Standards Document

Civil Aviation Authority
of Fiji

STANDARDS DOCUMENT - CARRIAGE OF DANGEROUS GOODS

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Civil Aviation Authority of Fiji
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Standards Document –
CARRIAGE OF DANGEROUS GOODS

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PREFACE

General

Fiji's National Aviation Law consists of a three tier regulatory system, comprising Acts, Regulations and Standards Documents; the purpose of which is to ensure, where deemed appropriate, compliance and conformance with ICAO Standards and Recommended Practices (SARPS).

The three tier regulatory system represents Fiji's Primary Legislation System and Specific Operating Regulations to meet Critical Elements CE1 and CE2 of ICAO's Eight Critical Element of a safety oversight system.

Standards Documents (SD) are issued by the Civil Aviation Authority of Fiji under the provision of Section 14 (3) (b) of the Civil Aviation Authority Act 1979 (CAP 174A)

Where appropriate, the SD also contains technical guidance (Critical Element CE5) on standards, practices, and procedures that are acceptable to the Authority.

Notwithstanding the above, and where specifically indicated in this Standards Document that such a provision is available, consideration may be given to other methods of compliance that may be presented to the Authority provided they have compensating factors that can demonstrate a level of safety equivalent to or better than those prescribed herein. Accordingly, the Authority will consider each case based on its own merits holistically in the context of and relevancy of the alternative methods to the individual applicant.

When new standards, practices, or procedures are determined to be acceptable, they will be added to this document.

Purpose

This Standards Document, Carriage of Dangerous Goods, is hereby issued by the Civil Aviation Authority of Fiji pursuant to the International Civil Aviation Organisation Annex 18, and Regulation 29 of the Air Navigation Regulations 1981 (as amended). This Document is intended for use by the Authority, applicants, and holders of an Air Operator Certificate, and their staff.

Change Notice

This Standards Document has been developed pursuant to the Authority's obligation to provide oversight on certified operators and individuals as well as operators and their personnel, as well as the operator's obligation to comply with standards notified by the Authority and is the means by which such notification is given.

THERESA LEVESTAM
ACTING CHIEF EXECUTIVE

RECORD OF AMENDMENTS

The following space is provided to keep a record of all amendments.

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PART 1 - INTRODUCTION

1.1 GENERAL

This Standards Document has been produced by the Civil Aviation Authority of Fiji to give guidance to operators in a number of areas related to the transport of dangerous goods, weapons and munitions of war, sporting weapons, animals by air. It also covers the approval of instructors. Comprehensive guidance is also given on dealing with emergencies arising during the transport of dangerous goods - whether such goods are in passenger baggage in the cabin or in cargo, or baggage in the cargo/baggage compartments of the aircraft.

This document is by no means a substitute for the Air Navigation Regulations 1981 (Cap 174). Training which is required by the International Civil Aviation Organisation (ICAO) Technical Instructions is necessary to fully understand the application of dangerous goods regulations.

The technical instructions are complicated, requiring considerable planning to ensure that shipments are prepared correctly.

When dangerous goods are correctly packaged, the articles and substances may be transported with relatively little risk.

Dangerous goods can be carried on all types of aircraft both fixed wing and helicopters. There is no size limit to the aircraft; the requirements apply equally to small and large aircraft.

Dangerous goods may be carried as scheduled cargo or ad-hoc cargo.

Since the requirements are to ensure aircraft safety, the pilot-in-command has no authority to override them.

The established marking, labeling and documentation procedures advise those who handle the shipments about the content of the package.

The Air Navigation Regulations (ANR) and the ICAO Technical Instructions are the only source of legal material.

The “field document”, is the International Air Transport Association (IATA) Dangerous Goods Regulations, which are not “Regulations” but an industry produced version of the Technical Instructions; as such they have no legal force.

The IATA Dangerous Goods Regulations, among other things, require compliance with the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air; they do not make reference to the IATA Dangerous Goods Regulations.

The two documents are compatible in most respects but if there are any differences the requirements of the ICAO Technical Instructions prevail.

Section 14 of the Civil Aviation Reform Act 1999 empowers the authority to use the ICAO Technical Instructions as a legal document but the onus for compliance with the IATA Dangerous Goods Regulations rests with those involved.

The Authority does recognise that the use of the IATA Dangerous Goods Regulations will ensure compliance with the ICAO Technical Instructions. For this reason, references to both documents have been included throughout this Standards Document.

Each person involved needs to have the training and information to do his or her work correctly. Not meeting the requirements could result in very unfortunate consequences, as the airline industry has learnt from past experiences. Leaking packages of any kind are an obvious problem, but if the contents are a mystery, there can be more complex problems – including injury or death.

This Standards Document provides guidance on locating the correct national and international regulations for use in preparing and offering air shipments of dangerous goods. A shipper or operator must become familiar with the following –

- Classification
- Packing Groups
- Proper Shipping Names
- UN Numbers
- Net Quantity Limitations
- Packaging Options
- Marking
- Labeling
- Documentation
- State and Operator Variations

These factors will have significant influences on the movement of commodities that are dangerous goods and must be understood from the beginning of the transportation process.

In order for these technical details to make sense, it is vital to understand the functions of those involved in transporting dangerous goods.

1.2 GENERAL RESPONSIBILITIES

Shipper's responsibilities

A shipper must fully comply with the regulations when offering a consignment of dangerous goods applicable to the state of origin, transit and destination.

Before any package or overpack of dangerous goods is offered for air transport, the shipper must comply with the following specific responsibilities:–

- A shipper must provide such information to his employees as will enable them to carry out their responsibilities with regard to the transport of dangerous goods;
- The shipper must ensure that the articles are not prohibited for transport by air;
- The articles or substances must be properly identified, classified, packed, marked, labelled and documented according to the regulations;
- Before a consignment of dangerous goods is offered for air transport, all relevant persons involved in the preparation must have received specific training according to their responsibilities.

Operators Responsibilities

An operator must not accept for transport aboard the aircraft a package or overpack containing dangerous goods or a freight container containing radioactive material or a unit load device containing the dangerous goods unless it is accompanied by two copies of the dangerous goods transport document or, where permitted, by alternative documentation.

One copy of the document must accompany the consignment to the final destination and one copy must be retained on the ground where it will be possible to obtain access to it within a reasonable period at this point until the goods have arrived at final destination, after which time it may be stored elsewhere.

The operator must also not accept the package, overpack, freight container or Unit Load Device (ULD) mentioned above unless it has been inspected, found to be properly marked and labelled, and determined that there is no leakage or other indication that its integrity has been compromised.

With regard to overpacks and the packages they contain, the operator must take all reasonable steps to establish that:-

- The package or overpack does not contain packages of dangerous goods which requires segregation
- The overpack does not contain packages bearing the ' Cargo aircraft only' label;
- When these Instructions require the use of packaging bearing UN specification marking or Type A or B packaging for radioactive material, the statement 'Inner packages comply with prescribed specifications' appears on an overpack used to enclose these packages unless such markings are visible;
- Proper shipping names, UN numbers, labels, 'limited quantities' (when applicable) and special handling instructions appearing on the interior package(s) are clearly visible or reproduced on the outside of the overpack.

1.3 DEFINITIONS/TERMINOLOGY

The definitions provided in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284-AN/905), latest effective additions is applicable to this Standards Document as far as its applicability is concerned. Hereinafter referred to as "*Technical Instructions"*

If there is inconsistency between the terms in the technical instructions and this standards document the definitions in the technical instructions prevails.

Aerosols means any non-refillable receptacle made from metal, glass, or plastic and a gas containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste, or powder, and fitted with a self closing release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste, or powder, or in a liquid or gaseous state.

Ammunition means ammunition for any arm as hereinafter defined and includes bullets, cartridges, shells or anything designed or adapted for or capable of use with any arm, or designed or adapted to contain any noxious liquid, gas or other thing but does not include spears discharged from an arm solely for the purpose of killing fish.

Approval means an authorization granted by an appropriate national authority for:
a) the transport of dangerous goods forbidden on passenger and/or cargo aircraft where the Technical Instructions state that such goods may be carried with an approval; or
b) other purposes as provided for in the Technical Instructions.

Note. – In the absence of a specific reference in the Technical Instructions allowing the granting of an approval, an exemption may be sought.

Arm means any lethal barrelled weapon of any description from which any shot, bullet or other missile can be discharged, or which can be adapted for the discharge of any such shot, bullet or other missile, and any weapon of whatsoever description designed or adapted for the discharge of any noxious liquid, gas or other thing dangerous to persons, and includes any component part of any such weapon, and any weapon designed or adapted to diminish the noise or flash caused by firing the weapon, but does not include articles designed or adapted solely to discharge spears for spearing fish.

Cargo aircraft means an aircraft, other than an aircraft that carries passengers, which is carrying goods or property.

Class 1 dangerous goods means:-

- explosive substances, except those where the predominant hazard is one appropriate to another class;

- explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport will not cause any manifestation external to the device by projection, fire, smoke, heat, or load noise;
- substances and articles which are manufactured with a view to producing a practical explosive or pyrotechnic effect.

Class 2 dangerous goods means:–

- compressed gases;
- liquefied gases;
- gases in solution;
- refrigerated liquefied gases;
- mixtures of gases;
- mixtures of one or more gases with one or more vapours of substances of other classes;
- articles charged with a gas;
- tellurium hexafluoride; or
- aerosols.

Class 3 dangerous goods means flammable liquids, but does not include liquids or mixtures of liquids or liquids containing solids in solution or suspension with a flashpoint of more than 35^0 C if: -

- they do not sustain combustion when subjected to the method of testing for combustibility given in the Technical Instructions;
- their fire point according to ISO 2592 is greater than 100^0C; or
- they are miscible solutions with a water content of more than 90 % by mass.

Class 4 dangerous goods means:-

- solids which, under conditions encountered in transport, are readily combustible or may cause or contribute to fire through friction;
- self-reactive and related substances which are liable to undergo a strongly exothermic reaction;
- desensitised explosives which may explode if not diluted sufficiently;
- substances which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire; or
- substances which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

Class 5 dangerous goods means:-

- substances which, although in themselves are not necessarily combustible, may generally, by yielding oxygen, cause or contribute to the combustion of other material; or
- organic substances which contain the bivalent -0-0- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals.

