



DANGEROUS GOODS PANEL (DGP)

TWENTY-SIXTH MEETING

Montréal, 16 to 27 October 2017

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

6.2: Dangerous goods accident and incident reporting system (*Job card DGP.002.01*)

REPORT OF THE WORKING GROUP ON REPORTING

(Presented by the Chairman of the DGP Working Group on Reporting)

SUMMARY

This information paper provides an update on the work of the Dangerous Goods Panel Working Group on Reporting. It contains:

- a) proposed amendments to Annex 18 contained in Appendix A to this working paper;
- b) amendments to the Technical Instructions contained in Appendix B to this working paper;
- c) draft guidance material on dangerous goods reporting contained in Appendix C to this working paper; and
- d) draft guidance material in dangerous goods investigations contained in Appendix D to this working paper.

1. INTRODUCTION

1.1 The Dangerous Goods Panel Working Group on Reporting (DGP-WG/Reporting) held two face-to-face meetings (1 to 5 May 2016 in Abu Dhabi, United Arab Emirates and 20 to 21 April 2017 in Ottawa, Canada) and continued discussions through conference calls and correspondence. These meetings were held to progress work initiated at the previous working group meeting in Rio de Janeiro, Brazil (10 to 18 August 2015) on proposed amendments to Annex 18 — *The Safe Transport of Dangerous Goods by Air* (see Agenda Item 6.1 to the Report of the Twenty-Fifth Meeting of the Dangerous Goods Panel (DGP/25)). The group also developed consequential amendments to the Technical Instructions and developed draft guidance material on dangerous goods reporting and

investigation intended for inclusion in the Supplement to the Technical Instructions. The working group is chaired by Mr. Ahmed Wagih.

2. BACKGROUND

2.1 Work on the development of a dangerous goods incident reporting system began following the Twenty-Third Meeting of the DGP at the request of the Air Navigation Commission (ANC) during its review of the report of the First Dangerous Goods Panel (DGP) Working Group of the Whole on Lithium Batteries Meeting (Montréal, 6 to 10 February 2012) (DGP-WG/LB/1). The working group had initially recommended that incidents involving lithium batteries be reported to ICAO for publishing on a publicly-accessible website. It was recognized that such information could be used as a tool for identifying causal factors and potential gaps in regulations. The ANC subsequently asked the Secretariat to consider developing a dangerous goods incident reporting system to extend beyond lithium batteries to all dangerous goods incidents.

3. DISCUSSION

3.1 Scope of the reporting system

3.1.1 The working group, at its meeting in Rio de Janeiro, placed much importance on clearly determining the objective of the system. Keeping the ANC's initial directive to develop a system which could be used as a tool to identify causal factors and potential gaps in regulations in mind, the group was not clear on what resulting actions would be expected from this. As a result, the Secretariat was requested to seek further guidance from the Air Navigation Commission (ANC) during its review of the DGP/25 Report. Accordingly, the Secretariat reported that the ANC specified during its review of the DGP/25 Report that the system should be a management-oriented tool to identify gaps and not for oversight. The working group was reminded that the ANC had repeatedly stressed the need for global data to support DGP recommendations, noting the on-going concerns raised by panel members with levels of non-compliant lithium battery consignments which had influenced decisions of the panel. A global system could provide such support.

3.1.2 The working group recognized the massive amount of data that could potentially be collected from such a global system, the need for extensive analysis to generate useful information to identify potential dangerous goods-related safety issues, and the substantial resources that would be needed to do so and questioned whether development of an effective global system was feasible. After some discussion the group concluded that the best approach would be to focus on developing provisions and supporting guidance material that would enable development of effective systems within each State and adding a requirement for States to report to ICAO whenever States identify through their data analysis systems dangerous goods-related safety issues which may have an impact on global safety. The group proceeded with developing amendments to Annex 18 which aligned with Annex 19 — *Safety Management* and with Annex 13 — *Aircraft Accident and Incident Investigation*.

3.2 Amendments to Annex 18

Definitions

3.2.1 Work on developing definitions for dangerous goods occurrences which would allow for greater data granularity had begun at the Rio de Janeiro meeting and was continued at the Abu Dhabi meeting. The group recognized the need to balance the need for standardized reporting allowing for

consistency in data with the need for a level of flexibility to allow for generation of useful and relevant information. The group also recognized the need to maintain a level of harmonization with definitions in other Annexes, notably Annexes 13 and 19. There was extensive discussion on whether or not there was a need to develop a definition for the term “occurrence”. While the term was used throughout Annex 13 — *Aircraft Accident and Incident Investigation* and the *Safety Management Manual (SMM)* (Doc 9859), it had not been defined in either of those documents. Some cautioned against a new definition, recognizing the potential for it to contradict its intended meaning in those documents. It was suggested that the dictionary meaning of the word would be sufficient. It was agreed that dangerous goods accidents, dangerous goods incidents, and the discovery of undeclared dangerous goods could therefore be categorized as “occurrences”.

3.2.2 After much discussion the working group concluded that the existing definitions provided an acceptable balance and that developing guidance on their scope for incorporation in the Supplement to the Technical Instructions should be the focus. Editorial amendments to the definition for dangerous goods incident which improved the readability were proposed, as well as the addition of a note under dangerous goods incident and dangerous goods accident referring to their relationship with Annex 13. The note currently appears under the definition for dangerous goods incident in the Technical Instructions.

3.2.3 It was noted that while the definition for dangerous goods accident differed from the definition for accident in Annex 13, an accident as defined by Annex 13 involving dangerous goods would be reported and investigated under the provisions of Annex 13. However, a dangerous goods accident which was not associated with the operation of an aircraft would not be reported or investigated under the provisions of Annex 13. It was suggested that the definition for dangerous goods accident could be deleted from Annex 18, as there were no unique requirements associated with a dangerous goods accident in either Annex 18 or the Technical Instructions and maintaining two separate and differing definitions in separate Annexes could cause confusion. Most did not support deleting the definition, noting that their national legislation did treat a dangerous goods accident versus a dangerous goods incident differently. The group did agree to an amendment to the definition clarifying that a dangerous goods accident was not restricted to an accident associated with the operation of an aircraft. It was noted that such an accident could indicate a safety deficiency that may have resulted in an aircraft accident if the dangerous goods had been loaded on the aircraft.

