presented under DGP-WG/15-WP/4 and DGP-WG/15-WP/33 (see paragraph 3.5.1.2.1 of this report). It was agreed that the justification for limiting the number of overpacks could be influenced through the work that would be undertaken on developing packaging performance standards and that discussion on this particular amendment would be deferred.

3.5.1.1.7.1 A number of issues related to the added requirement for the name and address of the shipper and consignee on the outside of the package, the use of the qualifying term “rigid” before outer packaging and the addition of a requirement for the number of packages in the consignment to be included on an air waybill were raised. A dedicated working group was convened to address these issues and revisions to the amendment were proposed. The revised amendment was agreed.

3.5.1.2 Agenda Item 5.2: Performance-based provisions

3.5.1.2.1 **Transport of Lithium Batteries as Cargo via Air (DGP-WG/15-WP/4 and DGP-WG/15-WP/33)**

3.5.1.2.1.1 Continued concerns with respect to cargo compartment fire protection, particularly in relation to the carriage of high density packages of lithium batteries as cargo, were raised by the International Coordinating Council of Aerospace Industries Associations (ICCAIA) and the International Federation of Air Line Pilots' Associations (IFALPA). Recommendations for addressing these concerns were presented to the working group.

3.5.1.2.1.2 ICCAIA's position was that the fire protection capabilities and certification of original equipment manufacturers' (OEMs) airframes and systems were developed considering the carriage of general cargo and not the unique hazards associated with the carriage of dangerous goods, including lithium batteries. Test data was cited which identified that existing cargo compartment fire protection systems certified to European and American regulations were unable to suppress or extinguish a fire involving significant quantities of lithium batteries, resulting in reduced time for safe flight and landing of an aircraft to a diversion airport.

3.5.1.2.1.3 Concerns related to lithium battery hazards included:

- a) the inability of packaging currently required by the Technical Instructions to contain a lithium battery fire or to prevent the propagation between adjacent packages of batteries;
- b) the potential for an uncontrolled lithium battery fires to negate the capability of current aircraft cargo fire protection systems, leading to a catastrophic failure of the airframe; and
- c) new test results from the Federal Aviation Administration (FAA) William J. Hughes Technical Centre (FAA Tech Centre) which demonstrated the potential for electrolyte gases exhausted during the propagation of both lithium metal and lithium ion batteries to create an explosive atmosphere regardless of the presence of Halon when contained inside an enclosed space such as a unit load device or cargo compartment.

3.5.1.2.2 Applying the safety risk model provided in the *Safety Management Manual (SMM)* (Doc 9859) (hereafter referred to as the "Safety Management Manual"), the presenters determined that immediate action to mitigate the unacceptable risks posed by lithium batteries was necessary.

3.5.1.2.3 The ICCAIA recommendations, which IFALPA endorsed, were:

- a) that appropriate packaging and shipping requirements be established to more safely ship lithium ion batteries as cargo on passenger aircraft;
- b) that high density packages of lithium ion batteries and cells (UN 3480) not be transported as cargo on passenger aircraft until such time as safer methods of transport were established and followed; and

- c) that appropriate packaging and shipping requirements be established to more safely ship lithium metal and lithium ion batteries as cargo on freighter aircraft.

3.5.1.2.4 A separate working paper submitted by IFALPA recommended extending the restriction in sub-paragraph b) above to all-cargo aircraft. It was stated that while lithium ion batteries were carried as cargo on both passenger and cargo aircraft, the majority of large shipments were transported on cargo aircraft. This, combined with the fact that cargo aircraft were not required to be outfitted with cargo compartments having an active fire suppression system, made the risk to cargo aircraft even greater than to passenger aircraft. It was argued that the principles in the Safety Management Manual for States to develop practices to ensure the safe operation of aircraft did not distinguish between passenger and cargo aircraft. For this reason, IFALPA also recommended that the current prohibition on UN 3090 — **Lithium metal batteries** from transport on passenger aircraft be extended to all-cargo aircraft.