Class 6 dangerous goods means:**-**

- substances liable to cause death or injury or harm human health if swallowed, inhaled, or touched; or
- substances containing viable micro-organisms including a bacterium, virus, rickettsia, parasite, fungus, or a recombinant, hybrid or mutant, that are known or reasonably believed to cause disease in humans or animals.

Class 7 dangerous goods means-

- any material with a specific activity greater than 70 kBq/kg.

Class 8 dangerous goods means substances that, in the event of a leakage, can: -

- cause severe damage by chemical action when in contact with living tissue; or
- materially damage other freight or the means of transport.

Class 9 dangerous goods means: –

- articles or substances which, during carriage by air, present a danger not covered by the other classes.

Class B cargo compartment is one which:-

(a) there is sufficient access in flight to enable a crew member to effectively reach any part of the compartment with the contents of a hand held fire extinguisher;

(b) when the access provisions are being used, no hazardous quantity of smoke, flames or extinguishing agent will enter any compartment occupied by the crew or passenger; and

(c) there is a separate approved smoke detector or fire detector system to give warning to the pilot or flight engineer station.

Compressed gas means a gas other than in solution which when packaged under pressure for transport is entirely gaseous at 20^0C.

Consignment means one or more packages of dangerous goods accepted by an operator from one consignor at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Dangerous goods accident means an occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.
Dangerous goods incident is 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 injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods that seriously jeopardises the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

Exemption means an authorisation, other than an approval, granted by an appropriate national authority providing relief from the provisions of the Technical Instructions.

Flammable liquids means: **-**

- liquids or mixtures of liquids or liquids containing solids in solution or suspension, which give off a flammable vapour at temperatures of not more than 60.5^0 closed-cup test or not more than 65.6^0C open-cup test, normally referred to as the flash point; or
- liquids offered for transport at temperatures at or above their flashpoint.

Gas means a substance which: –

- at 50^0C has a vapour pressure greater than 300 kPa; or
- is completely gaseous at 20^0 C at a standard pressure of 101.3 kPa.

Gas in solution means compressed gas which when packaged for transport is dissolved in a solvent.

Handling agent means an agency that performs on behalf of the operator some or all the operator's functions including receiving, loading, unloading, transferring, or other processing of passengers or cargo.

Liquefied gas means a gas which when packaged for transport is partially liquid at 20^0C.

Munitions of war: any weapons, ammunition or article containing an explosive or any noxious liquid, gas or other thing which is designed or made for use in warfare or against persons, including parts, whether components or accessories, for such weapons, ammunition or articles
Operator means a person engaged in or offering to engage in an aircraft operation.

Overpack means an enclosure used to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Package means the complete product for the packing operations consisting of the packaging and its contents prepared for transport.

Packaging means the receptacle and any other components necessary for the receptacle to perform its containment function and to ensure compliance with the packing requirements of Annex 18 to the Convention.

Packing means the art and operation by which articles or substances are enveloped in wrappings, enclosed in packaging or otherwise secured.

Proper shipping name means the name:-
- used to describe a particular article or substance in all shipping documents and notifications and, where appropriate, on packaging; and
- indicated in column 1 of Table 3-1 of the Technical Instructions.

Pyrophoric Liquid means a liquid that may ignite spontaneously when exposed to air, the temperature of which is 55^0C or below.

Receptacle means a containment vessel for receiving and holding substances or articles, including any means of closing.

Refrigerated liquefied gas means a gas which when packaged for transport is partially liquid because of its low temperature.

Regular shipper means any person who:-
- manufactures or supplies dangerous goods and offers those dangerous goods for carriage by air; or
- provides a service to the public to arrange the offer of dangerous goods for carriage by air.

Shipper means ssomeone who prepares goods for shipment, by packaging, labeling, and arranging for transit, or who coordinates the transport of goods.

State of Origin means the State in the territory of which the consignment was first loaded on an aircraft.

Technical Instructions – means the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO council.

UN number means the 4 digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances:

Unit load device means any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo, except for:-
- an overpack; or
- a freight container for radioactive materials.

1.4 APPLICABILITY OF THIS STANDARDS DOCUMENT

Unless the text makes it apparent otherwise, the guidance in this Standards Document is applicable to both large and small aeroplanes and to helicopters. It applies even if the helicopters carry dangerous goods under-slung.

The guidance is applicable generally to all civil aircraft flying to, from, within or over Fiji irrespective of whether they are undertaking scheduled or charter operations and whether or

not they are registered in Fiji except where certain requirements concerning the granting of approvals are inappropriate.

1.5 HANDLING AGENTS

At some airports it is normal for an operator to use the services of a handling agent (e.g. ATS etc) to perform some or all of the operator's functions.

Whilst the text in the legislation and the various documents referred to in this Standards Document may not make specific reference to a handling agent, there is nothing to prevent such an agent from undertaking the operator's responsibilities in most respects. However, the operator has a responsibility to ensure that he not only undertakes all that is required of him as the operator but also acts in accordance with his own responsibilities as an organisation which causes cargo and/or passengers to be carried on an aircraft.

The agreement between an operator and his handling agent should ensure that each knows the limits of the other's responsibilities, particularly in respect to the production of information, keeping of records and reporting of incidents.

This Standards Document contains guidance material in relation to operator's responsibilities and in general, is addressed to operators. The guidance material, however, applies equally to handling agents when they are undertaking the various functions on behalf of operators.

1.6 OPERATIONS MANUAL

The Operations Manual must contain information and general guidance about dangerous goods and weapons, even if an operator does not hold a permission to carry dangerous goods. The areas that should be included and the depth to which any aspect is covered will, however, depend on whether or not permission is held. To avoid unnecessary information in the Operations Manual, detailed guidance could be included in another document, providing it is readily accessible.

The areas that, in general, should be covered are:-

Dangerous goods

- policy - eg: whether or not an approval is held, items for which approval is not required including details about passenger allowances;
- identification - eg: labels;
- acceptance, handling and stowage - including the location and numbering system of cargo compartments, with the maximum number of transport indexes (for radioactive materials) permitted in each compartment;
- procedures for responding to emergency situations;
- duties of all involved;
- carriage of operator's staff with dangerous goods;
- notification requirements in the event of an accident or incident when dangerous goods are being carried;
- training.

Weapons, etc

- conditions under which munitions of war and sporting weapons may be carried.

Where an operator uses a handling agent, he should provide that agent with a copy of the relevant parts of the Operations Manual or other document, to ensure the agent is aware of all the requirements, restrictions, etc, which are applicable to that operator.

The Authority has published Standards Document "Air Operators Certificate Requirements" which includes general information on dangerous goods and weapons. However, depending on the extent to which the operator is involved in the air transport of dangerous goods, further information may need to be added in other manuals to ensure the subject is covered fully.

For information, which should be included in the Operations Manual concerning animals, see paragraph 5.4.

1.7 EXCLUSIONS FROM THIS STANDARDS DOCUMENT

This Standards Document prescribes instructions governing the carriage of dangerous goods by air.

This Standards Document shall not apply to:-

1. Articles or substances that are:-

   (i) Carried on an aircraft to provide medical aid to a patient during flight without personal oxygen;

   (ii) Carried on an aircraft to provide veterinary aid or a humane killer for an animal during flight;

   (iii) Equipment required to be aboard an aircraft in accordance with the airworthiness or operational requirements of the Air Navigation Regulations;

   (iv) Approved by the Authority Chief Executive to meet special operational requirements; or

   (v) Part of the emergency or lifesaving equipment aboard an aircraft provided by the operator.

2. Aerosols, alcoholic beverages, perfume and colognes carried by the operator for use or sale aboard an aircraft that carries passengers, during the flight or a series of flights.

3. Dry ice intended for use in food and beverage service aboard the aircraft.

1.8 DANGEROUS GOODS OFFICE

The Dangerous Goods Office is the Civil Aviation Authority Air Safety Department.

Civil Aviation Authority of Fiji
Private Mail Bag NAP 0354
NADI AIRPORT

Tel. No: 6721555
Fax No: 6725125

PART 2 - DANGEROUS GOODS

2.1 GENERAL

2.1.1 Legal requirements for the transport of dangerous goods by air

In Fiji, the requirements for the transport of dangerous goods by air are contained in the Air Navigation Regulations 1981 [(Capt 174) as amended]. They apply to aircraft registered in Fiji, no matter where they are operating, and to aircraft registered in a country other than Fiji when they are flying to, from, within or over Fiji.

It is required that dangerous goods be carried only with the approval of the Civil Aviation Authority of Fiji and in accordance with the Technical Instructions. For an operator who's aircraft is registered with a country other than Fiji, an approval granted by that country may be acceptable.

An approval is not required when the dangerous goods are:-

- in aircraft equipment;
- carried as catering or cabin service supplies;
- for use in flight as medical aid for a patient;
- for use in flight as veterinary aid or a humane killer for an animal;
- in the possession of passengers and crew members as listed in Part 8 of the Techincal Instructions.

Although no approval is required, there are conditions which apply to the carriage of these items; also there are requirements for training and the reporting of dangerous goods accidents and incidents, which are applicable to all operators. See paragraphs 2.5 and 2.6.

Additional information covering these dangerous goods is given in paragraphs 2.1.5 through 2.1.9.

An approval is required for the carriage of dangerous goods, which are replacements for items of aircraft equipment, catering or cabin service supplies.

2.1.2 Technical instructions and supplement to the technical instructions

The Technical Instructions contain all the detailed requirements for carrying dangerous goods by air and they apply to all aircraft, both pressurised and unpressurised.

Throughout the Technical Instructions, the term 'aircraft' is used; unless the context makes it apparent otherwise, it is intended that the requirements apply to both aeroplanes and helicopters.

There is a Supplement to the Technical Instructions, which contains information of interest primarily to States. However, it does also contain quantity limitations, packing instructions and other information relating to dangerous goods, which are forbidden on aircraft in normal circumstances, but for which there is a prescribed system of granting approvals to allow transport under special conditions.

2.1.3 International Air Transport Association's (IATA) Dangerous Goods Regulations

The Dangerous Goods Regulations, which are produced by IATA, are used by most operators in lieu of the Technical Instructions; the two documents are compatible in most respects. The Dangerous Goods Regulations are a field document; they contain an acknowledgement that the Technical Instructions are the only source of the legal rules for the transport of dangerous goods by air and that any differences from those Instructions do not have force of law. Use of the IATA Dangerous Goods Regulations in lieu of the Technical Instructions places a responsibility on an operator to ensure that compliance with Air Navigation Regulations is still achieved.

