DGP-WG/09-IP/4
29/4/09

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

Auckland, New Zealand, 4 to 8 May 2009

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2011/2012 Edition

2.1: Part 1 — General

2.2: Part 2 — Classification

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

BACKGROUND INFORMATION RELATED TO DGP-WG/09-WP/66

(Presented by the Secretary)

SUMMARY

This paper is a reproduction of the background information provided to the working group during discussions on the classification criteria for Division 1.4S explosives which lead to the amendments in Addendum No. 3/Corrigendum No. 2 to the Technical Instructions.

BACKGROUND PAPER

AN-WP/8373 APPROVAL FOR AN ICAO TI ADDENDUM

Issue: The ANC approved an addendum under AN-WP/8373 to amend the ICAO Technical Instructions to include a special provision assigned to eight explosive UN numbers that will require completion of a new classification test (Test Series 6(d)) for these articles to be classified as a 1.4S explosive. The proposed amended SP applies to UN numbers 0323, 0460, 0445, 0441, 0500, 0456, 0366, and 0455 and reads as follows:

"A165 (347) This designation may only be used if the results of Test Series 6(d) of Part I of the UN Manual of Tests and Criteria have demonstrated that any hazardous effects arising from functioning are confined with the package."

Background: The UN Sub-Committee of Experts (UN SCOE) on the Transport of Dangerous Goods agreed at its December 2008 session to enhance the classification testing scheme for eight explosive UN numbers by adding an additional (fourth) test to the current design test requirements. This fourth test is the same as the first in the protocol except it is performed unconfined (without surrounding sand bags) which is intended to improve the ability of the test evaluator to distinguish the test results. This amendment was based on a proposal from Canada addressing safety concerns for shape charges that do not meet the current testing criteria. Considering that these articles are authorized for transport on passenger carrying aircraft, the DGP-WG/08 decided to clarify the design testing requirements based on the work of the UN and requested an addendum for consideration by the ANC. As reflected in AN-WP/8373, the panel agreed to incorporate the additional Test Series 6(d) by means of an addendum to the Technical Instructions instead of waiting for its incorporation following the standard harmonization procedure in the 2011-2012 edition. Incorporating this new test earlier should, a) prevent the transport on passenger aircraft of explosives which, having the ability to exit their packaging could cause adjacent collateral damage; and b) allow manufacturers to design packaging which would permit the explosives to continue to be classified as division 1.4S.

Problem: While the panel agreed to bring into the ICAO TIs the additional Test Series 6(d) test, the text as produced by the UN SCOE did not address a transition period since the normal course of harmonization would bring it into international and national regulations in 2011. Since DGP-WG/08, it has been identified by some competent authorities that immediate implementation of the new test would not be possible and that a phased implementation would be necessary. In order for the panel to consider the merits of a phased implementation, the following information is provided:

1 The classification of an explosive substance or article is much more tightly controlled than the classification of other dangerous goods. For most dangerous goods (e.g. flammable or corrosive liquids, oxidizers etc.) industry is afforded the ability to classify materials without the oversight of the competent authority by simply following the classification procedures specified in the TI. Due to their higher risk, explosives may only be classified under many national regulations after a review of test data by the competent authority. Some competent authorities are required to follow a stringent procedure for approval that does not allow a blanket reclassification without processing the approval application through a standard process. This ensures an appropriate classification is made and ensures a high degree of safety. Competent authorities will need time to develop procedures and issue new classifications, as necessary.

2 The Test Series 6d is the same as the current 6a test except it is performed unconfined. The 6a (confined) was originally prescribed, in part, to protect the safety of those performing the classification tests. Therefore, it will take time for the test labs to develop proper safety measures and capability to perform the unconfined test.

3 Some articles covered by these eight UN numbers are aircraft parts (COMAT), mainly as UN 0323, cartridge, power device. These are articles that form part of the aircraft fire suppression system fitted to the engines, APU and cargo compartments. There are other articles that also form part of the system that supports the safe deployment of over-wing escape slides. The amount of explosive inside these articles ranges from approximately 0.2 g – 7 g. There is a need for airlines to be able to receive replacement parts in a timely manner and also for the airline to be able to move these parts on their own aircraft to support their maintenance activities. A delayed implementation is critical for the airlines for these reasons.

4 While incorporating this new additional test will incrementally enhance safety by improving the reliability of the classification, millions of these articles have been transported without a single incident by detonation or initiation by any mode anywhere in the world. The possibility for accidental initiation is extremely remote. There has been no recorded functioning of these devices during transport. In fact, there have been serious incidents where 1.4S devices were present in the cargo being shipped and the articles did not function:

- In 2007, an 18-wheel vehicle overturned on a highway while traveling at 60 mph and carrying 517 boxes containing over 25,000 shaped charges, all classified as 1.4S, UN0441. The roof of the cargo compartment collapsed, boxes were strewn over roadway and surrounding land, many broke open, there were no detonations, no initiations, no fires and no injuries or damage to property caused by the explosives. The charges reacted in the manner in which they were designed, packaged and classified, as 1.4S explosives.
- In late 1991, a fire on a dock in Beijing, China engulfed a shipment of shaped charges, UN0441, 1.4S, that were staged for pick up on the dock. The charges were housed in a specialized packaging, which was the basis for their 1.4S classification. No detonations or initiations occurred; all packages performed in accordance with the 1.4S classification.
- In 1996, a driver of a ¾-ton van truck was delivering explosives to Dallas/Ft Worth Airport for export by air shipment. The cargo consisted of over 9000 oil well perforators in 180 boxes (456 lbs) that were classified as UN0441; Charges, shaped, commercial; 1.4S. While in route to the airport, a vehicle accident occurred on the highway ahead of the driver. In the course of taking evasive action, the driver of the van truck suffered a heart attack and rear-ended a semi-truck ahead of him. The van truck caught fire and burned. There was no explosion of the cargo. Firefighters took normal action in responding to this incident as they did not know that the cargo consisted of explosives because the truck was not required to be placarded and the cab was fully engulfed in the fire so the shipping papers could not be retrieved. Aside from the two trucks involved there was no property damage, no damage to the highway, and no explosion of the cargo.