3.5.1.2.5 Clarification on what was meant by the term “high density” was sought during discussion of the working paper. It was explained that high density was meant to describe quantities of lithium batteries which had the potential to overwhelm the cargo compartment fire protection features. The outcome of a thermal runaway event had been demonstrated to be variable depending on battery chemistry, cargo compartment characteristics, and loading configurations. Tests had demonstrated that some configurations with an accumulation of packages containing less than 5 kg each of 18650 lithium ion cells had the potential to lead to significant or catastrophic damage of an aircraft. Quantifying a limitation for “high density” that would apply to every situation was therefore impossible. It was suggested that the inability to determine a safe limit for every situation was the reason that several large operators had recently introduced complete bans on the transport of lithium ion batteries as cargo.

3.5.1.2.6 A question was raised in relation to how the ICCAIA determined that the likelihood of a cargo fire involving lithium batteries was “occasional” when conducting their risk assessment. Others also questioned this value, suggesting that a large number of lithium battery incidents involved undeclared or non-compliant batteries. It was explained that the value was based on reports of three aircraft accidents involving lithium batteries which supported the description for “occasional” provided in Doc 9859 as an event that occurred infrequently. It was stressed that the likelihood was not based solely on a lithium battery *causing* a fire, it was based on the potential for a lithium battery to be *involved* in a fire.

3.5.1.2.7 Another panel member expressed concern that many of the operators he spoke to within his State had not undertaken a risk assessment on the likely consequences and impacts before imposing a prohibition. A team in his State had conducted their own risk assessment on the transport of lithium metal and ion batteries. Their findings were that the risks were heightened either from hidden dangerous goods which included lithium batteries which could become the source of a fire or from other dangerous goods which could cause a fire and threaten the shipment of declared batteries. He suggested that a ban on lithium batteries would have the unintended consequence of more undeclared shipments of lithium batteries and therefore result in an increased risk. Some expressed disagreement with the notion that a large number of people or organizations would break the law and continue to ship batteries if they were banned. They reported that data from their States indicated that the percentage of deliberate non-compliance was low. The Secretary reminded the working group of the need for data. She emphasized that the ANC and the Council had become increasingly concerned when arguments were made without data to substantiate them.

3.5.1.2.8 The idea that undeclared and mis-declared lithium batteries were a risk was not disputed by anyone; however, those not supporting the notion that a prohibition would increase non-compliance and therefore the risk stressed that the potential for a suppressed fire being an ignition source for batteries

to go into thermal runaway applied to all batteries regardless of whether or not they were compliant. They deemed the continued allowance of unrestricted quantities of even compliant lithium batteries in cargo compartments knowing that a fire could exceed the capabilities of the fire protection system to be unacceptable.

3.5.1.2.9 Those who supported the need for immediate action to mitigate the risks emphasized that their goal was not to ban the transport of lithium batteries permanently but rather to find a way to transport them safely. Recognizing the need for a layered approach towards mitigation, it was suggested that coordination with the Flight Operations (FLTOSP) and Airworthiness Panels (AIRP) would be necessary to accomplish this. The Secretariat was asked to provide feedback on how this could be accomplished. She noted that the information contained in DGP-WG/15-WP/4, including the position of ICCAIA and IFALPA, had been provided to FLTOSP and AIRP. Both panels were also provided with the recommendations developed by the Second International Multidisciplinary Lithium Battery Transport Coordination Meeting (Cologne, Germany, 9 to 11 September 2014 (subsequently referred to as the Second Multidisciplinary Lithium Battery Meeting or Multidisciplinary Meeting)). She would be providing the DGP with feedback from both panels once she had received it.

3.5.1.2.10 Although there was disagreement on the level of risk posed by fully compliant shipments of lithium batteries, there were no objections to the problem statement developed by the Multidisciplinary Meeting which affirmed that a fire involving significant quantities of lithium batteries (UN 3090 and UN 3480) could exceed the fire suppression capability of the aircraft and could lead to a catastrophic failure of the air frame. The working group fully supported the need to develop performance-based standards based on the principle that hazardous effects from the batteries would be contained within the package. Terms of reference for a group of experts made up of all interested parties were developed. The group was tasked with providing subject matter expertise on aircraft cargo compartment fire safety and the safe transport of lithium batteries in aircraft. The terms of reference are provided in Appendix D to this report. They were developed with the aim of allowing for a flexible solution that would address the varying degree of risks posed by different battery types and sizes. The Secretary asked that DGP members indicate their interest in attending such a meeting. It was noted that a multidisciplinary approach employing a layered mitigation approach was necessary to address risks posed by lithium batteries. This would involve focusing on the source of the threat (battery) and expanding outward (i.e. packaging, cargo unit load device, cargo compartment, aircraft). For this reason, the Secretary noted participation from FLTOSP and AIRP members would be essential