2.1.4 Dangerous Goods Transport Document

Throughout this Standards Document, references are made to the Dangerous Goods Transport Document. This term is used in the ICAO Technical Instructions and it describes the document that is usually referred to as the Shipper's Declaration; it may also be referred to as the Dangerous Goods Declaration Form.

2.1.5 Aircraft equipment

For airworthiness or operating reasons or for the health and comfort of passengers and crew, an aircraft carries items, which are, or contain, dangerous goods by definition. In general these are:-

- fuel;
- oxygen (gaseous/chemical);
- life-saving appliances;
- fire extinguishers;
- first aid kits;
- batteries;
- insecticides;
- air fresheners.

Such items when carried for use are excluded from the requirements applicable to the transport of dangerous goods by air. However, it should be noted that some of the dangerous goods in aircraft equipment may be regarded as having a high hazard when transported as cargo and be subject to strict controls in such circumstances, including being forbidden for transport on passenger aircraft. It is essential that items intended as replacements for aircraft equipment be consigned in accordance with the Technical Instructions; these provide that the normal transport requirements be met, except that in some circumstances containers which have been specifically designed for aircraft spares may be used in lieu of those specified in the appropriate packing instructions.

2.1.6 Catering or cabin service supplies

Alcoholic beverages, perfumes, colognes, safety matches, liquefied gas lighters (excluding those which are disposable and those liable to leak when exposed to reduced pressure), aerosols and dry ice are often carried for use in flight or for purchase by passengers. As items of dangerous goods with primarily a flammable hazard (except for dry ice) there is the potential for them to cause a problem during flight unless they are stowed safely when not in use.

When they are in use, care should be taken to ensure they are not damaged or used if there is the possibility of them being ignited. Aerosols may present a particular hazard in this respect since they now usually have a flammable gas (butane/propane) as the propellant. Their stowage should ensure they are kept away from all sources of heat and when in use there is the need to avoid the contents being sprayed where there is the possibility of an ignition source being present. There are alternatives available for use instead of aerosols, many of them are pump-action and they are not regarded as items of dangerous goods if the contents are not flammable, toxic or corrosive.

Whilst items for catering or cabin service supplies when in use are excluded from the requirements applicable to the transport of dangerous goods by air their replacements are not. They must be carried in full accordance with the Technical Instructions including the packaging provisions, since unlike replacements for aircraft equipment there is no acceptable alternative to these.

2.1.7 Medical aid for a patient

Gas cylinders, drugs, medicines, other medical material (such as sterilising wipes) and wet cell or lithium batteries are dangerous goods which are normally provided for use in-flight as medical aid for a patient, but what is carried will depend on their needs.

The medical aid should meet the following:-

(a) gas cylinders should have been manufactured specifically for containing and transporting that gas;

(b) drugs, medicines and other medical material should be under the control of trained personnel when they are in use;

(c) equipment containing wet cell batteries should be kept and, when necessary, secured upright to prevent the leakage of electrolyte; and

(d) proper provision should be made to stow and secure all the equipment during take-off and landing and at other times when thought necessary, in order to ensure aircraft safety.

The above medical aid is not intended to be that which is part of the normal equipment of the aircraft. It may also be carried on a flight made by the same aircraft to collect a patient or after that patient has been delivered when it is impractical to load or unload at the time of the flight on which the patient is carried.

2.1.8 Veterinary aid or a humane killer for an animal

The drugs which are, carried as veterinary aid and the cartridges for a humane killer are likely to be items of dangerous goods. They should be under the control of trained personnel when they are in use and kept stowed securely at all other times.

They may also be carried on a flight conducted by the same aircraft to collect an animal or after that animal has been delivered when it is impracticable to load or unload them at the time of the flight on which the animal is carried. See also Part 5.

2.1.9 Passengers and Crew Members

Some dangerous goods are excluded from the normal requirements when they are carried by passengers or crew members, provided certain conditions are met.

The main items are:-

- Alcoholic beverages(note – Alcoholic beverages containing not more than 24% alcohol by volume are not subject to restrictions);
- Medical or toiletry articles (including aerosols, hair sprays, perfumes and medicines containing alcohol), when the net quantity of each single article does not exceed 0.5 litre or 0.5kg and the total net quantity of all articles does not exceed 2 litres or 2 kgs;
- Safety matches or a lighter when for personal use and when carried on the person;
- A hydrocarbon gas powered hair curler (no more than one per person), when the safety cover is securely fitted over the heating element, gas refills for such curlers must not be carried.

In addition to the above, battery-powered wheelchairs or other mobility aids may be carried as checked baggage, under certain conditions; these are:-

(a) for non-spillable batteries: the battery is securely attached to the equipment, it is disconnected and the terminals insulated to prevent accidental short circuits;

(b) for spillable batteries where the equipment can be kept upright at all times: the battery is securely attached to the equipment, it is disconnected and the terminals insulated to prevent accidental short circuits;

(c) for spillable batteries where the equipment cannot be kept upright at all times: the battery is removed and packed in strong, rigid, leak-tight packaging, impervious to battery fluid; it is secured upright in the packaging, protected from accidental short circuits and surrounded by absorbent material in sufficient quantity to absorb the total liquid contents; the package is marked "Battery wet with wheelchair" or "Battery wet with mobility aid" and has on it a package orientation label and a "Corrosives" label; the package is stowed securely in the cargo compartment of the aircraft;

(d) the Pilot-in-Command is informed of the location of a wheelchair or mobility aid with an installed battery or of a packed battery.

There are many other items, some of a specialised nature, which passengers and crew members may be permitted to carry. The full list can be found in Part 8 of the ICAO Technical Instructions.

2.1.10 Information for passengers

One of the biggest problems faced by operators is passengers who take, or try to take, on an aircraft items of dangerous goods to which they are not entitled. In these circumstances, there is the potential for an incident to occur in flight with disastrous results; and there have been such events in the past. To address the problem, there are requirements for information to be provided with the ticket and for notices.

Notices must be in sufficient number and prominently displayed so that passengers can see them easily during their normal progression through the departure procedures. They need to appear:-

- at any place where passengers check in;
- at airports where tickets are issued;
- at airports where boarding areas are maintained.

Information with the ticket includes having it on the ticket, on the ticket wallet or on a separate leaflet.

The notices and ticket information must warn passengers about the types of dangerous goods, which should not be carried on an aircraft; reference may also be made to those, which are permitted. The information should be easily understood and may be conveyed by pictographs or similar or these may supplement text.

2.1.11 'Some things were never meant to fly'

The Authority has produced notices entitled *"Some things were never meant to Fly"*. The notices are in English, Hindi, Fijian and Japanese languages. It gives general guidance on what dangerous goods that cannot be taken on board an aircraft. Currently there is no charge for the notices and copies can be obtained from:-

Air Safety Department
Civil Aviation Authority of Fiji
Private Mail Bag NAP 0354
NADI AIRPORT

There is also a 24-hour telephone service: 9995201.

2.2 TRANSPORT OF DANGEROUS GOODS BY AIR AS CARGO

2.2.1 Approval to Transport Dangerous Goods

An operator must hold approval from the Authority before dangerous goods can be carried by air. This approval will normally be part of the grant of the Air Operators Certificate (AOC) but it may be granted separately. An application for an approval can be forwarded to the Air Safety Department.

In addition to the information contained in the application, the Authority will need to be satisfied that adequate training has been given, that all relevant manuals (eg: ground handling manuals, Operations Manual etc) contain instructions and guidance material and that there are procedures in place to ensure the safe handling of dangerous goods at all stages of their transport by air. Application for single/special permits should be made at least 10 working days, and preferably longer, before the first intended flight. Applications for permanent approval should be made at least 55 working days, preferably longer, before the first intended flight.

A specific approval is required when:-

1. the Technical Instructions indicate that an exemption is required from all the States concerned (which may be those of the origin, transit, overflight and destination of the consignment and that of the operator); or

2. the Technical Instructions indicate that an approval is required from the state of origin of the goods (which is where they are to be first loaded onto an aircraft) - see also below regarding A1, A2, A106 or A109 approvals.

Dangerous goods carried in accordance with an exemption or specific approval must comply with the conditions on that exemption or approval as well as those on the permanent approval, unless these have been varied.

If the Authority grants an exemption or specific approval it is usually on a one-off basis, although a medium term approval may be granted for a series of flights where, for instance, the operator is contracted for the transport of a number of consignments for the same shipper over a period of time.

The Technical Instructions indicate that some dangerous goods that are forbidden in normal circumstances can be carried subject to an approval having been granted by the State of origin; these goods are identified in the Technical Instructions by special provision A1, A2, A106 or A109. When they are to be carried on a passenger aircraft in Fiji under A1, A2 or A106, specific approval is required from the Authority irrespective of whether or not Fiji is the State of origin for the goods. They may be carried into Fiji on a cargo aircraft under an A2, A106 or A109 approval granted by the State of origin, providing the Air Safety Department has been notified in writing at least 10 working days prior to the proposed flight date. Moreover, where the dangerous goods are explosives, advice should be sought from the Authority.

A suitable application form requesting the grant of an exemption or specific approval is shown in Appendix 1, together with guidance on its completion. Application should be made to the Air Safety Department, by fax, at least 10 working days before the intended flight and include all the required information, as indicated on the model form in Appendix 1.

2.2.2 Transport of radioactive materials - Quality Assurance Programme

There is a requirement for operators who carry radioactive materials to have a quality assurance programme relating to the transport and in-transit storage operations of such materials, with the aim of ensuring compliance with all relevant provisions. This requirement stems from the Regulations for the Safe Transport of Radioactive Material produced by the International Atomic Energy Agency; these Regulations and the associated advisory and guidance material indicate what is required.

For operators, the quality assurance programme should cover the following elements:-

- quality assurance programmes
- organisation
- document control
- inspection and test control
- controls of use and care of packages
- non-conformity control
- corrective actions
- records
- staffing and training
- audits

Under Air Navigation Regulation 1981 (Cap 174) an operator is required to have a quality system to monitor compliance with, and the adequacy of, procedures required to ensure safe operational practices and airworthy aircraft. This quality system could be written to also address the elements necessary to provide a suitable quality assurance programme for the transport and storage of radioactive materials, or a separate programme can be devised.

2.2.3 Importation of explosives

Explosives that are imported into Fiji are required to be classified and authorised. The importation into Fiji of explosives for civil use is prohibited unless they are accompanied by a recipient competent authority (transfer) document' or a written authority from the Ministry of Home Affairs. This means there is an onus on an operator to ensure this transfer document, or a certified true copy of it, is one of the documents accompanying any consignment of civil use explosives.