Reporting and compliance requirements

3.2.4 Continuing the work from the Rio de Janeiro meeting, the working group finalized proposed amendments to the compliance and reporting provisions, currently contained in Chapters 11 and 12 of Annex 18, with the aim of aligning the provisions with Annexes 13 and 19 (with Amendment 1 incorporated) and removing, whenever practicable, redundancies. It was noted that the development of Annex 19 was based on this philosophy, in that material regarding State safety programmes (SSPs), safety management systems (SMSs) and related elements was moved from existing Annexes to Annex 19. Removing redundancies and consolidating all provisions in one Annex facilitated the maintenance of safety management provisions and focused States’ attention on the importance of integrating safety management activities. There was some concern that not repeating relevant Annex 19 provisions in Annex 18 could cause problems, as there was a risk that some entities were not aware that Annex 19 provisions applied to dangerous goods. It was noted that when the amendment to Annex 18 specifying that dangerous goods were included in the operator’s SMS was proposed, a similar provision was proposed for Annex 19. However, the amendment to Annex 19 was not adopted as the Safety Management Panel (SMP) considered that the applicability of Annex 19 already covered dangerous goods. As a matter of principle, the SMP did not support referring to each and every entity as it would be impossible to create a comprehensive/all-inclusive list. Attempting to be all inclusive introduced the risk

of a perception that if an entity were not listed, there would be no need for SMS. However, it was reported that in some States the absence of a specific reference to dangerous goods in Annex 19 had led to the conclusion, particularly with operators not authorized to transport dangerous goods, that there was no need for SMS for dangerous goods. The group agreed that a stronger connection between Annex 19 and Annex 18 was necessary, with a suggestion that this could be addressed through new Chapter 14 in Annex 6 — *Operation of Aircraft* on dangerous goods. In keeping with the SMP's philosophy, the group continued to align the terminology for reporting and compliance provisions with existing provisions in Annex 19, Chapter 5 by adding references to Annex 19 instead of repeating provisions already required by that Annex. Annex 19 provisions were repeated in cases where further clarity was needed or where entities other than operators needed to be addressed. The need to ensure that nothing was overlooked by not repeating provisions was recognized, and the group agreed that this would need to be emphasized to the DGP.

3.2.5 Reporting provisions for such entities other than operators had been added to the 2013-2014 Edition of the Technical Instructions in the form of a recommendation. When the amendment was introduced, the DGP had agreed to consider mandating the provision once it reached a level of maturity. Accordingly, the working group recommended upgrading the recommendation to a mandatory requirement.

3.2.6 Amendments to differentiate between mandatory and voluntary reporting systems as required by Annex 19 were also made. The working group questioned the practicality and feasibility of mandating voluntary systems for entities other than operators performing dangerous goods functions and therefore made the provision for these entities a recommendation. Whether or not the current requirements for operators to report when dangerous goods are discovered to have been carried when not loaded, segregated, separated or secured in accordance with the Technical Instructions or when discovered to have been carried without information having been provided to the pilot-in-command would be subject to the voluntary reporting system was briefly discussed. The working group agreed that further discussions on this subject and the issue of voluntary dangerous goods reporting systems in general was needed.

3.2.7 In response to the ANC request to the DGP to establish a standardized criteria for collecting dangerous goods incident data which could be shared globally, amendments were made to address the working group's decision to add a requirement for States to report to ICAO whenever they identified safety issues related to the transport of dangerous goods which could potentially impact global air safety. The group also discussed whether an additional Standard requiring States to provide information to ICAO upon request was necessary. On the one hand, such a requirement made the necessity of providing information to ICAO that could help identify safety deficiencies very clear. It was suggested that such a Standard might improve response rates from States, knowing that historically, the levels of responses to State letters was not optimal. On the other hand, the need to respond to requests for information was not unique to Annex 18, and some felt it was inappropriate to attempt to force a response through that Annex. The Secretariat was asked to seek further guidance from other subject matter experts at ICAO.

3.2.8 The working group meeting in Rio de Janeiro had proposed reversing the order of the chapters on compliance (Chapter 11) and reporting (Chapter 12) in order to better reflect actual order of events. The Abu Dhabi meeting further determined that the titles of the chapters should be revised to more appropriately reflect their content. Accordingly, revised titles were proposed.

Dangerous goods in the mail

3.2.9 During discussions it was noted that the current provisions for compliance (Chapter 11) included provisions for dangerous goods in mail. It was suggested that these provisions were not directly related to compliance and that it would be more appropriate to consolidate all provisions for dangerous goods in the mail in one chapter. Accordingly, the group proposed moving provisions for training programmes for designated postal operators and approval of them which were currently contained in Chapter 10 and procedures for controlling the introduction of dangerous goods in mail into air transport which were currently contained in Chapter 11 to a new Chapter 14. These changes were considered editorial in nature. Amendments to the existing dangerous goods in the mail provisions were not considered by the group.

Amendments to Annex 18 proposed by the working group

3.2.10 The amendments proposed to Annex 18 are contained in Appendix A to this working paper.

Amendments to the Technical Instructions

3.2.11 Amendments to definitions in Part 1;3 and the reporting provisions in Parts 1;7 and 7;4 were made to align with the proposed amendments to Annex 18. The recommendation for entities other than operators to report dangerous goods occurrences contained in Part 1;7 was upgraded to a requirement. The group determined it would be appropriate to consolidate reporting requirements for all entities in one place. Accordingly, the working group proposed moving the operator reporting requirements currently provided in Part 7;4 of the Instructions to Part 1;7.

3.2.12 The group also concluded that future work is necessary to ensure that all references to reporting provisions throughout the Technical Instructions are aligned to the proposed text of Part 1;7.

3.3 Development of guidance material

3.3.1 The working group developed draft guidance material on dangerous goods reporting and dangerous goods investigations. The location of this guidance material has not yet been determined. It may be appropriate to include the material as an attachment to Annex 18 or as a chapter in the Supplement to the Technical Instructions. Ensuring a high degree of visibility to entities other than State authorities will need to be taken into account for some of the guidance material (e.g. reporting). The material, although not yet mature, is provided in Appendices C and D to this information paper.

3.4 **Restructuring of Annex 18**

3.4.1 During discussions, it was suggested that Annex 18 needed to be restructured in order to more clearly outline States' responsibilities with respect to the safe transport of dangerous goods by air. While references to the more detailed requirements in the Technical Instructions was necessary, there were some cases where more detailed requirements needed to be included in the Annex, particularly with respect to the establishment of training programmes. It was also noted that while other Annexes included guidance material in appendices, Annex 18 did not. The approach taken by the DGP had always been to include guidance material in the Supplement to the Technical Instructions. The group considered whether some high-level guidance material would be more effective in the Annex, including guidance on setting up a dangerous goods oversight system and interaction between Annex 18 and other Annexes. Several pros and cons of such an approach were identified including:

- a) While material in the Supplement may be more effective for States with strong dangerous goods programmes, material in Annex 18 would be more visible for those that did not have strong dangerous goods programmes.
- b) Material in Annex 18 would be less visible to operators than material in the Supplement is, since although operators did use the Technical Instructions and its Supplement, they did not typically look at Annex 18.

3.4.2 The group concluded that more extensive discussions on the subject should continue as future work of the panel and suggested a dedicated working group be established for this purpose.