3.5.1.2.11 Recognizing that the joint ICCAIA/IFALPA working paper recommended that high density packages of lithium ion batteries and cells should not be transported as cargo on passenger aircraft until such time as safer methods of transport were established and followed, the working group was asked to indicate their level of support for this recommendation. The member nominated by IFALPA reminded the group that his organization recommended extending this prohibition to cargo aircraft for lithium ion batteries and to also impose a prohibition on lithium metal batteries on cargo aircraft. Some panel members, while not opposing the joint recommendation, were unable to support it on the basis that it had not been identified as a formal proposal in accordance with standard DGP procedures, and therefore there had been insufficient time to conduct the necessary consultation with relevant experts within their States. Some of these members reiterated the argument that a prohibition would only increase the number of undeclared shipments and also stated that they could not support a proposal referring to high density packages without a clear definition for the term. The IFALPA/ICCAIA representatives repeated that it was impossible to determine a quantitative limit for high density that would apply to every situation because of the number of variables involved. These included differing battery chemistries, differing

characteristics of cargo compartments, and differing loading configurations. This was exacerbated by the fact that there was no way to control the number of packages of Section II batteries loaded on the aircraft.

3.5.1.2.12 The IFALPA representative expressed disappointment with the lack of support for the recommendations of his organization and of the ICCAIA. Representatives of both organizations indicated that a formal proposal would be developed for DGP/25 which would allow adequate time for consultation with States. Both organizations would participate fully in the working group on performance-based packaging standards and would ensure that their proposal would take the recommendations of that working group into account. The ICCAIA representatives acknowledged the concerns raised in relation to the lack of a quantifiable definition for high-density packages and offered to work on further refinement of the concept for consideration at DGP/25.

3.5.1.2.13 Dates and a venue for the working group tasked with performance-based packaging standards for the safe transport of lithium batteries by air would be determined by the Secretariat in the near-term through coordination with the members involved.

3.5.1.3 **Agenda Item 5.3: Limitation on state of charge**

3.5.1.3.1 No amendments were proposed under this agenda item, although it was proposed that state of charge would likely be considered by the working group on performance-based performance standards (see paragraph 3.5.1.2.1 of this report).

3.5.1.3.2 An information paper from PRBA — The Rechargeable Battery Association outlined technical concerns members of his association had raised in relation to the Second Multidisciplinary Lithium Battery Meeting's recommendation to limit the state of charge (SOC) to 30 per cent. These concerns were also raised at DGP-WG/14 (see paragraph 3.6.5.11 of the DGP-WG/14 Report).

3.5.1.4 **Agenda Item 5.4: Simplified provisions**

3.5.1.4.1 **Lithium Batteries in the Mail (DGP-WG/15-WP/5)**

3.5.1.4.2 It was reported that there had been different interpretations of the intent of the provisions in the opening paragraph of Section II to Packing Instructions 967 and 970 in one member's State. This had become evident during the process of considering whether or not to grant specific approval to his State's designated postal operator (DPO) to introduce the acceptance of lithium batteries prepared in accordance with Section II of Packing Instructions 967 and 970 into the mail. Other members stated similar differences of interpretation within their States. An amendment to clarify the provisions was therefore proposed.

3.5.1.4.3 There was strong support for amending the text to remove any ambiguity. A representative of the Universal Postal Union (UPU) reported receiving numerous requests for clarification as did several panel members. There were some concerns with the actual wording of the proposal, and a revised version of the proposed text to address these concerns was agreed.

3.5.1.4.4 Although the proposal focused on Packing Instructions 967 and 970 as these were the two which applied to the post, it was agreed to incorporate the amendment to Section II in all lithium battery packing instructions.