2.2.4 Acceptance for transport

An acceptance check is carried out to establish that a package of dangerous goods appears to be in a fit condition for transport and that the associated documents are complete and accurate.

This initial inspection is a vital aid to ensuring the integrity of packages before they are accepted for transport and loaded on an aircraft. It should be carried out conscientiously and methodically, with attention paid to anything, which appears to be unusual, such as a package being heavy for its size or having an uneven weight distribution; these could indicate it is not packed properly or has inner packaging of a type, which it was not tested to contain. However, minor tears or dents in an outer or single packaging should not result necessarily in rejection of the package; what matters is whether or not these have reduced the ability of the packaging to continue to perform its prime containment function.

An operator carries out an acceptance check on all packages of dangerous goods, and the associated documents, before they are accepted for transport, to ensure that at the end of the check it can be established that the documents (eg: the Dangerous Goods Transport Document and any Air Waybill) are in order, that the package is marked and labelled and that from its external appearance it appears to be in a fit condition for transport. The checklist needs to be completed, whether this is by manual, mechanical or computerised means; if the checklist is computerised it needs to be capable of being printed out so that a copy of it can be obtained if required. The IATA Dangerous Goods Regulations show model checklists, which are suitable for meeting the requirement. Currently the completed checklist (either as a hard copy or computerised) has to be kept for a minimum of 12 months. A suggested checklist for Non-Radioactive shipment is shown in Appendix 9.

There may be occasions when packages of dangerous goods and/or their documents are found during the acceptance check not to be in total compliance with all applicable requirements. In these circumstances, they should not be accepted for air transport but returned to the shipper or his agent with an explanation for the rejection. Whilst there is no legal requirement to do so, annotating the acceptance checklist with the reasons for the rejection can aid any future acceptance check on the corrected package/documents and provide a record of the actions taken in relation to the original consignment which was offered for transport. Depending on the reasons for not accepting a consignment, there may be a need to retain the package(s) and document(s) since there is the possibility that the level of non-compliance is such that it is a potential dangerous goods incident, when the Air Safety Department needs to be informed. See paragraph 2.5.

Where an operator uses the services of a handling agent to accept dangerous goods for transport, he should ensure that acceptance checks of the required standard are carried out and that there is an agreement between them as to who will keep the completed acceptance checklist, where it will be stored and what action each will take in relation to consignments which are to be rejected.

2.2.5 Inspections for leakage or damage

It is important to ensure that leaking or damaged packages of dangerous goods are not loaded on an aircraft since this could lead to an incident in-flight.

Any leaking or damaged packages, which are found on board, need to be removed without delay. An initial inspection of packages is carried out during the acceptance check; further checks must be made before the packages are loaded into an aircraft or a unit load device (ULD) and when they have been unloaded. This final check should be carried out as soon as possible after unloading, since it is to ensure that if leakage has occurred during a flight, the aircraft can be inspected for damage or contamination before undertaking another flight.

2.2.6 Loading and stowage

There are loading and stowage requirements in the ICAO Technical Instructions which are intended to ensure that dangerous goods are separated from passengers and crew members (except for those which have to be accessible on cargo aircraft), that incompatible goods are kept apart, that there is securement to prevent movement in flight and that there are restrictions on the stowage of ‘cargo aircraft only’ dangerous goods on such aircraft. These requirements ensure that there cannot be interaction between incompatible goods in the event of leakage, that any leakage cannot affect the passengers or crew, that packages cannot suffer damage through movement such as falling over and that on cargo aircraft most of the dangerous goods are accessible so that if a problem arises the crew can consider actions such as moving packages or containing/absorbing any leakage.

Some packages of radioactive materials emit a low level of radiation during transport; the permitted limit is set down in the ICAO Technical Instructions. To protect passengers and crew from this radiation, separation distances are laid down which detail how far a package of such radioactive material needs to be stowed from the nearest occupied area. Not all packages of radioactive materials require separation since not all of them emit radiation during transport.

Those, which do emit measurable radiation, have labels, which are half yellow and half white; whilst those, which do not emit such radiation, are all white in colour. Both types of labels have on them the trefoil symbol.

2.2.7 Damaged packages and contamination

Not dealing with damaged packages at the time they are found may cause problems later, which may then be more difficult to deal with. Packages may be damaged in flight because of bad loading or the movement of cargo; they may be damaged on the ground due to bad stacking or handling or from being left in a place where a heavy item can fall on them or they can be run over by a forklift truck. See also paragraph 2.4.1.

Packages, which are damaged on the ground, must never be loaded on an aircraft. If a damaged package is found on an aircraft it should be removed, or arrangements made for its removal by a specialist organisation, and a check made to ensure no other piece of cargo on board is damaged and there is no contamination.

Where, upon unloading from an aircraft or ULD, it is suspected that packages of dangerous goods have been damaged or are leaking, the aircraft should be checked without delay for damage or contamination, and any problem found must be dealt with immediately. It should be ascertained what has caused the damage or contamination, since permanent damage to the airframe may need to be prevented and some types of spillages may need to be neutralised.

There should be a procedure for notifying the maintenance organisation of any spillage or leakage of dangerous goods on an aircraft, especially when it does not happen at the main base, since further remedial action may need to be taken.

In flight, the crew, even if they realise there is a leakage from a package and can reach it, can only respond with first-aid measures intended to contain the immediate problem or land without delay. Specific action to deal with damaged and leaking packages can only be taken when they can be handled without obstruction so that an assessment can be made of the extent of damage and leakage and the potential hazard to persons. Guidance for actions in emergencies may be shown on a package or on accompanying documents but in the absence of this, it may need to be obtained from the shipper, consignee or a specialist organisation, but sufficient information has to be given to them to enable accurate identification of the goods.

However, if nothing can be ascertained, a ‘worst case’ may have to be assumed, but any information on packages/documents should be believed unless there are positive indications that it is inaccurate.

Leaking packages of infectious substances and radioactive materials have the potential for spreading airborne contamination unless they are correctly dealt with. If a package of an infectious substance is found to be damaged or leaking it must be isolated, the public health authority notified and the shipper or consignee informed. If a package of radioactive material is found damaged or leaking, it must be isolated and a person trained to handle incidents is called to establish the extent of the leakage and whether there is any contamination. If there is contamination of an aircraft from radioactive material the aircraft must be taken out of service until such contamination is removed or reduced to levels specified in the ICAO Technical Instructions.

Damaged or leaking packages of dangerous goods must be disposed of safely, to ensure they cannot cause injury or property damage. Depending on the hazard of the goods, it may be possible to dispose of them locally or, if they are in transit, to have them re-packed and returned to the shipper or sent on to their final destination. The shipper or consignee should be able to advise on what can be done to dispose of the goods; if they are to be re-packed for onward carriage, the shipper will need to give instructions for this to be done and authorise someone to sign a new Dangerous Goods Transport Document on his behalf. A number of airports have local requirements for dealing with damaged or leaking packages which need to be taken into account when deciding on the action to take. If disposal is necessary, arrangements may need to be made with a specialist chemical waste disposal company for them to take away the damaged or leaking packages for destruction, etc.

2.2.8 Provision of information to the Pilot-in-Command (the NOTOC)

It is always possible for an in-flight emergency to arise and for an aircraft to make an emergency landing. If there are dangerous goods on board in cargo, details of these will need to be conveyed to ATC for the benefit of the emergency services. Also, if an incident does arise during flight, the pilot-in-command will need to be aware of what and where dangerous goods have been placed on the aircraft. To this end, he must be given written information about what has been loaded on board.

This information is usually referred to as the 'NOTOC' - Notification to Captain, it may be produced manually or by computerised means and as a minimum it needs to show, for each package of dangerous goods:-

- the proper shipping name and UN/ID Number;
- the class/division, any identified subsidiary risk(s) and, for explosives, the compatibility group;
- the packing group, number of packages and net or gross quantity;
- the category and transport index (for radioactive materials);
- the loading location;
- when for cargo aircraft only;
- the airport of unloading;
- when there are State exemptions applying.

The notification needs to be readily available in flight and a dedicated form should be used - ie: it should not be a copy of the Dangerous Goods Transport Document. It should included confirmation that there is no evidence that damaged or leaking packages have been loaded.

The notification, or a copy of it, has to be retained for a minimum period of 12 months.

2.2.9 Retention of records

Paragraphs 2.2.4 and 2.2.8 refer to the need to retain the acceptance checklist and the NOTOC. Apart from these documents, a copy of the Dangerous Goods Transport Document also has to be retained. Among other things, this is to ensure that full information is available on the ground about the dangerous goods on board an aircraft in case it should suffer a catastrophic accident in flight and there is a need to know what was on board.

Therefore, the location at which the copy is kept, at least for the expected duration of the relevant flight(s), should allow for access to it within a reasonable period of time. After that, it may be retained at some other point. Currently a copy of the Dangerous Goods Transport Document is required to be retained for a minimum period of 12 months.

2.2.10 Information in the event of an aircraft accident or incident

If a catastrophic accident or some other serious incident happens to an aircraft, it will be essential for information about any dangerous goods on board to be passed quickly to the State where the accident or incident has occurred. This will be needed to ensure the safety of persons involved in dealing with the accident or incident and to minimise the hazard that may be created by the dangerous goods.

In the event of an aircraft incident, the information is provided only when requested by the State involved; however, depending on the seriousness of the incident and what is being carried, passing on information without waiting to be asked for it, may assist in the early stages of dealing with the incident.

The information needs to be sufficient to ensure full and accurate identification of the dangerous goods and where they are loaded. As a minimum what should be provided is:-

- the proper shipping names and UN/ID numbers;
- the class/division, any identified subsidiary risk(s) and, for explosives, the compatibility group;
- the quantity and location on board the aircraft.

2.2.11 Cargo only aircraft and carriage of operator's staff

Some dangerous goods are restricted to transport on 'cargo aircraft only'. In this context such an aircraft can also carry persons who, for other reasons, may be regarded as passengers. They are:-

- an authorised representative of the authority or other authority;
- a person accompanying a shipment on board, which is not necessarily a consignment of dangerous goods;
- a member of the operator's staff in an official capacity.

A member of the operator's staff in an official capacity is intended to mean that they have duties concerned with the preparation or undertaking of the flight, or on the ground once the aircraft has landed although not necessarily in connection with any aircraft.