4. **FUTURE WORK**

4.1 The working group agreed to continue work on fine-tuning the proposed amendments to Annex 18 and the Technical Instructions and the development of guidance material.

— — — — —

APPENDIX A

PROPOSED AMENDMENTS TO ANNEX 18

CHAPTER 1. DEFINITIONS

The following amendment is proposed for the sake of alignment with dangerous goods incident and to differentiate from the definition of an aircraft incident in Annex 13.

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in fatal or serious injury to a person or major property or environmental damage.

The following added for the sake of clarity. The note is currently included under the definition for dangerous goods incident in the Technical Instructions.

Note.— A dangerous goods accident may also constitute an aircraft accident as defined in Annex 13— Aircraft Accident and Incident Investigation.

The following amendments are largely structural to improve readability. In addition, “fluid” is replaced with “contents” so as to address solids.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, ~~which results in~~ where:

- a) ~~injury to a person,~~ a person is injured;
- b) ~~there is~~ property or environmental damage, ~~;~~
- c) there is fire, breakage, spillage, leakage of ~~fluid~~ contents or radiation or there is other evidence that the integrity of the packaging has not been maintained, ~~;~~ or
- d) Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants ~~is also deemed to constitute a dangerous goods incident.~~

Note.— A dangerous goods incident may also constitute an aircraft incident as defined in Annex 13 — Aircraft Accident and Incident Investigation.

...

CHAPTER ~~12~~ 11. DANGEROUS GOODS ACCIDENT AND INCIDENT REPORTING DANGEROUS GOODS OCCURRENCE REPORTING AND INVESTIGATION

Replace reporting provisions currently contained in Chapter 12 with the following new provisions. These revised provisions are based on Annex 19 with Amendment 1 incorporated. Reporting requirements already covered by Annex 19 are not repeated here. They are, however, expanded to include entities other than operators.

The following note is copied from note under Chapter 8 of Annex 13.

Note.— In addition to the provisions of this chapter, other provisions relative to the promotion of dangerous goods accident and incident prevention by collection and analysis of safety data and by a prompt exchange of safety information, as part of the State safety programme (SSP), are included in Annex 19 — Safety Management and, to this effect, are applicable to this Annex. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859).

The following aligns with paragraph 5.1.2 of Annex 19.

11.1 Mandatory safety reporting system

11.1.1 States shall include reporting of dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail as part of their mandatory safety reporting systems in accordance with the provisions of Annex 19.

11.1.2 States' mandatory reporting systems shall include a requirement for the operator to report dangerous goods accidents and dangerous goods incidents to the appropriate authority of the State in which they occurred and to the State of the Operator.

11.1.3 States' mandatory reporting systems shall include a requirement for the operator to report occasions when undeclared or misdeclared dangerous goods are discovered ~~in cargo or mail~~ to the appropriate authority of the State in which they were discovered and to the State of the Operator.

11.1.4 States' mandatory reporting systems shall include a requirement for entities other than operators to report dangerous goods accidents and dangerous goods incidents to the appropriate authority of the State in which they occurred.

11.1.5 States' mandatory reporting systems shall include a requirement for entities other than operators to report occasions when undeclared or misdeclared dangerous goods are discovered ~~in cargo or mail~~ to the appropriate authority of the State in which they were discovered.

11.2 Voluntary safety reporting system

Recommendation.— States should establish a voluntary safety reporting system to collect safety data and safety information not captured by mandatory reporting systems for entities other than operators.

Note.— States are required to establish voluntary safety reporting systems for air operators in accordance with the provisions of Annex 19. Further guidance is included in the Safety Management Manual (SMM) (Doc 9859).

11.3 Dangerous goods investigations

11.3.1 States shall establish procedures for investigating reports of dangerous goods accidents and dangerous goods incidents and identified safety issues related to the transport of dangerous goods.

11.3.2 States shall establish procedures for investigating reports of undeclared or misdeclared dangerous goods are discovered[] and identified safety issues related to the transport of dangerous goods.

11.3.3 States shall ensure that operators establish procedures for investigating safety issues related to the transport of dangerous goods through the application of their safety management system.

11.3 Safety information exchange

11.3.1 If a State, in the analysis of the dangerous goods information contained in its safety data collection and processing system (SDCPS) identifies safety issues which may have an impact on global safety, that State shall forward such safety information to ICAO with a minimum of delay.

Note 1.— Provisions for a SDCPS and safety information sharing and exchange between States are included in Annex 19. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859).

Note 2.— Whenever practicable, the safety information sent to ICAO is to be prepared in one of the working languages of the Organization.

[11.3.2 States shall provide ICAO with dangerous goods information from their SDCPS upon request to address global safety issues related to the transport of dangerous goods.]

~~CHAPTER 11~~ 12. COMPLIANCE DANGEROUS GOODS OVERSIGHT AND COOPERATION SURVEILLANCE OBLIGATIONS

Replace compliance provisions currently contained in Chapter 11 with the following new provisions. These revised provisions are based on Annex 19 with Amendment 1 incorporated. Oversight requirements already covered by Annex 19 are not repeated here. They are, however, expanded to include entities other than operators.

The following note is copied from note under Chapter 8 of Annex 13 (same as note added to reporting chapter, above (Chapter 11)).

Note.— In addition to the provisions of this chapter, other provisions relative to the promotion of dangerous goods accident and incident prevention by collection and analysis of safety data and by a prompt exchange of safety information, as part of the State safety programme (SSP), are included in Annex 19 — Safety Management and, to this effect, are applicable to this Annex. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859).

12.1 Surveillance obligations

12.1.1 States shall ensure that the surveillance obligations required by Annex 19 apply to all entities performing any function prescribed in the Technical Instructions.

~~— 12.1.2 States shall establish procedures for investigating reports of dangerous goods accidents and dangerous goods incidents and identified safety issues related to the transport of dangerous goods.~~

~~— 12.1.3 States shall establish procedures for investigating occasions when reports of undeclared or misdeclared dangerous goods are discovered [in cargo or mail] and identified safety issues related to the transport of dangerous goods.~~

~~— 12.1.4 States shall ensure that operators establish procedures for investigating safety issues related to the transport of dangerous goods through the application of their safety management system.~~

12.2 Resolution of safety issues related to the safe transport of dangerous goods

12.2.1 States shall ensure that the resolution of safety issues required by Annex 19 related to the transport of dangerous goods applies to all entities performing any function prescribed in the Technical Instructions.

12.3 Cooperation between States

12.3.1 States shall participate in cooperative efforts with other States with the aim of eliminating unsafe practices and non-compliance with the Technical Instructions.

12.3.2 States' cooperative efforts shall include coordination of investigations of dangerous goods accidents and dangerous goods incidents, identified safety issues related to the transport of dangerous goods, non-compliance with the Technical Instructions and enforcement actions.