3.5.1.5 **Agenda Item 5.5: Guidance material to assist States with oversight and awareness programmes**

3.5.1.5.1 No working papers were presented under this agenda Item.

3.5.1.6 **Agenda Item 5.6: Miscellaneous lithium battery issues**

3.5.1.6.1 **Small Lithium Cells and Batteries (DGP-WG/15-WP/29)**

3.5.1.6.2 It was noted that industry test result data on lithium metal button cells presented during the Second International Multidisciplinary Lithium Battery Transport Coordination Meeting (9 to 11 September 2014, Cologne, Germany) demonstrated that these small cells did not create high temperatures or propagate when subjected to tests similar to those conducted by the FAA Tech Centre.

3.5.1.6.3 Representatives of the battery industry suggested that small lithium metal cells and batteries designed exclusively for use in life-saving medical devices were subject to very rigorous national and international testing standards and, because of the high costs associated with manufacturing these cells and batteries, were not packaged and shipped in large quantities like consumer-type lithium metal cells and batteries. The battery industry representatives believed that these low-volume shipments did not present a significant risk in transport.

3.5.1.6.4 A new special provision assigned to UN 3090 — **Lithium metal batteries** was proposed which would except lithium metal button cells with no more than 0.3 g of lithium metal and lithium metal cells and batteries designed exclusively for use in medical applications with no more than 1 g of lithium metal per cell and no more than 2 g lithium metal per battery when carried as cargo from most of the requirements of the Technical Instructions.

3.5.1.6.5 There was little support for the proposal. Several panel members referenced the Multidisciplinary Meeting's recommendation to establish a method to distinguish lithium metal button cells from other types of lithium metal cells (Recommendation 14/14) and that any proposal to consider different classification criteria should first be considered at the UN. Panel members also cautioned against regulating according to end use, which was what would be done if the proposed exception for medical devices containing lithium metal batteries was adopted. It was requested that these very rigorous national and international testing standards for medical device batteries be presented to the panel for evaluation. Adopting the special provision would also introduce another layer of complexity to the already complex lithium battery provisions.

3.5.1.6.6 The proposal was not agreed, although it was suggested that the development of package performance standards could lead to a method for accommodating the issues raised in the proposal.

3.6 Agenda Item 6: Resolution, where possible, of the non-recurrent work items identified by Air Navigation Commission or the Dangerous Goods Panel

3.6.1.1 Agenda Item 6.1: Development of a global framework for the sharing of dangerous goods incident and accident information

3.6.1.2 Development of a global framework for the sharing of dangerous goods incident and accident information (DGP-WG/15-WP/37)

3.6.1.2.1 Although the subject of dangerous good reporting and the development of a global framework for the sharing of dangerous goods incident and accident information had been discussed at several DGP meetings, it was suggested that little progress had been made. The creation of a DGP working group on reporting was therefore proposed. There was strong support for the creation of such a group, recognizing that attempts to progress the work through correspondence had proven to be difficult. A group was established which initiated discussions that resulted in the establishment of a framework for developing a global reporting system and provisions and guidance to States to support such a system for incorporation in Annex 18, the Technical Instructions, and the Supplement. The group would have a face-to-face meeting during the third quarter of 2015 in order to develop constructive proposals for DGP/25.

3.6.1.3 Agenda Item 6.2: Development of guidance material on countering the potential use of dangerous goods in an act of unlawful interference

3.6.1.3.1 No working papers were presented under this agenda item.

3.6.1.4 Agenda Item 6.3: Development of competency-based training provisions for dangerous goods

3.6.1.5 Competency-Based Training for Dangerous Goods Personnel and State Employees (DGP-WG/15-WP/30)

3.6.1.5.1 Finalized training provisions and guidance material developed by the DGP Working Group on Competency Based Training were presented to the meeting. The material included:

- a) a competency framework for dangerous goods personnel (seen and supported at DGP-WG/14) proposed for inclusion in an attachment to the 2017-2018 Edition of the Technical Instructions;
- b) a finalized competency framework for State employees proposed for inclusion in the 2017-2018 Edition of the Supplement to the Technical Instructions;
- c) guidance material on competency-based training and how it was used to develop the competency frameworks proposed for inclusion in an attachment to the 2017-2018 Edition of the Technical Instructions; and

- d) comprehensive amendments to the training provisions in Part 1;4 proposed for inclusion as an attachment to the 2017-2018 Edition of the Technical Instructions for information purposes and intended for incorporation in Part 1;4 of the 2019-2020 Edition of the Technical Instructions.