5 The panel member nominated by the US estimates that 75% of the affected articles are manufactured in the US and classified by the US competent authority for the world-wide market. Based on a long history of experience, the US believes a phased implementation is necessary in order to address the review and reclassification of articles if necessary. If a phased implementation is not agreed to, this market will be sourced to vendors outside the US. Recognizing that results from the Safety Oversight Audit indicated a significant lack of dangerous goods expertise in many States, this could result in a significant global safety concern if these articles would now we sourced from States with less safety oversight.

6 We are aware of only one State (Canada) that has experience implementing this new test procedure and they have been phasing it in over the last 8 years.

7 The continued acceptance of these articles in 1.4S for transport on cargo aircraft in the interim period is not a safety concern because, if they were required to be reclassified, they would generally be classified as 1.4B or 1.4D and permitted on cargo aircraft.

8 On-airport emergency response will not be impacted by a delayed implementation as the response in the event of an incident is essentially the same for 1.4B, 1.4D and 1.4S. The 2008 Emergency Response Guidebook (ERG) is a guide to aid first responders in quickly identifying the specific or generic hazards of the material involved in the incident, and protecting themselves and the general public during the initial response phase of the incident. The ERG is used in many regions of the world. The ERG directs emergency responders to the same guide page with safety recommendations for 1.4B, 1.4D, and 1.4S articles.

9 Depending on the packaged quantity, the UN numbers in question could today be acceptable for passenger aircraft or be limited to cargo aircraft only. Therefore, the situation currently exists where a package containing these UN numbers may at times be acceptable for transport on passenger aircraft and other times when these packages require a CAO label. Additionally, it is understood that some shippers voluntarily apply the CAO label to a 1.4S shipment in a packaged quantity that is acceptable for transport on passenger aircraft and this has not caused any significant problems with airline acceptance staff.

10 Limiting the applicability to the transport on passenger aircraft is consistent with the report of DGP-WG/08 and the ANC paper (AN-WP/8373). The goal of the panel was to reduce the risk related to transport on passenger aircraft in the short term. A phased implementation that allows currently classified articles to move on cargo aircraft will reduce the impact on global transport until 2011 when harmonization with the UN classification criteria is incorporated.

Recognizing that this phased implementation is not ideal, it would only be applicable for an interim period. The panel will also reconsider this issue at WG-09 to determine if additional measures are necessary.

Recommendation: The question is not if the panel will include this additional testing provision, but when and how to ensure an orderly transition without a significant negative impact. It is proposed to amend the addendum to provide a phased implementation of the new Test Series 6d provision as follows:

"A165 This entry must not be used for transport on passenger aircraft when testing in accordance with the UN Manual of Tests and Criteria Test Series 6(a), upon which classification was based, has shown evidence of a hazardous effect outside the package. This includes denting or perforation of the witness plate beneath the package. From 1 January, 2010, for transport aboard passenger aircraft, this entry may only be used if the results of Test Series 6 (d) of Part I of the UN Manual of Tests and Criteria have demonstrated that any hazardous effects arising from functioning are confined within the package (see 2;1.4.2.1).

Note.— If the 6(d) test is successfully completed before 1 January 2010, this entry may be used for transport on passenger aircraft."

Through this phased approach the demand on resources will be spread out while focusing on the highest concern of improperly classified 1.4S articles on passenger aircraft. As stated previously, it is important to note that these questionable classifications, if required to be reclassified, would generally be reclassified into 1.4B or 1.4D and permitted on cargo aircraft.

1) the amended SP specifies that this 1.4S entry cannot be used for the transport on passenger aircraft unless the shipper has ensured that the classification is based on compliance with the Series 6(a) tests, to include if it has shown evidence of a hazardous effect outside of the package such as denting or perforating the witness plate. This is intended to address a limited number of classifications that are questionable, but limits the scope of application to passenger aircraft. It remains the responsibility of

the shipper, and the competent authority as applicable by the issuance of a classification approval, to ensure the article is properly classified in accordance with the TI.

2) from 1 January 2010, for transport on passenger aircraft the classification must be based on the additional 6d test. Transport on Cargo Aircraft Only is still permitted for the existing 1.4S classification without the additional test until 1 January 2011. Some shippers of these types of articles currently ship as cargo aircraft only (apply the CAO label) voluntarily for liability or insurance purposes without a significant problem for acceptance personnel.

3) after 1 January 2011, the eight identified explosive article UN numbers will be required to have passed the additional Test Series 6d test to qualify as a 1.4S classification. Otherwise, the explosive article will have to be reclassified (e.g. 1.4B or 1.4D). This would be brought into the ICAO TI under the normal course of harmonization with the UN Model Regulations.

— END —