Provisions for dangerous good by mail currently included in Chapter 11 (11.4) are moved to new Chapter 14 (see below). Training programme requirements for designated postal operators are also moved to new Chapter 14 (proposed amendments to Chapter 10 are shown after proposed new Chapter 14 below)

CHAPTER 14. DANGEROUS GOODS BY MAIL

Moved from Chapter 10:

~~10.1~~14.1 Establishment of training programmes

Initial and recurrent dangerous goods training programmes shall be established and maintained in accordance with the Technical Instructions.

~~10.2~~14.2 Approval of training programmes

Moved from Chapter 10:

~~10.2.2~~—Dangerous goods training programmes for designated postal operators shall be approved by the civil aviation authority of the State where the mail is accepted by the designated postal operator.

~~11.4~~ *Note 1.— See 11.4 for dangerous goods by mail.*

Moved from Chapter 11:

~~11.4~~14.2 ~~Dangerous goods by mail~~Procedures for controlling the introduction of dangerous goods in mail into air transport

~~11.4~~—The procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport shall be approved by the civil aviation authority of the State where the mail is accepted.

Note 1.— In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions.

Note 2.— The Universal Postal Union has established procedures to control the introduction of dangerous goods into air transport through the postal services (see the UPU Parcel Post Regulations and Letter Post Regulations).

Note 3.— Guidance for approving the procedures established by designated postal operators to control the introduction of dangerous goods into air transport may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 3).

CHAPTER 10. TRAINING PROGRAMMES

10.1 Establishment of training programmes

Initial and recurrent dangerous goods training programmes shall be established and maintained in accordance with the Technical Instructions.

10.2 Approval of training programmes

10.2.1 Dangerous goods training programmes for operators shall be approved by the appropriate authority of the State of the Operator.

Note.— Dangerous goods training programmes are required for all operators regardless of whether or not they are approved to transport dangerous goods.

~~10.2.2 Dangerous goods training programmes for designated postal operators shall be approved by the civil aviation authority of the State where the mail is accepted by the designated postal operator.~~

10.2.3 **Recommendation.**— *Dangerous goods training programmes required for entities other than operators and designated postal operators should be approved as determined by the appropriate national authority.*

Note 1.— Dangerous goods training programme requirements for designated postal operators are included in See 11.4 Chapter 14 for dangerous goods by mail.

Note 2.— See 4.2.2 of Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes for surveillance of operations by a foreign operator.

APPENDIX B

PROPOSED AMENDMENTS TO THE TECHNICAL INSTRUCTIONS

Part 1

GENERAL

...

Chapter 3

GENERAL INFORMATION

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

3.1 DEFINITIONS

...

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in fatal or serious injury to a person or major property or environmental damage.

Note.— A dangerous goods accident may also constitute an aircraft accident as defined in Annex 13 — Aircraft Accident and Incident Investigation.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, ~~which~~ where:

a) ~~results in injury to a person~~ is injured;

b) ~~there is~~ property or environmental damage;

c) ~~there is~~ fire, breakage, spillage, leakage of fluid contents or radiation or other evidence that the integrity of the packaging has not been maintained; ~~or~~

d) ~~A~~ any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants ~~is also deemed to be a dangerous goods incident.~~

Note.— A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified defined in Annex 13 — Aircraft Accident and Incident Investigation.

...

Chapter 7

~~INCIDENT AND ACCIDENT~~ **DANGEROUS GOODS OCCURRENCE** REPORTING

...

Moved from Part 7;4:

4.47.1 REPORTING OF DANGEROUS GOODS ACCIDENTS AND INCIDENTS

7.1.1 An operator must report dangerous goods accidents and dangerous goods incidents to the appropriate authorities of the State of the Operator and the State in which ~~the accident or incident~~ they occurred in accordance with the reporting requirements of those appropriate authorities.

Based on current Part 1;7 (Struck out text is
moved to new 1;7.2.2):

7.1.2 Entities other than operators who are in possession of dangerous goods at the time a dangerous goods accident or dangerous goods incident occurs or at the time a dangerous goods incident is discovered to have occurred should follow the reporting requirements of Part 7;4.4. Entities other than operators who discover undeclared or misdeclared dangerous goods should follow the reporting requirements of Part 7;4.5. These entities may include, but are not limited to, freight forwarders, customs authorities and security screening providers. must report to the appropriate authority of the State in which the accident or incident occurred.

Moved from Part 7;4:

Note 1.— ~~This~~ The provisions in 7.1.1 and 7.1.2 includes incidents occurrences involving dangerous goods that are not subject to all or part of these Instructions through the application of an exception or of a special provision (e.g. an incident involving the short circuiting of a dry cell battery that is required to meet short-circuit prevention conditions in a special provision of 3;3).

Based on end of current Part 1;7:

Note 2.— The entities referred to in 7.1.2 may include, but are not limited to, freight forwarders, customs authorities and security screening providers.

Moved from Part 7;4:

4.57.2 REPORTING OF UNDECLARED OR MISDECLARED DANGEROUS GOODS

7.2.1 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~~ in which they were discovered. An operator must also report any occasion when dangerous goods not permitted under 8;1.1.1 are discovered, either in the baggage of passengers or crew members or on ~~the~~ their person, ~~of passengers or crew members~~. Such a report must be made to the appropriate authority of the State in which ~~this occurred~~ in which they were discovered.

Based on second part of current Part 1;7:

7.2.2 Entities other than operators who discover undeclared or misdeclared dangerous goods in cargo or mail must report to the appropriate authority of the State in which they were discovered. These entities must also report any occasion when dangerous goods not permitted under 8;1.1.1 are discovered, either in the baggage of passengers or crew members or on their person.

Note.— These entities referred in 7.2.42 may include, but are not limited to, freight forwarders, customs authorities and security screening providers.

Discussions on the following provisions to be continued, including relationship to voluntary reporting system:

~~4.6~~7.3 REPORTING OF DANGEROUS GOODS OCCURRENCES

An operator must report to the State of the Operator and the State of Origin any occasion when:

- a) dangerous goods are discovered to have been carried when not loaded, segregated, separated or secured in accordance with Part 7;2; or
- b) dangerous goods are discovered to have been carried without information having been provided to the pilot-in-command in accordance with Part 7;4.1.

To be done: consequential amendments to references to reporting provisions throughout Technical Instructions to be

— — — — — /

APPENDIX C

GUIDANCE MATERIAL ON DANGEROUS GOODS REPORTING

Chapter 1

DANGEROUS GOODS OCCURRENCE REPORTING

Most passengers, shippers, freight forwarders and operators will usually take an appropriate level of care and diligence. Actions or mishaps are usually the result of errors and lapses or inadequately documented procedures. Experience has shown that the vast majority of members of the public and industry do not commence a course of action with an expectation of causing a dangerous goods incident or accident or the endangering of life, limb or property. In these circumstances it is appropriate for education and a remedial approach to amending procedures to prevent a recurrence. Nevertheless, there are times when it may be necessary for enforcement action which is usually reserved for deliberate, reckless, negligent, careless acts or repeat violations.