3.6.1.5.2 The meeting was reminded of the decision at DGP-WG/14 to issue the guidance material, competency-based framework for dangerous goods personnel and amendments to Part 1;4 in an attachment to the Technical Instructions and for providing it on the ICAO public website as a transitional measure. Accordingly, the material listed in sub-paragraphs a), c) and d) above was presented in a proposed new Attachment 4 to the Technical Instructions. It was intended that the revised training provisions in new Attachment 4 (sub-paragraph d) above) would be moved to Part 1;4 of the Technical Instructions once the transition period was over and that the guidance material would remain in Attachment 4 (2019-2020 Edition). The competency framework for State employees was proposed for inclusion in the Supplement to the Technical Instructions.

3.6.1.5.3 It was recalled that DGP-WG/14 had been presented with a proposed revised version of the content of training courses tables (Tables 1-4 and 1-5) which merged the two tables into one and replaced the categories of staff listed in the tables with job functions. Although there was support for replacing Tables 1-4 and 1-5 with the new table, DGP-WG/14 had deliberated on whether developing competency-based training programmes would make the need for including any “content of training courses” table(s) in the Technical Instructions obsolete. DGP-WG/14 concluded that not including such information would be a drastic change which States and industry might not be ready for and that the revised version of the tables reflecting a function-based approach should be maintained with the proposed Part 1;4 provisions as a transitional measure. The chairman of the training working group reported, however, that discussions on the issue had continued post DGP-WG/14 by members of his group, and they came to the conclusion that including the revised table with the Part 1;4 provisions even as a transitional measure might have the adverse effect of prolonging the transition from subject-matter to function-driven training programmes commensurate with responsibilities. The group did see value in providing guidance on determining what subject matter knowledge would be necessary to perform specific functions, but believed such guidance should not be provided with the Part 1;4 provisions as was currently done for Tables 1-4 and 1-5 but rather with the guidance material proposed for inclusion as a new attachment to the Technical Instructions (see paragraph 3.6.1.5.1 c)). The group further revised the function-based table proposed at DGP-WG/14 by removing the values that were included at the intersection of function/subject matter and turning the tables into a matrix tool for developing training programmes. The group believed that providing such a tool would foster a more analytical approach for training developers to take in determining the type and level of knowledge needed to perform specific functions and would reinforce the need to determine training needs commensurate with responsibilities.

3.6.1.5.4 The working group was invited to provide specific comments on the following:

- a) a new provision developed as a means to clarify that entities involved with handling non-dangerous goods cargo are still required to be trained;
- b) whether or not to include a note recommending that all training courses address the provisions for dangerous goods carried by passengers and crew;
- c) whether or not the new matrix tool for analysing the type and level of knowledge needed to perform specific functions was considered to be effective and whether removing Tables 1-4 and 1-5 from the training provisions was appropriate.

3.6.1.5.5 The Secretary suggested the need for legal advice in relation to sub-paragraph a) above as she had been informed that requiring training for entities other than operators not knowingly involved with handling dangerous goods (i.e. freight forwarders handling general cargo) was beyond the legal authority of certain civil aviation authorities (CAAs). Some panel members did not see the need for this as it was not an issue within their States. Reference was made to preliminary advice provided by the ICAO Legal Bureau when the term freight forwarder was incorporated in the Technical Instructions indicating that the Technical Instructions could address any persons who might be involved in the transport of dangerous goods which the Legal Bureau believed could be interpreted to include those who did not normally accept dangerous goods but who should nevertheless be on the lookout for dangerous goods travelling as normal cargo. This advice conflicted, however, with the suggestion that the current structure of Annex 18 did not provide a legal basis for addressing staff not handling dangerous goods. Despite difficulties related to the legal authority to require training for freight forwarders handling non-dangerous goods in some States, all panel members strongly agreed that training these entities would contribute to a safe transport supply chain, particularly in relation to the detection of undeclared dangerous goods. The issue would be further reviewed prior to DGP/25.

3.6.1.5.6 It was noted that the current provisions in Part 1;4.1.1 a) restricted the training requirement to shippers of dangerous goods. Concerns that the proposed new 1;4.1.1 provision expanded the scope to all shippers were raised. Although this was not the intent, it was agreed that proposed text in 1;4.1.1 needed further consideration by the DGP Working Group on Training.