Dangerous goods are restricted to transport on 'cargo aircraft only' because of the quantity contained in a package or they are considered unsuitable for passenger aircraft in normal circumstances. Most 'cargo aircraft only' dangerous goods are required to be stowed in an accessible position on the main deck of the aircraft.

If an incident occurs on a cargo aircraft carrying dangerous goods, the flight crew can consider a greater range of options than is possible on a passenger aircraft eg: inspecting the packages to assess the problem, attempting to deal with it, using oxygen masks, reducing pressurisation. Carrying persons other than the flight crew on cargo aircraft may reduce this range of options; therefore, it should not become routine to do so. A number of factors need to be considered on each occasion, such as what is being carried, what Classes are represented, what net and total quantities are involved and the stowage location.

2.3 TRANSPORT OF DANGEROUS GOODS BY AIR AS CARGO - ADDITIONAL REQUIREMENTS

The ICAO Technical Instructions contain all the requirements applicable to the transport of dangerous goods by air. In Fiji there are some circumstances when the authority considers that either additional requirements or variation to the normal requirements are needed; these are identified below. When these require the grant of an exemption or specific approval, similar exemption or approval may also be required from other States if part of the flight is in their territory.

2.3.1 Rescue and fire-fighting cover at airports

There may be occasions when it is safer to land at an airport when the minimum rescue and fire fighting category is below that required, rather than divert to another airport, depending on a number of circumstances.

Whilst it is the operator's responsibility to ensure the conditions of their DG permit are met, in practice the decision is likely to be placed on the pilot-in-command since he will be in possession of all the required information, including what dangerous goods are onboard.

If an aircraft might use an airport where it is possible the Rescue and Fire Fighting cover at the time of landing may not be at the minimum level specified in any approval, the operator should discuss the problem with the Air Safety Department and have contingency procedures in the Operations Manual to assist the pilot-in-command in his decision for landing and diverting.

2.3.2 Passenger aircraft without Class B or a Class C main deck cargo compartments

On aircraft carrying passengers, dangerous goods can only be carried in any main deck cargo compartment when this meets all the certification requirements for a Class B or a Class C cargo compartment.

There are many aircraft in operation, which do not have such a main deck cargo compartment. The dangerous goods are primarily Division 1.4S explosives; Division 2.2 gases; a number of liquids and powders which are in Packing Group III and some articles of Classes 3, 8 and 9, Divisions 4.1, 5.1 and 6.1; Division 6.2 infectious substances; and Class 7 radioactive materials in accepted packages or those requiring White-I labels on the package. In the event of leakage, none of the dangerous goods will produce fumes or any other reaction that could cause discomfort to passengers.

The authority may be prepared to grant an exemption to an operator who wishes to carry dangerous goods but whose passenger aircraft have main deck cargo compartments only and these do not meet all the Class B or Class C cargo compartment certification requirements. Advice can be sought from the Air Safety Department.

2.3.3 Transport of dangerous goods on helicopters

The ICAO Technical Instructions use the term ‘aircraft’ throughout the document. Often the wording suggests the provisions are relevant only to fixed-wing aircraft but unless it is apparent otherwise all the provisions are intended to apply to helicopters, no matter whether the dangerous goods are carried inside or outside. This means there may be some circumstances when it is impractical or impossible for dangerous goods to meet the full requirements (eg: when they are under-slung beneath a helicopter). The requirements are likely to be those concerned with packing, the marking of packages and loading.

There is a set standard of packing, including specifications and testing requirements for packaging, but other ways of achieving an equivalent level of safety are possible. Whilst many of the markings on packages are necessary to ensure accurate identification of them and their contents, some of them do not make a direct contribution to safety and can be omitted in some circumstances.

The loading requirements for passenger aircraft, as indicated in paragraph 2.3.2 above, restrict carriage on the main deck to being in cargo compartments meeting Class B or Class C certification requirements; this certification is inappropriate for helicopters and if there is an essential reason for doing so it may be possible to permit dangerous goods and passengers on the same helicopter, depending on circumstances and what needs to be carried.

The authority may be prepared to grant an exemption to an operator to permit helicopters to carry dangerous goods other than in accordance with the normal requirements for packing, marking of packages and loading, providing it can be satisfied that the level of safety will be not less than that achieved by the normal requirements and providing there are overriding reasons for allowing the variation. Advice can be sought from the Air Safety Department.

2.4 GROUND HANDLING AND STORAGE

Ensuring the safe handling and storage of dangerous goods in warehouses, transit sheds, etc, is not primarily within the responsibility of the authority. The appropriate competent authority may be the Occupational Health & Safety Authority, the Environment Agency, the Local authority or, in some circumstances, the Police.

2.4.1 Handling and storage in general

The Occupational Health & Safety at Work Act 1996 places considerable emphasis on the prevention of accidents and ill-health through the correct management of health and safety.

Among other things, this requires employers to make an assessment of all the risks to the health and safety of their employees to which they are likely to be exposed whilst at work (and to non-employees who might be affected by the work activities); this requires a proactive approach to health and safety as well as a reactive one. The assessment should establish if there are any foreseeable ways in which packages of dangerous goods could become damaged through, for example, bad handling or storage and identify good working practices to reduce the possibility of this happening; for example:-

- segregating packages from vehicle routes to prevent damage by fork-lift trucks;
- not storing packages in an insecure manner at a height where they are liable to fall;
- segregating significant quantities of incompatible dangerous goods from each other;
- ensuring there is adequate ventilation (eg: natural ventilation) in the vicinity of packages of gases; flammable liquids, self-reactive substances and organic peroxides;
- ensuring packages are stored in the direction of any orientation arrows.

The risk assessment may show that, despite the precautions that have been taken, it will still be possible for damage and leakage to occur. This places certain duties on employers. In order to deal with spillage and leakages there, should be contingency planning for what to do if such an event should occur; it would need to identify different levels of response depending on the type and quantity of material involved.

2.5 REPORTING OF DANGEROUS GOODS ACCIDENTS AND INCIDENTS

Both the ICAO Technical Instructions and IATA Dangerous Goods Regulations Manual contain the definitions of dangerous goods accident and dangerous goods incident. Such an accident or incident may also constitute an aircraft accident or incident and as such Annex 13 may apply when any investigation will be the responsibility of the authority or the Minister for Civil Aviation.

Given the nature of dangerous goods, incidents may arise at any time, particularly if the applicable requirements have not been met. The major problem encountered by operators is dangerous goods which are undeclared or mis-declared; these are sometimes found only when leakage, spillage or fire occurs. Therefore, there is the potential for a major incident or accident to happen. It is the experience of the authority to date that incidents occur frequently (although many are not of any significance) and they usually result because of non-compliance with all the applicable requirements.

Dangerous goods accidents and incidents must be reported to the Air Safety Department as required under ANR71. Initial accident reports must be made by the quickest means of communication available, to the Air Safety Department. Every type of dangerous goods accident or incident which meets the criteria or which involves undeclared or mis-declared dangerous goods should be reported, no matter whether such goods are contained in cargo, mail, passengers' baggage or crew baggage. An initial report may be made by any means but a written report should be made as soon as possible. The report should be comprehensive and contain all data known at the time it is reported; if all relevant information is not available at first, the initial report should be sent stating what is known and a follow-up report sent when the full details are available.

MOR form OR 001 should be used; it should contain all the information required by the authority in order to consider what is the appropriate action to take in response to the incident. When the report is sent, copies of relevant documents and any photographs taken should be attached.

If the dangerous goods accident or incident involves loss of, or damage to, packages of radioactive materials whilst in transport, the Department of Health and the Department of Environment also need to be informed.

2.6 TRAINING

There are specific requirements for training; these appear in both the Technical Instructions and IATA Dangerous Goods Regulations Manual.

They apply to all operators, even when an approval to carry dangerous goods is not held. Where the operator uses the services of a handling agent there is a responsibility on the operator to ensure the staff of the handling agent are trained to the level necessary to perform their functions.

Training programmes are required to be established and maintained for all flight and cabin crew and appropriate ground staff (eg: those involved in passenger check-in, acceptance of dangerous goods, cargo and baggage handling).

Refresher training has to be given at intervals of not longer than 2 years and within 12 months for Cabin Crew. The level of training and the areas to be covered depend on the responsibilities of the individual; and the time taken to perform the training will depend on the level and the areas to be covered. More information is in Part 8 of this Standards Document.

There are various training aids available to assist with training. Both ICAO and IATA have training books aimed at:-

- Book 1 - shipper, cargo agencies and operator's cargo acceptance staff
- Book 2 - load planners and flight crew
- Book 3 - passenger handling staff and flight attendants
- Book 4 - loading and warehouse personnel
- Book 5 - all cargo personnel not handling DG

They are four separate books in a series of self-teach training programmes for the transport of dangerous goods by air. The addresses of the organisations from which copies can be obtained are in Part 9.

PART 3 - MUNITIONS OF WAR

3.1 GENERAL

Under the International Convention on Civil Aviation, member States have the right to control the air transport of munitions of war through their territory. However, unlike the transport of dangerous goods, there are currently no internationally agreed standards and it has been left to each individual State to develop its own requirements depending on circumstances and national needs.

Regulation 29 of the Air Navigation Regulations 1981 (CAP 174) and Arms and Ammunition Act (CAP 188) contains the requirements for munitions of war; they apply to aircraft registered in Fiji no matter where they are operating, and to aircraft registered in a country other than Fiji when they are operating in Fiji.

If a firearm is not a munitions of war, it should be treated as a sporting weapon for the purposes of its carriage on an aircraft; See Part 4.

3.2 LEGAL REQUIREMENTS

3.2.1 Definition

There is no internationally agreed definition of munitions of war. However permits may be issued for the following to be carried on board an aircraft.

- weapons and ammunitions carried for personal protection from attack by other persons, except where the calibre of the weapon is such that it is only effective at close range - eg; .22 hand gun;
- weapons and ammunition carried by someone giving official protection from attack to another person;
- weapons and ammunition used by police forces, para-military, military or armed forces.

Weapons and ammunition include component parts and accessories. Where there is doubt as to whether or not a weapon, ammunition etc. are munitions of war, the Air Safety Department should be consulted.

A detailed definition can be found in Part 1.3.

3.2.2 Approval to Transport

Munitions of war can only be carried on aircraft with the approval of all the States concerned. These may be the States of origin, transit, over-flight and destination of the consignment and that of the operator. In Fiji, the Ministry of Home Affairs and the authority are responsible for considering applications for the grant of an approval.