1.1 SCOPE

1.1.1 The regulatory program for the Safe Transport of Dangerous Goods by Air is designed to prevent DG occurrences through the implementation of safeguards, such as training, documented procedures, processes and the provision of information.

1.1.2 The purpose of this chapter is to:

- a) provide general information and guidance on reporting, including what should be done on receiving dangerous goods occurrence reports;
- b) entities obligations on reporting; and
- c) States obligations on reporting to:
 - relevant national Authorities
 - other States
 - ICAO.

DEFINITIONS

Note.— A number of definitions, set out on Annex 18 or the ICAO Technical Instructions, have not been replicated in this section.

Just culture. Whilst not yet defined, is taken as being “A culture in which frontline operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated.”

Mishandled dangerous goods. Whilst not defined, is taken as being an error or violation in:

- a) the loading or stowing of dangerous goods onto an aircraft; or
- b) not removing dangerous goods from the aircraft at destination; or
- c) the handling/storage/transportation of dangerous goods between the point of acceptance and the point of loading onto an aircraft; or

after the removal of the DG from the aircraft until they have been delivered to the consignee.

Misdeclared dangerous goods. While not defined, means dangerous goods offered for transport by air where:

- a) they are incorrectly described on the dangerous goods transport document, such that had they been correctly described, they would not have been acceptable for carriage; or
- b) they are found, after the acceptance check required by 7.1.3, not to have complied with the Technical Instructions.

State of Occurrence. The State in the territory of which a dangerous goods occurrence is discovered.

Note.— Non-compliances with the Technical Instructions found during an acceptance check are not required to be reported, although an operator may choose to do so if an issue of significance (e.g. incorrect use of packaging) is detected.

Violations. means a deliberate act of wilful misconduct or omission resulting in a deviation from established regulations, procedures, norms or practises [ICAO Doc 9859]

1.2 REPORTING — GENERAL INFORMATION

1.2.1 PURPOSE OF REPORTING

1.3.2.1 The primary purpose of reporting a dangerous goods occurrence is to start a process that leads to the identification of a corrective action designed to prevent similar occurrence(s) from happening again. It is important that States facilitate and promote occurrence reporting by all entities and ensure that such reporting is not hindered by the use of penalties. The sole objective of the information provided by occurrence reporting should be to benefit aviation safety. It is not the purpose of this activity to apportion blame or liability.

1.2.2 IMPORTANCE OF REPORTING

1.3.2.1 Operators are developing and refining their safety management systems to have an integrated and holistic approach to occurrence reporting and management.

1.3.2.2 The effectiveness and possible need for the modification of dangerous goods regulations and practices can only be measured if dangerous goods occurrences are reported, analyzed and investigated.

1.3.2.3 Each State must establish procedures for collecting information concerning dangerous goods occurrences which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. States should use the same procedures for domestic occurrences.

1.3.2.4 Occurrences should be reported to the State, particularly where existing safety defences have been breached, failed or were inadequate, or where there was deliberate non-compliance or violation. This enables the State to prevent recurrences; identify trends, change legislation, develop safety education messages and improve aviation safety.

1.3.2.5 Accurate and detailed occurrence reports help maintain aviation safety; for example, reports help the State authority to:

- a) work with individual operators to rectify and make improvements to their processes and systems;
- b) identify themes and patterns that may be indicative of problems across the wider aviation industry; and
- c) develop effective safety plans and practises for improving aviation safety.

1.2.3 REPORTABLE OCCURRENCES

Reportable occurrences linked to the transport of dangerous goods by air should be reported to the appropriate national authorities and may take the form of an initial notification, a preliminary report or a comprehensive final report.

Dangerous goods occurrences to be reported to the State include:

- a) a dangerous goods incident;
- b) a dangerous goods accident;
- c) undeclared or misdeclared dangerous goods discovered in cargo, mail or stores;
- d) mishandled dangerous goods;
- e) dangerous goods not permitted by the Technical Instructions found in passenger or crew baggage; or
- f) circumstances where existing safety defences have failed.
- g) any other occurrence that might have an adverse impact on aviation safety

1.2.4 NON-REPORTABLE OCCURRENCES

Some dangerous goods occurrences do not need to be reported to the State and can be managed internally by the operator, ground handling agent or other relevant entity. Examples of such occurrences are where routine safety defences have detected a non-compliance and there are minor deficiencies indicating a lack of understanding by the shipper or passenger. In such circumstances, it is appropriate for the operator/ground handling agent to educate the individual. Where the educative approach is failing, or when the same non-reportable occurrence continues to happen on a regular basis, it then becomes necessary to report it to the State.

Similarly, where occurrences have been detected by screening agencies or regulatory agencies such as customs and quarantine, then these occurrences should be reported to the operator (or the designated postal operator) for statistical trend monitoring and education purposes. Agencies may also take advice from the aircraft operator.

Note.— Minor dangerous goods irregularities considered by the entity as a reason for rejecting a shipment would not normally need to be reported, unless the entity considers that reporting would be in the interest of safety. Examples of such minor irregularities include incorrect label size or location, torn labels, old labels present on the package, spelling mistakes on markings or documentation, and shipper's declaration no longer with the package.

1.3 OCCURRENCE REPORTING – ENTITIES OBLIGATIONS

1.3.1 WHO HAS TO REPORT

Operators shall notify the appropriate national Authority of any reportable occurrence as soon as possible.

Occurrence reporting by entities other than operators such as freight forwarders, ground handling agents, security screening providers, customs and quarantine authorities, etc. should initially be made to the relevant operator. Where the operator cannot be identified, that entity should report the occurrence to the appropriate national Authority

1.3.2 WHAT TO REPORT

Occurrence reporting must be in plain language and contain as much of the following information as is readily available, but it must not be delayed due to the lack of complete information:

- a) reference to any notification forwarded in accordance with Annex 13 — *Aircraft Accident and Incident Investigation*;
- b) date and time (UTC) of the occurrence;
- c) name of the operator involved;
- d) name of the shipper involved;
- e) description of dangerous goods involved;
- f) brief description of the occurrence;
- g) number of persons fatally or seriously injured and extent of property damage;
- h) information about any continuing danger to safety, health or the environment as a result of the occurrence;
- i) an indication of to what extent an investigation will be conducted or is proposed to be delegated by the State in which the occurrence happened; and
- j) identification of the originating authority.