3.6.1.5.7 Some members expressed concern with removing Tables 1-4 and 1-5 from the Technical Instructions until experience with the provisions provided in new Attachment 4 was gained and data was gathered. They suggested that the current tables should be maintained in parallel with the new matrix tool until it could be confidently determined that the new provisions were effective. Members of the training working group stressed the importance of reviewing the material developed in detail before forming any firm opinions. Anyone with further concerns was encouraged to provide comments to the chairman of the working group.

3.6.1.5.8 It was noted that some additional guidance material would be needed, such as the assessment of competence once training had been completed.

3.6.1.5.9 The training working group would meet prior to DGP/25 to address all comments and concerns and to develop a final proposal for presentation to the panel.

3.6.1.6 Agenda Item 6.4: Consideration of transitional measures for amendments to the Technical Instructions

3.6.1.7 Transition Period (DGP-WG/15-WP/9)

3.6.1.7.1 The introduction of a six-month transitional period before new editions of the Technical Instructions became mandatory was proposed at DGP-WG/14. While there was some support in principle for that proposal, especially from members from States which depended on the non-English versions of the Technical Instructions, six months was seen to be too long.

3.6.1.7.2 A revised proposal which limited the transition period to ninety days was presented to DGP-WG/15. It was noted that other international regulations allowed for transitional periods and argued that a transition period for the Technical Instructions would facilitate the timely incorporation of new regulations into computerized dangerous goods systems and allow for effective training of dangerous

goods personnel on the new requirements. It was suggested that a transition period would also prevent potential delays in acceptance which could occur when dangerous goods consignments were prepared at the end of the applicability period of one edition of the Technical Instructions but end up in the transport chain at the beginning of an applicability period for the next edition.

3.6.1.7.3 Although there was some support for the proposal, the majority did not believe a transition period was appropriate. Many believed having two different sets of regulations at one time would complicate the acceptance process. Concern was raised with the potential for a shipper to mix and match provisions from two different editions of the Technical Instructions (e.g. labelling provisions from previous edition, documentation requirements from the current), although the proposer assured that this was not the intent and that only one set of regulations would be permitted. There was sympathy in relation to late publication of the Technical Instructions, particularly the language versions. These versions were normally published three months after the English version, making it difficult to incorporate the new provisions in training programmes and to implement them in time for a 1 January applicability date. Although amendments agreed by the panel were publically available on the ICAO website immediately after panel meetings, it was suggested that industry and States had to wait for the published version of the Technical Instructions to incorporate changes. The Secretariat was asked whether measures could be taken to speed up the publication process. The Secretary noted diminished resources at ICAO for translation services and the lower priority given the Technical Instructions over Annexes and Procedures for Air Navigation Services, but agreed to work with the language sections to determine if any measures could be taken to facilitate earlier publication.

3.6.1.7.4 There was support for a standing agenda item at DGP meetings to consider specific transitional measures for certain provisions. The Secretary noted it would be up to panel members to submit working papers on the subject.

3.7 Agenda Item 7: Other business

3.7.1 Efforts Addressing Dangerous Goods in the Post (DGP-WG/15-IP/6)

3.7.1.1.1 Information on developments by the Universal Postal Union (UPU) and its member countries to control the introduction of dangerous goods into postal networks and to educate customers and employees of the post was provided to the working group by a UPU representative. Developments included:

- a) a baseline dangerous goods training programme which was developed by UPU in cooperation with ICAO, the International Air Transport Association (IATA), DGP members, had been provided to all 193 UPU member countries and made available for download from the UPU public website;
- b) guidance material was developed by the UPU on controlling the introduction of dangerous goods into postal networks based on best practices of UPU member countries and the guidance material provided in the Supplement to the Technical Instructions;
- c) a dangerous goods awareness campaign was developed through cooperation with ICAO, IATA and the World Customs Organization (WCO);

- d) a reporting system for posts to report incidents involving dangerous goods in UPU mail was developed; and
- e) maintaining an updated list of designated operators who had been approved by their CAA to accept and ship equipment containing admissible lithium batteries provided on the UPU public website had continued.

3.7.1.1.2 The working group noted the information provided by the UPU with appreciation.