A suitable application form requesting the grant of an approval is shown in Appendix 1, together with guidance on its completion. Application should be made to the Air Safety Department, by fax at least 10 working days before the intended flight and include all the required information, as indicated on the model form in Appendix 1.

3.2.3 Conditions to transport

Once an approval has been granted, munitions of war may only be carried on an aircraft when they are stowed in a place that is inaccessible to passengers during flight and, in the case of firearms, when they are unloaded. In exceptional circumstances, they may be carried under different conditions providing an appropriate approval has been granted.

No matter how it is intended that munitions of war be carried on an aircraft, the pilot- in-command must be informed before a flight of what are to be carried and where they are located.

3.2.4 **Transhipment of Explosives (Including ammunition for sporting weapons, Division 1.4S)**

Operators must ensure that transhipped explosives comply with Fiji State variation DQ 2, be it checked luggage or cargo.

3.3 MUNITIONS OF WAR, WHICH ARE ALSO DANGEROUS GOODS

Some munitions of war are also dangerous goods by definition - eg: ammunition, bombs, torpedoes, etc. In such circumstances, the requirements for the transport of dangerous goods will also apply and where these indicate that an exemption or specific approval is needed, this is separate to that applicable to them as munitions of war. The application form shown in Appendix 1 can be used to request the approvals for items that are both munitions of war and dangerous goods.

3.4 CALIBRES OF WEAPONS

Without an internationally agreed definition of munitions of war, Fiji has defined them for its own purposes, but problems can still arise interpreting this definition. What can be of help is knowing who are the shipper and consignee and what is the calibre of the weapon or ammunition. For instance, the calibres shown below are usually restricted to military weapons:-

030	.357	7.92 (.308)
.32	.455	9mm
.38	5.56mm	10mm
.45	7.62mm	
.303	7.65mm	

These are only the more common calibres and they are appropriate only to small arms weapons. Large calibre weapons and ammunition (eg: anything over 20mm) are usually munitions of war.

3.5 REPORTING OF INCIDENTS

Incidents that arise from the transport of munitions of war should be reported to the authority no matter whether they are contained in cargo, mail, passengers' baggage or crew baggage. The report should be comprehensive and contain all data known at the time it is reported; if all relevant information is not available at first, the initial report should be sent stating what is known and a follow-up report sent when the full details are available.

A person shall make a report to the authority –

(a) by the quickest possible means, either verbally or electronically, of any occurrence involving significant damage to an aircraft, the injury of a person requiring hospitalization or the death of a person, or the malfunction of an aircraft component which may effect similar aircraft; or

(b) within 96 hours of any other occurrence;

(c) reports required under paragraph (a) also require the submission of a report referred to in paragraph (b); and

(d) notwithstanding the requirements of paragraph (b) the authority may at its absolute discretion extend the reporting period in circumstances requiring detailed investigations.

The dangerous goods accident/incident is to be reported to the authority using the MOR Form OR 001. Whilst some of the information may be inappropriate, completion of all relevant parts will assist the authority in considering what is the appropriate action to take in response to the incident.

3.6 ARMS AND AMMUNITIONS ACT (CAP 188)

The Arms and Ammunitions Act (CAP 188) in general applies to munitions of war of the Arms and Ammunitions Act 1985 as amended, identifies prohibited weapons and Cap 188 prohibited ammunition. In order for an operator to possess, store or transport such weapons or ammunition an approval from the Ministry of Home Affairs is required. There is also a responsibility to ensure that anyone to whom prohibited weapons and ammunitions are transferred is aware of their nature and that records are maintained.

Firearms approval is required for the possession of firearms and ammunition by a carrier or warehouseman in the ordinary course of that business. However, it is the responsibility of a carrier or warehouse to take reasonable precautions for the safe custody of any firearm or ammunition in their possession and to report any loss or theft of them to the police.

PART 4 - SPORTING WEAPONS

4.1 GENERAL

There are no internationally agreed standards for the carriage of sporting weapons on aircraft but there are security requirements, which will apply.

Any firearm which is not a munition of war must be treated as a sporting weapon for the purposes of its carriage on an aircraft, otherwise it would not be subject to any controls in respect of its stowage and the need to be unloaded (when a firearm).

Whilst it may be unlikely that a weapon regarded as sporting by this part of the Standards Document will be a 'Prohibited Weapon' under Section 20 of the Arms and Ammunitions Act 1985, the possibility cannot be excluded; therefore, paragraph 3.6 may be relevant.

See paragraph 3.6 in relation to the possession of firearms and ammunition by a carrier or warehouseman in the ordinary course of that business and the reporting of any loss or theft.

4.2 LEGAL REQUIREMENTS

4.2.1 Definition

There is no internationally agreed definition of sporting weapons. The general definition can be found in Part 1.3. In general it may be any weapon, which is not a munition of war. (See Part 3) Sporting weapons include hunting knives, bows and other similar articles. A firearm is any gun, rifle or pistol that fires a projectile.

Where there is doubt as to whether or not a weapon is a sporting weapon, the authority should be consulted.

4.2.2 Conditions for Transport

No approval is required from the authority for the transport of sporting weapons providing certain conditions are met. These are:

(a) the operator takes all reasonable measures to ensure he is informed of the intended carriage of the weapons;

(b) the weapons are stowed in a place which is inaccessible to passengers during flight;

(c) for firearms or other weapons that can contain ammunition, they are unloaded and the firing mechanism (bolt) is removed if so fitted.

In these circumstances the pilot-in-command does not need to be informed there are sporting weapons on the aircraft.

With the prior agreement of the Air Safety Department, sporting weapons may be carried other than in an inaccessible location on an aircraft if it has been accepted that it is impractical to do so (e.g.: if there is no separate cargo compartment). The Air Safety Department will take into account the nature of the flight, its origin and destination, and the possibility of unlawful interference; in addition they will require the weapons to be stowed so they are not immediately accessible to passengers - e.g.: by having them in locked boxes, in checked baggage which is stowed under other baggage or under fixed netting. When sporting weapons are stowed other than totally inaccessible the pilot-in-command must be informed.

4.3 AMMUNITION FOR SPORTING WEAPONS

Ammunition for a sporting weapon is dangerous goods by definition and as such it is covered by the requirements of the Technical Instructions and IATA Dangerous Goods Regulations Manual.

Note: Division 1.4S is a classification assigned to an explosive. It refers to cartridges which are packed or designed so that any dangerous effects from the accidental functioning of one or more cartridges in a package are confined within the package unless it has been degraded by fire, when the dangerous effects are limited to the extent that they do not hinder fire fighting or other emergency response efforts in the immediate vicinity of the package. Cartridges for sporting use are likely to be within Division 1.4S.

4.4 CALIBRES OF SPORTING WEAPONS

There is no internationally agreed definition for sporting weapons and the authority has not found it necessary to introduce one. This means there are some occasions when difficulties may arise in establishing whether or not a weapon is a sporting weapon. What can be of help is knowing who are the shipper or consignee and the authority should be consulted.

PART 5 - ANIMALS

5.1 GENERAL

The primary legislation covering the transport of animals by air is that concerned with animal welfare and maintaining the health status of the animal. This is the responsibility of the Ministry of Agriculture, Fisheries and Forests (MAFF); however, enforcement of the legislation is primarily the responsibility of local authorities. The authority's responsibility is safety and, among other things, it verifies that the operator has the correct equipment and, that the operator has procedures to ensure that pens and suchlike are secured in the aircraft to the appropriate standard; that the carriage of animals is not a hazard to the safety of the flight and that it cannot damage the structure of the aircraft. The authority grants the exemptions that are necessary when the person accompanying animals needs to remain with them during take-off and landing.

This part does not give detailed guidance on the transport containers that should be used for animals nor how they should be handled physically, since this is not within the responsibility of the authority; it does, however, identify the relevant legislation and give guidance on the operational aspects of carrying animals on aircraft. Detailed guidance on the types of transport container which should be used for specific animals, the preparation for despatch, handling, animal health and hygiene, feeding and watering, general care and loading can be found in the International Air Transport Association (IATA) Live Animals Regulations; also listed are known governmental requirements.

5.2 LEGAL REQUIREMENTS FOR THE WELFARE AND HEALTH OF THE ANIMAL

5.2.1 Legislation

The main legislation that covers the transport of animals by air is:

Regulation 76 of the Air Navigation Regulations 1981 (Cap 174)

Pet animals carried by operators as part of their commercial activities are **not** exempted from the requirements of the above legislation.

5.2.2 Conditions for transport

The animals during transport must be accompanied by journey plans or animal transport certificates to state their feeding, watering, loading and unloading requirements. The animals have to be transported in accordance with the standards in the IATA Live Animals Regulations.

The welfare of animals during transport places responsibilities on an operator to ensure that animals are transported without delay and they are entrusted to persons having the knowledge necessary to administer the appropriate care.

There is also a responsibility placed on a pilot-in-command to ensure animals are not carried if in his opinion there is a serious risk of injury, suffering or death due to adverse weather conditions.

5.2.3 Animals covered by the Convention on International Trade in Endangered Species (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty regulating such trade. The species, and all articles made from or containing parts of them, are grouped into three appendices:

Appendix I	International trade prohibited, although there are some exceptions
Appendix II	International trade is controlled; although some species may be subject to quotas or prohibited from export or import
Appendix III	International trade is controlled, but only to Appendix II standards, by some countries

The Convention specifies the use of the IATA Live Animals Regulations and the operator is responsible for ensuring that the additional requirements of CITES are met before a consignment of an animal covered by the Convention is accepted for carriage.

CITES requires the issue of import/export licence or permit; these are additional to those issued by MAFF.

5.2.4 Importation requirements

Dogs, Cats, and other Mammals can only be imported if the shipper is in compliance with the conditions imposed by a licence granted by the Minister of Agriculture, Fisheries and Forests. However, a licence is not required for an animal landed at an airport when it is to be re-exported from the same airport within a period of 48 hours, but it is subject to strict controls with regard to its movement, detention and isolation. It is the responsibility of the importer to obtain any necessary licence, however, it would be in the interest of the operator to confirm that a licence has been issued.

5.2.5 Import and export licences and health certificates

Most animals, except for domestic pets, require a licence or a health certificate for import and export.