Investigation of dangerous goods accidents, which meet the definitions of both Annexes 13 and 18, are to be consulted upon between the relevant States and State agencies. Where an Annex 13 defined aircraft accident investigation takes place, and dangerous goods are known or suspected of being a causative factor, then the dangerous goods occurrence investigations will be part of the aircraft accident (Annex 13) investigation as coordinated by the investigator-in-charge.

Note.— Sometimes, one incident will cover multiple jurisdictions for example, an event where a firearm and ammunition are inadvertently carried into an aircraft cabin will constitute both a dangerous goods occurrence and a security incident; in such a circumstance, the prime concern is the security matter and examination of the security defence failures that led to the security incident will be the main consideration. The safety-related dangerous goods

concern of improperly packaged and consigned ammunition will be of a secondary concern when compared to the security concerns of the heightened opportunity for a person with malicious intent. Conversely, where a person inadvertently carries a small amount of fireworks, without any co-packaged means of possible initiation, in their checked-in baggage, then the safety concerns will be considered ahead of the security-related implications. Where different government agencies or departments are aware that another agency is actively involved in an occurrence investigation, then appropriate liaison should take place to minimise disruption to the operator and to maximise improvements to safety and security defensive measures.

1.4 OCCURRENCE REPORTING – STATES OBLIGATIONS

1.4.1 ESTABLISHING A REPORTING SYSTEM

States should establish a reporting system to collect safety data and information related to dangerous goods occurrences, with appropriate timeframes for initial notification.

States must appoint an a point of contact and means of communication for entities to make initial and further reports of dangerous goods occurrences.

Note.— The point of contact should be published in Attachment 3, Chapter 1 of the Technical Instructions

As soon as it is possible to do so, the State in which the occurrence happened must dispatch the details omitted from the notification as well as other known relevant information.

1.4.1.3 Upon receipt of the notification, the State of Origin must, as soon as possible, provide the State of Occurrence with any relevant information it has available relative to the dangerous goods involved in the occurrence.

1.4.1.4 The State conducting the investigation of a dangerous goods occurrence should compile a report which contains sufficient information describing the occurrence and include any areas of special interest to other States.

1.4.1.5 The report must be sent with a minimum of delay and by the most suitable and quickest means by the State conducting the investigation to:

- a) the State of Occurrence;
- b) the State of Origin;
- c) the State of Registry;
- d) the State of the Operator;
- e) where relevant, the State(s) of transit.
- f) any other State which provided relevant information; and
- g) in the event of a dangerous goods accident, ICAO.

1.4.2 MANDATORY DANGEROUS GOODS REPORTING SYSTEMS

1.4.3 VOLUNTARY DANGEROUS GOODS REPORTING SYSTEMS

1.4.4 WHAT TO DO WITH THE INFORMATION IN THE REPORT

1.4.4.1 States are to adopt a pro-active safety and education approach towards dangerous goods occurrences unless there has been a deliberate attempt to circumvent the protective and defensive mechanisms to keep undeclared dangerous goods out of the air freight system.

1. 4.4.2 Where the incident appears to have arisen through deliberate acts and activities, negligence or recklessness, then the matter should be referred to the State for a closer investigation.

1.4.4.3 Occurrence reports should be made, irrespective of wherefrom the incident has been discovered; whether it is from passenger's bags, carry-on items, the mail, general cargo or operator's property. It is not necessary to report to the State an occurrence which was detected prior to the first point of acceptance for carriage (such as the customer check-in desk or freight shed front counter); primarily the detection of dangerous goods at this point indicates that the defensive processes are working. However, where an operator feels that the passenger, consignor, forwarder or employee is making a deliberate attempt to subvert the integrity of aviation safety, then the matter should be referred to the State.

1.4.4.4 Similarly, reports should be made where the operator believes that there has been a systemic breakdown, or if the occurrence is indicative of a broader problem within the operator's systems or more broadly across the wider aviation industry.

1.4.4.4 The report must be reviewed and relevant information from the report, recorded in a means that enables updating and analysis. During the review, particular attention is to be paid to the risk to passengers, the nature of the occurrence, how the incident was detected and the remedial and preventive actions that were undertaken or are proposed to be undertaken by the Operator/forwarder or handling agent.

1.4.4.5 The State may ask for further details including passenger/consignor contact info; may ask to be kept informed of progress, may advise that there is no need for any further reporting in respect of the incident, or may decide to follow up directly with the shipper, forwarder etc.

1.4.4.6 The State should acknowledge receipt of the report and to also look at and consider the investigation, if any, undertaken by the Operator/Forwarder/ GHA. Where the investigation appears to have been thorough and identified and rectified the situation, and put in place preventive measures, then the matter may be closed at that time.

1.4.4.7 Each occurrence is to be assessed on its own merits and one or several outcomes may eventuate. The range of outcomes encountered from an assessment of a dangerous goods occurrence include:

- a) no further action – the information is recorded and retained for trend monitoring purposes;
- b) asking the operator/forwarder for more details, to investigate further or instigate improved preventive measures to prevent a recurrence;
- c) State Authority deciding to investigate further (including the possibility of undertaking a joint investigation with another Regulatory Authority or the operator/GHA);
- d) Counselling/educating the passenger/shipper/forwarder/operator/agent
- e) Referral or notification of the incident to other relevant authorities, such as foreign aviation authorities with responsibility for Annex 18, or other Australian enforcement agencies such as OTS, AFP or Customs.

1.4.4.8 The State may use de-identified information from reports for the purposes of safety education, safety promotion or recommending change to the Technical Instructions or to State legislation.

In an effective Safety Management System, the operator will provide feedback to the initial reporter

1.4.4.9 Where an operator reports an occurrence; then those occurrence details should not be used for enforcement sanctions. In turn, operators are expected to be active and proactive in investigating and resolving the events that led to the occurrence to arise, and to work co-operatively to prevent a recurrence. Furthermore, there is an expectation that the operator will be candid in its dealings with the State, particularly where root cause analysis is indicating failures within the Operator's systems.

1.4.5 COOPERATION BETWEEN STATES/ REPORTING TO OTHER STATES AND ICAO

APPENDIX

**TEMPLATES FOR DANGEROUS GOODS OCCURRENCE REPORTING HIGHLIGHTING THE MINIMUM
REPORTING REQUIREMENTS**

During the initial enquiries by the operator, there may be a reasonable belief that the item concerned does not meet the criteria to be classified as a dangerous good; and that until it has been established that the goods were dangerous, there is no compulsion to report the event. Nevertheless, whilst the goods may not meet the criteria as being dangerous, it is the **circumstances** that led to belief that an incident may have occurred and which are illustrative of potential deficiencies within the safety systems relating to the carriage of Dangerous Goods by aircraft.

The subsequent attention to, and rectification of, those deficiencies is important for contributing towards preventing a recurrence with potentially more serious consequences. Therefore such occurrences should still be reported to the State.

— — — — —

APPENDIX D

GUIDANCE MATERIAL FOR DANGEROUS GOODS INVESTIGATIONS

Chapter 2

GUIDANCE TO STATES ON CONDUCTING DANGEROUS GOODS INVESTIGATIONS

2.1 PURPOSE

2.1.1 The purpose of this guidance material is to establish a methodology for conducting a dangerous goods investigation. A dangerous goods investigation is defined in Annex 18 as a process conducted for the purpose of dangerous goods occurrence prevention which may include:

- a) the gathering and analysis of information;
- b) the identification of hazards;
- c) the drawing of conclusions, including the determination of the actual root causes and/or the contributing factors resulting in the occurrence;
- d) the development of corrective actions and the identification of the necessary improvements to the aviation system; and
- e) the making of safety recommendations, when appropriate.

2.2 INVESTIGATION RESPONSIBILITY

2.1 States are responsible under Annex 18 for establishing procedures for investigating occurrences involving dangerous goods. [This includes the nominating of an appropriate national authority in conducting the dangerous goods investigation.]

The primary objective of a dangerous goods investigation is the prevention of dangerous goods occurrences through the establishment of procedures.

2.2.4 The scope and complexity of the investigation and the size and composition of the investigation team may be influenced by the following factors, among others:

- a) injuries, deaths and damage to equipment and the environment;
- b) identified and potential safety issues related to the occurrence;
- c) the likelihood of recurrence and the severity of adverse consequences;
- d) dangerous goods occurrence history related to the entities involved; and
- e) actual and potential deviations from industry safety and operational regulations, standards, procedures and practices.

Note 1.— It is very important to differentiate between a dangerous goods investigation conducted under Annex 18 and an accident and serious incident investigation conducted under Annex 13 — Aircraft Accident and Incident Investigation.

Note 2.— Throughout this guidance material, the use of the male gender should be understood to include male and female persons.

2.3 CONFIDENTIALITY/DISCLOSURE

2.4 PLANNING THE INVESTIGATION

The appropriate national authority responsible for the dangerous goods investigation should determine the level of resources and depth to which any dangerous goods investigation should be conducted. The creation and usage of a risk assessment guide and safety investigation matrix may help to determine the level of investigation to be applied. For example, a common breach by a passenger may be logged for statistical and trend-monitoring purposes; a low-level incident may require a desktop assessment and a series of phone calls; while a significant failure in a number of processes may require an external team to make an on-site visit.

2.5 THE INVESTIGATION PROCESS

The dangerous goods investigation process consists of the following elements:

- a) gathering and analysis of information;
- b) identification of hazards;
- c) drawing of conclusions, including the determination of actual root causes and/or the contributing factors resulting in the occurrence;
- d) development of corrective actions and the identification of the necessary improvements to the aviation system; and
- e) making of safety recommendations, when appropriate.

2.5.1 Gathering and analysis of information

2.5.1.1 Gathering and analysis of information is one of the most important elements in the investigation process. It is the baseline on which the remaining elements rely on, hence it requires a thoughtful approach where the processes described in paragraphs 2.5.1.3 through 2.5.1.6 must be taken into account. Factual information derived from data-gathering activities serves as the basis for all conclusions and recommendations from an investigation. Without effective data gathering, the root cause of the dangerous goods occurrence cannot be truly identified and investigated.

2.5.1.2 A dangerous goods occurrence is typically reported through a verbal or written notification to the appropriate national authority. The gathering and analysis of information in a dangerous goods investigation would start with the evaluation of this initial notification. If the initial notification lacks any critical information to determine if an immediate response or actions will be required, the dangerous goods investigator should contact the person who reported the occurrence for more information. It will also help the dangerous goods investigator to develop a plan on what to do next. Even though the gathering and analysis of information is the initial step to conducting an investigation, there is always an opportunity to gather and analyse more information, if necessary, prior to the investigation report being finalized.

2.5.1.4 Gathering information

2.5.1.4.1 There are many types of information that can be gathered in an investigation. The three most common types of information gathered in an investigation are:

- a) documents (electronic or paper);
- b) statements from relevant parties; and
- c) photographs.

The sooner the information can be collected and taken into the possession of the investigator, the more likely evidence will still be available and the more detailed recollection of the events will be. It is important for the investigator to maintain specific and accurate accountability of what, who, when, and where the information was gathered. If a copy or image of a document is gathered, then it should be noted where the original document is stored.

2.5.1.4.2 The ultimate decision to have an appropriate national authority personnel respond to a specific location to conduct an investigation will have to be determined in each scenario based on the level of the safety concerns, accessibility of the location, availability of the information, and the time and monetary constraints of the investigator. Depending on the information obtained from the initial source that provided the notification of the dangerous goods occurrence, the investigator may need to gather information at the location of the [dangerous goods occurrence]. Documents can usually be easily obtained through electronic means without the need to physically respond to a location. The interviewing of witnesses and other persons can be accomplished through voice communication. Photographic information can also be obtained by the entity in possession of the items that need to be photographed, but in many circumstances it is difficult to obtain the correct level of detail, clarity, and scope of photographic information unless it is acquired by the investigator.

2.5.1.4.3 It is important for the appropriate national authority and the personnel involved in the investigation to ensure that all information gathered in response to the dangerous goods occurrence is preserved and readily available. This is critical during the investigation process so that no gathered information is misplaced or lost. It is also important once the investigation is completed so that the gathered information can be reviewed or revisited at a later date.

2.5.1.5 *Analysis of information*

2.5.1.5.1 For a better understanding of the facts, the investigator should review all relevant documents (e.g. air waybill, dangerous goods transport document, information to pilot-in-command, acceptance checklist, safety data sheet) in order to seek factors that contributed to the dangerous goods occurrence. For example, by analyzing the transport document an investigator may establish that an incorrect type of packaging was used. The investigator may need to send the data to other experts or specialized agencies in order to get further information about what happened. This should be done when the investigator does not have all the required knowledge about the specific dangerous goods involved in the occurrence. This should also be done when there is a different competent authority responsible for the transport of the dangerous goods involved in the occurrence (often the case with radioactive materials). The appropriate national authority should be able to compile [and control] the outcomes of past investigations in its safety data collection and processing system (SDCPS) as defined in Annex 19. One of the purposes of compiling [and controlling] this information is to use it for future investigation.

2.5.1.5.2 The analysis of information is conducted in parallel with the gathering of information during the investigation. In the process of gathering and analysing information, the investigator is essentially putting together a timeline of the dangerous goods occurrence. The analysis of information could simply be the review and detailed study of specific information on documents, interview statements, or photographs that help to give a better understanding of the dangerous goods occurrence. This analysis can also lead to gaps in information that require more information to be gathered.