These licences and export health certificates are issued by the veterinary authorities of the relevant countries and obtaining them is the responsibility of the importer or exporter. In Fiji the licences and export health certificates are issued by the appropriate Agriculture Department at the addresses shown in Part 9.

5.3 REQUIREMENTS FOR FLIGHT SAFETY

5.3.1 Pet animals

For commercial flights the carriage of pet animals, therefore, must comply in all respects with the appropriate standards in the IATA Live Animals Regulations, particularly in respect of the containers used.

For pet animals imported into Fiji, the legislation for the control of rabies requires that they be carried as cargo in cargo compartments. Where the flight takes place totally within Fiji there is no restriction on where the animal can be carried and it is for the operator, in consultation with the authority if necessary, to decide whether the proposed location of the animal constitutes a hazard in flight and if there is a need to ensure suitable restraint. If the animal is to be carried in the passenger cabin, the safety and comfort of the passengers and crew need to be considered.

5.3.2 Livestock, horses and other animals

The welfare, containerisation/penning of livestock, horses and other animals is dealt within the legislation referred to in paragraph 5.2.1 above; the IATA Live Animals Regulations set the minimum standards that must be complied with. The carriage of these animals could cause a serious incident in flight unless adequate precautions are taken for the securement of containers, pens, etc; for the protection of the structure of the aircraft from the adverse effects of high humidity and urination; and for the prevention of disturbance or upset to the animals due to flight conditions or other factors.

The Air Navigation Regulations 1981 (Cap 174) require the weight of animals to be known and to be indicated on the load sheet. An acceptable means of deriving this is to establish the difference between the laden and unladen weight of the vehicle that is used to deliver the animals for air transport, based on the evidence of a weighbridge certificate. If necessary for trim purposes, the average weight per animal can be calculated, where the animals are of the same type and similar size.

For horses, the actual weight should be established but the authority is prepared to consider the use of a standard weight for completing the load sheet, subject to the grant of an exemption to do so. Application for an exemption must be made to authority at the address shown in Part 9.

There should be procedures in place to deal with an animal should it give rise to an emergency in flight or at any other stage whilst it is in the care of the operator. Veterinary aid should be available in the form of animal first aid and emergency kits, which include drugs for sedating an animal which has become ill, or a potential danger to itself or other animals, or a potential danger to the continuing safety of a flight.

The veterinary aid and humane killer should be appropriate for the animals concerned and at least one groom or attendant should be trained in its use.

On an aircraft, the humane killer (which should be of the captive bolt type) and the ammunition should be stowed in a locked container, which is under the control of the pilot-in-command; it should be the pilot-in-command's decision as to whether sedation or euthanasia is the correct course of action to deal with an animal.

When attendants or grooms are to accompany animals the operator should determine, in consultation with the consignor, the number who need to be carried. For horses, the IATA Live Animals Regulations gives guidance on the number of grooms but it is also acceptable for there to be one groom for each animal loaded 'line ahead' or one groom for every two animals loaded side by side. Attendants or grooms should be able to communicate directly with the pilot-in-command at all times during the flight. If they need to stand for take-off and landing, an exemption would be required under Regulation 147 of the Air Navigation Regulations 1981 (Cap 174). Application must be made to the Air Safety Department at the address shown in Part 9.

Livestock, horses and other animals are usually carried in animal pens or horseboxes that may need an approval in accordance with airworthiness requirements. Additionally, an aircraft may need modification to facilitate the loading and carriage of animals. Advice can be obtained from the Air Safety Department, at the address shown in Part 9.

5.3.3 Service Animals in the Aircraft Cabin

Permission to carry service animals in the cabin may be granted by the authority provided the operator has in place the relevant procedures and documentation for such carriage. As a minimum the following must be included in the company operations manual:

1. The animal must be carried in accordance with the documented company procedures;
2. The service animal shall be accompanied by the owner;
3. The service animal shall not be placed in a location that will impede or obstruct access to required emergency or safety equipment, and/or impede or obstruct access by any person to an emergency exit, and/or interfere with the ability of a crew member to carry out his/her safety duties;
4. The service animal shall be seated on an absorbent mat properly muzzled, harnessed, and secured, that it may be safely carried on the intended flight;
5. The weights of the equipment required for the transportation of the service animal and the weight of the animal shall be included in the aircraft load sheet, as required under Regulation 31 (2)(d) of the Air Navigation Regulations 1981 (Cap 174);
6. When the above mentioned service animal is carried in the aircraft passenger compartment, the provisions of the company operations manual and the company handling manual on the carriage of live animals shall be complied with;

7. If such provision(s) do not exist, the operator shall have it/them implemented, prior to exercising the privileges of such an approval;
8. The operator shall comply with all the other regulations of the Air Navigation Regulations 1981 (Cap 174) and with the provisions of the current International Air Transport Association (IATA) Live Animals Regulations including any “advance arrangements”, as defined in the IATA regulation and the general acceptance and handling standards;
9. All Customs, Health and Quarantine requirements applicable shall be adhered to in their entirety;
10. The permission is revocable by the Civil Aviation Authority of Fiji if it is necessary in the interest of safety or if the operator fails to adhere to the conditions of the permit in its entirety.

5.4 OPERATIONS MANUAL

Operators who intend to carry animals are expected to have copies of the IATA Live Animals Regulations; their Operations Manual should state that the carriage of animals is to be in accordance with these.

Where livestock, horses or other animals are to be carried, information should be included on action in emergencies and the carriage and use of animal first aid and emergency kits, including the use of the captive bolt humane killer. It should also state how the weight of the consignment is to be derived and that this weight should be indicated on the load sheet. Guidance on the instructions for loading should be included covering:

- the weight, dimensions, construction, method of attachment and required restraint for horse boxes or animals pens;
- for horse boxes or animal pens, the checks necessary before loading and the general condition and serviceability of fitting and lashing points;
- the method of loading of horse boxes and animal pens and the tethering of animals in them;
- the stowage of loose equipment such as food and water containers and horse paraphernalia;
- the number and type of food and water containers and the quantities of food and water required based on the duration of the flight and the number of animals carried.

When horses are to be carried, the minimum number of grooms should be specified for particular loading configurations.

Precise instructions should be included for checking an aircraft after a flight on which livestock, horses or other animals have been carried, for damage to the structure, fittings, wiring, etc, and for any adverse effects resulting from high humidity and urination.

5.5 TRAINING

Training as such, is not required by any legislation; however, an operator must ensure that animals are entrusted to persons having the knowledge necessary to administer the appropriate care. Therefore, training should be given to the relevant persons to enable them to understand their responsibilities.

5.6 ADVICE

Advice on the carriage of animals can be obtained from the assigned authority Flight Safety Officer (Operations).

The addresses of the various government departments that deal with animals can be found in Part 9.

PART 6 - DANGEROUS GOODS EMERGENCIES

6.1 GENERAL

An emergency situation concerning dangerous goods could arise at any time whilst they are in air transport. Such emergencies can range from the discovery of leaking or damaged packages during their preparation for transport, to a major incident (eg: a fire) on an aircraft. Also, passengers may deliberately or inadvertently take into the cabin dangerous goods that they are not entitled to have. The ability to respond correctly and efficiently to an incident involving dangerous goods should not rely on an instinctive reaction to a situation but on having established procedures and training.

An emergency involving dangerous goods can occur not only to declared dangerous goods; it might also arise on the ground with undeclared dangerous goods and on an aircraft through the actions of a passenger. Therefore, some of the information in both this Part and Part 7 is appropriate irrespective of whether or not the operator holds an approval to carry dangerous goods.

6.2 LEGAL REQUIREMENTS

6.2.1 Manuals

An operator must provide information in manuals on the actions to be taken in emergencies; this information is applicable to all staff, whether they are crew members or ground staff. Instructions need to be given on the actions to be taken in dealing with an incident occurring in an aircraft in flight and on the ground.

6.2.2 Information for the use of the Pilot-in-Command in flight

Information must be immediately available to the pilot-in-command for use in the response to an emergency occurring in flight when dangerous good are being carried as cargo. As a minimum, this information should give guidance on the hazards associated with the dangerous goods on the aircraft. In practice the requirement is often met by placing on board a copy of the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481-AN/928), which is published by ICAO. However, it can also be met by providing any other document that gives similar information concerning the dangerous goods on board.

6.2.3 Information to the Air Traffic Services in the event of an in-flight emergency

If an in-flight emergency occurs and the situation permits, the pilot-in-command is required to inform the appropriate air traffic services unit of any dangerous goods on board an aircraft.

Whenever possible this information should include:

- the proper shipping name and/or UN/ID number;
- the class/division and identified subsidiary risk(s) and, for explosives, the compatibility group;
- the quantity and location.

This information is for the use of the airport authorities, primarily to warn the emergency services what to expect when they approach the aircraft after it has landed; in this respect, the pilot-in-command has a duty of care not only to the passengers and other crew on board but also to those on the ground.

The emergency information should include sufficient details to identify fully what are the dangerous goods and where they are located. If the situation does not allow for full details to be given, the pilot-in-command should decide what it would be appropriate to give in the circumstances; for instance, the nature of the hazard on board the aircraft might be conveyed adequately by giving the class, quantity and location, rather than individual UN/ID numbers, particularly if there are many of these but they cover a single hazard.

6.3 TRAINING

6.3.1 General requirement

It is not only the crew on an aircraft who may become involved in dealing with an incident, ground staff might also do so in the course of handling dangerous goods during their preparation for transport or through coming into contact with them inadvertently. There are requirements that the training for all these persons include guidance on what to do if there is an incident involving dangerous goods.

6.3.2 Persons who should receive training in emergency procedures

The persons who should receive training are:

- those engaged in the acceptance of dangerous goods;
- those engaged in the ground handling, storage and loading of cargo and baggage;
- flight crew and other crew members;
- passenger handling staff and security staff employed by the operator.

It is obvious that persons who are employed on cargo related duties by operators involved in carrying dangerous goods need suitable training, as do the flight crew for such operators. However, experience has shown that passengers cause many incidents; therefore, training is also required for persons handling passengers and their baggage and the flight and cabin crew on passengers aircraft.

The aim of training for flight and cabin crew is to ensure a correct and adequate response to any incidents occurring in the cabin during flight. Emergency procedures training for the persons identified above is appropriate even if dangerous goods are not carried as cargo, when the first group would not be applicable.