2.5.1.6 *Analysis of dangerous goods occurrence data*

A single dangerous goods occurrence may not always be the direct trigger for an investigation. The need for an investigation may be triggered by a series of minor dangerous goods occurrences which may identify a safety concern. For example, analysis of data collected may reveal that several minor incidents occurred for the same reasons involving the same entity. This may lead the appropriate authority to conduct a more thorough investigation.

2.5.2 **The identification of hazards**

2.5.2.1 The term hazard is focused on conditions which could cause or contribute to a dangerous goods occurrence. Hazards are an inevitable part of dangerous goods activities. However, their manifestation and possible consequence can be addressed through various mitigation strategies. Hazard identification can be considered as a first step in the safety risk management process. The corresponding safety risks are then assessed within the context of the potentially damaging consequences related to the hazard. Where the safety risks are assessed to be unacceptable, additional safety risk controls must be built into the system.

2.5.2.2 Hazards may be detected through use of reporting systems, inspections or audits. Hazards should be identified before they lead to an occurrence involving dangerous goods. An important mechanism for proactive hazard identification is a voluntary safety reporting system.

2.5.2.3 Hazards can be identified by reviewing or studying investigation reports, especially those hazards which are deemed to be [indirect] contributing factors and which may not have been adequately addressed by corrective actions implemented as a result of previous investigations.

2.5.2.4 Hazards may be categorized according to their source or location. Objective prioritization of hazards may require categorizations according to the severity/likelihood of their projected consequences. This will facilitate the prioritization of risk mitigation strategies so as to use limited resources in the most effective manner.

2.5.2.5 Hazard identification is based on a combination of the following three methodologies for identifying hazards:

- a) **Reactive:** This methodology involves analysis of past outcomes or occurrences. Hazards are identified through investigation of dangerous goods occurrences. Dangerous goods occurrences are clear indicators of system deficiencies and therefore can be used to determine the hazards that either contributed to the event or are latent.
- b) **Proactive:** This methodology involves analysis of existing or real-time situations, which is the primary job of the safety assurance function with its audits, evaluations, employee reporting, and associated analysis and assessment processes. This involves actively seeking hazards in the existing processes.
- c) **Predictive:** This methodology involves data gathering in order to identify possible negative future outcomes or events, analyzing system processes and the environment to identify potential future hazards and initiating mitigating actions.

2.5.3 The drawing of conclusions, including the determination of the actual root causes and/or the contributing factors resulting in the occurrence

After receiving a dangerous good occurrence report and the necessary additional information through the investigation process, the investigator should be able to draw conclusions about the root causes of the dangerous goods occurrence.

Before drawing any conclusions about the dangerous good occurrence, the investigator should compile and analyze all the information received in order to search for the root causes. The root causes may be related to more than one aspect, such as:

- a) deliberate violations of requirements by passengers, shippers, operators or any other entities involved with air transport;
- b) unintentional violations of requirements by passengers, shippers, operators or any other entities involved with air transport;
- c) lack of clear requirements; and
- d) ambiguous requirements.

All the facts and conclusions about the dangerous good occurrence should be included in a final report.

2.5.4 The development of corrective actions and the identification of the necessary improvements to the aviation system

2.5.4.1 During the investigation process, the investigator should determine if immediate corrective actions are required. The corrective actions may be related to activities of entities regulated by the appropriate national authority or to activities performed by the appropriate national authority, such as oversight actions or updates to the regulations.

2 Corrective actions are designed to prevent recurrence of a similar dangerous goods occurrence. Corrective actions should address all the identified gaps in the system.

2.5.4.3 The corrective actions taken during or after an investigation process should be monitored either by the States involved or by other entities involved, under their safety management system, in accordance with Annex 19. Surveillance activities may be needed to ensure that the corrective actions are effective. 2.5.4.4 if a similar occurrence happens again, it might mean that:

- a) the root causes were not properly identified; or
- b) the corrective actions were ineffective; or
- c) the corrective actions related to the previous similar occurrence were not implemented properly.

The investigation should be reopened if new and significant evidence becomes available.

2.5.5 The making of safety recommendations

2.5.5.1 Annex 18 requires that at any stage of the dangerous goods investigation, the appropriate national authority conducting the investigation shall recommend any safety recommendations and/or preventive actions that it considers necessary to be taken promptly to enhance aviation safety. These recommended safety recommendations and/or preventive actions will be addressed to the concerned entities and all appropriate authorities, including those in other States.

2.5.5.2 Safety recommendations should describe the safety problems and provide justification for the recommended safety actions. A safety recommendation should identify what actions to take, but leave scope for the authorities responsible for the matters in question to determine how to accomplish the objective of the recommendation.

2.5.5.3 The safety recommendations and/or preventive actions made prior to the completion of the investigation should be presented in the safety recommendations part of the final dangerous goods investigation report.

2.5.5.4 Publishing the preventive actions taken has a significant value for dangerous goods accident and dangerous goods incident prevention for other authorities involved in similar operations.

2.7 RE-OPENING OF INVESTIGATION

2.7 Cooperation between States

The standards in Annex 18, Chapter 12, 12.3 Cooperation between States, establish the expectation that States will work together and cooperate on dangerous goods safety concerns. The goal of this cooperation is to share information so that any unsafe practices and non-compliance with the Technical Instructions can be eliminated. The fundamental aspect of mitigating risk surrounding an accident, incident, or identified safety issue is the gathering of accurate and timely information. Without the necessary factual information, it may not be possible to determine the root cause of failure in an accident, incident, or identified safety issue.

It is incumbent upon the State where the accident, incident, or identified safety issue is discovered, to make a timely request for another State's cooperation or assistance. Depending on the specific dangerous goods safety concerns involved, there may be a need to cooperate with more than one State to gather the necessary information needed to complete the investigation. On ICAO's dangerous goods website there is a list of Civil Aviation Authority (CAA) contacts for many of the States that are signatory to the Chicago Convention. (See <http://www.icao.int/safety/DangerousGoods/>) If the list does not have any contact information for a specific State or if the contact information does not lead to a successful interaction then the Cargo Safety Section (CSS) at ICAO can be contacted for additional support in reaching out to that specific State (email contact: CSS@icao.int).

Once communication is established between States, it is important that the specific information being requested be clearly stated. Additionally, correspondence to explain the specific information surrounding the accident, incident, or identified safety issue along with a description of what specific cooperation is sought after by the State would be beneficial to increase the efficiency of the request. Any pertinent documents, statements, photographs, videos, reports or any other supporting documents related to the State's request should be shared with that State.

Another way States can cooperate is through the sharing of specific information on an entity in another State that was involved in an accident, incident, or identified safety issue for the possibility of conducting a future inspection. A State may not have any other way to understand the potential concerns that were discovered during the investigation with a specific dangerous goods entity within their State unless they are notified with the specific information from the State conducting the investigation.

— END —