6.3.3 Areas to be covered in emergency procedures training

Training should be relevant to the responsibilities of the person concerned. The essential element for everyone is what action should be taken in an emergency; such training should include:-

- for ground staff:
  - dealing with damaged or leaking packages
  - other actions in the event of ground emergencies

- for flight crew:
  - action in the event of emergencies in flight, both in the cabin and in cargo compartments;
  - notification to air traffic control.

- for other crew members, such as loadmasters:
  - dealing with damaged or leaking packages in flight.

- for cabin crew:
  - dealing with incidents caused by dangerous goods in the possession of passengers.

Part 8 of this Standards Document contains more information in regard to training.

6.3.4 Level of Training

Training for emergencies should be to a depth sufficient to ensure that the hazards associated with dangerous goods are appreciated and that the operator's procedures for dealing with emergencies can be applied.

A test must be undertaken following dangerous goods training to verify understanding of the course. A certificate must be raised confirming successful completion of the test.

6.4 PROCEDURES FOR DEALING WITH EMERGENCIES

6.4.1 Provision of information

It is a requirement that manuals contain information on actions in the event of emergencies; this should cover emergencies occurring on the ground as well as in flight.

In order to ensure there is an accurate and efficient response to an incident, it is necessary for an operator to have established procedures for dealing with emergencies and these should be incorporated into manuals, written instructions, etc., for his staff.

6.4.2 Ground incidents

Most incidents that involve damaged or leaking packages of dangerous goods are discovered on the ground. The established procedures should ensure that all ground staff are aware of what is expected of them in the event of an incident. These procedures should aim to implement a system that will:

- identify what are the dangerous goods involved;
- identify, from labels or documents, what are the hazards (eg. toxicity, flammability) associated with the dangerous goods;
- assess the potential level of hazard to persons;
- seek to contain the situation (eg. prevent spread of contamination);
- seek assistance, if necessary;
- ensure the safe removal or disposal of the dangerous goods, if necessary.

Regarding identification of dangerous goods, in the absence of evidence to the contrary or a suspicion that the truth is being withheld, it should be assumed that information on documents, packages, etc., is accurate.

There may be a greater risk in regarding the goods unidentified than in accepting the described nature and level of hazard.

It is obvious that in order for staff to be able to deal effectively with a ground incident, they should be trained in the procedures; also the procedures themselves should be tested periodically and updated if found inadequate or inaccurate.

Personnel protective equipment should be available, such as gloves, goggles and face masks and depending on the type and quantity of dangerous goods likely to be encountered, overalls and portable breathing equipment; training should be given in its use and limitations and it needs to be maintained in a fully functional state.

6.4.3 Incidents occurring in flight

Incidents in-flight may occur through dangerous goods either in cargo or carried by passengers. On a passenger aircraft, it may be more likely that an incident in-flight will occur through an item in passengers baggage rather than in cargo, but dangerous goods in cargo may be in inaccessible cargo compartments.

On a cargo aircraft, the dangerous goods may be either in inaccessible cargo compartments or on the main deck. There should be established procedures for dealing with incidents occurring in-flight and these should cover all circumstances.

Guidance material for dealing with incidents involving dangerous goods that occur in-flight has been produced by the International Civil Aviation Organization (ICAO) and is contained in *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481-AN/928).

The authority has produced additional material in Part 7 to supplement the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481-AN/928).

6.4.4 Other considerations

There may be legal or other requirements, which are not enforced by the authority, which pertain to the action to be taken in emergencies when dangerous goods are in air transport. Some airport authorities have requirements for the action to be taken if dangerous goods are found leaking or damaged in transit sheds, warehouses or other premises.

PART 7 - EMERGENCY RESPONSE GUIDANCE

7.1 GENERAL

An emergency situation can arise at any time on an aircraft. There may be some circumstances when the emergency has been caused by dangerous goods being carried or they may become involved in it - eg: a fire in a cargo compartment may not have been caused by dangerous goods but they may be damaged by it, which could exacerbate the problem. The guidance in this Part is aimed at dealing with emergency situations on an aircraft in-flight involving dangerous goods. It explains the purpose and use of the ICAO *Emergency Response Guidance* document; in addition it suggests what actions might be considered in response to an incident on an aircraft, what should be taken into account in making a decision on what to do, and what it might be appropriate to make available to flight crew to aid them in any decisions to be taken concerning an incident.

7.2 EMERGENCY RESPONSE GUIDANCE FOR AIRCRAFT INCIDENTS INVOLVING DANGEROUS GOODS

ICAO has produced a document entitled *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (reference Doc 9481-AN/928); it is referred to throughout this Part and in Appendix 3 as the *Emergency Response Guidance* document. It gives guidance for developing procedures for dealing with incidents on aircraft in flight. It is not suitable material for developing procedures for dealing with ground incidents since the guidance in general suggests making use of items that can be found on the aircraft in normal operating circumstances. Also, outside assistance can be sought to deal with ground incidents.

The *Emergency Response Guidance* document contains:

- general information: such as cargo compartment locations and classification, what fire extinguishers can be found on the aircraft and what might be included in an emergency response kit.
- general considerations: such as where dangerous goods may be found and the peculiarities pertaining to each location which might be relevant in an incident.
- examples of checklists for incidents in the cabin or cargo compartments.
- lists of emergency response drills with drill reference numbers, identifying the dangerous goods both alphabetically and numerically.

Many operators who carry dangerous goods as cargo have decided to implement the requirement to provide emergency information to the pilot-in-command by placing a copy of the *Emergency Response Guidance* document in the aircraft library. Even if an operator does not carry dangerous goods as cargo, an incident may well arise through dangerous goods carried by passengers.

There is guidance material in the *Emergency Response Guidance* document which should form the basis of actions in emergencies no matter whether they arise in cargo compartments or the passenger cabin.

This material should always be considered when formulating actions for emergencies since it gives information for use at the time of an incident. It should also form the basis of training.

The limitations of the *Emergency Response Guidance* document should be realised; it was produced to aid decision in flight and recognises that little equipment may be available other than standard fire extinguishers and items carried for the safety or comfort of passengers or to assist in providing cabin services. Also, it is not mandatory to use the document to try to deal with an incident; the pilot-in-command may for instance, decide that it would be preferable to make the main focus of attention the need to land rather than dealing with a spillage, etc.

7.3 UNPRESSURISED AIRCRAFT

The wording of the *Emergency Response Guidance* document makes it apparent it was produced with pressurised aircraft in mind. Whilst some of the detailed material may not be appropriate for unpressurised aircraft, and this includes helicopters, the basic principles and general considerations are relevant to all aircraft.

7.4 GENERAL CONSIDERATIONS

Section 2 of the *Emergency Response Guidance* document contains general considerations to be taken into account when assessing the appropriate action to be taken to deal with an incident involving dangerous goods. The following sub-paragraphs amplify some of these general considerations and suggest others.

7.4.1 Safety of the aircraft and persons on board

The primary consideration in any incident should be to preserve the ability of the crew to fly the aircraft. The other considerations are to safeguard all other persons on board from the effects of any fumes or liquid from leaking packages of dangerous goods, to protect the aircraft structure as far as possible from damage, and to control the potential for the dangerous goods to cause any further harmful effect.

On a passenger aircraft, the dangerous goods may be in cargo or passenger's baggage in the cargo compartments, or in baggage or in the possession of passengers in the cabin. When they are in the cargo compartments they are likely to be inaccessible, unless the compartment is on the main deck. If it is suspected there is a problem in the cargo compartment, the normal drills for dealing with, eg, fires in the cargo compartment, should be carried out.

If the problem is in the cabin, the dangerous goods may well affect passengers and cabin crew. It is essential to ensure leaking or fuming items are removed from the cabin area and placed where they cannot affect anyone. A possible place is a toilet, where the positive pressure should ensure fumes are vented overboard, but if the item is suspected of being flammable, consideration should be given as to which toilet is used. On aircraft where the air is normally re-circulated it may be necessary to ensure the air is vented overboard.

7.4.2 Dangerous Goods in Inaccessible cargo compartments

If the normal fire or smoke warnings are activated for an inaccessible cargo compartment, it should be ascertained if there are dangerous goods stowed in it, by using the NOTOC. They may not have caused the fire/smoke but they may become involved. The normal drills for fire/smoke in cargo compartments should be carried out but it should be realised that if there is a possibility that oxidisers or organic peroxides are in the compartment they may contribute oxygen to a fire and cause it to continue burning even after the cargo compartment fire extinguishers have been activated.

7.4.3 Passengers

Passengers may deliberately or inadvertently bring dangerous goods that they should not have into the cabin; they are often unaware that the environment on the aircraft is likely to be different to that at ground level. The first indication of a potential incident could be a passenger becoming concerned about an item in their cabin baggage which is leaking or giving off fumes (this can happen because of the reduced pressure); or a passenger may be seen using an item which is not permitted in the cabin. Also, there have been incidents caused by items which passengers can legitimately take on aircraft but which developed faults during flight. If it appears that the item is not likely to cause a problem it might be better for the passenger to be allowed to keep it; although a watch should be kept for any sign of leakage or fuming. If it seems likely the item might cause a problem or is leaking or fuming, it should be dealt with as suggested in paragraphs 7.4.1 and 7.8.

7.4.4 Identifying dangerous goods

It is difficult to deal effectively with spillages or leakages of dangerous goods until their identity has been established but it is not always easy to do this, particularly without access to outside assistance. If the item is being carried by a passenger, they should be asked if they can identify it or give any information on the hazard or say what is the potential level of risk. Given modern requirements for consumer protection, often items or their packagings carry warnings; if it is not in a language understood, ask if the passenger can translate.

On a cargo aircraft, identifying the dangerous goods can only be done if they are on the main deck and accessible, which does not apply to all 'cargo aircraft only' items. Packages of declared dangerous goods have on them their proper shipping name and UN/ID number; and the lists of dangerous goods and associated drills in the *Emergency Response Guidance* document are both alphabetical and numerical. Experience has shown that it is often undeclared dangerous goods which could cause an incident; if there is a chemical name on the outside of a package, it may appear in the alphabetical list in the *Emergency Response Guidance* document; similarly if a four-figure number is shown on the package without UN or ID prefixing it, it may still be such a number and appear in the numerical list.

Consignments of dangerous goods in air transport are accompanied increasingly by documents, such as the Material Safety Data Sheet (MSDS/SDS), giving first aid and other emergency information; an MSDS may be attached to the copy of the Dangerous Goods Transport Document that is on the aircraft. Similar information may also appear on labels on the outside of packages. In the absence of evidence to the contrary or a suspicion that the truth is being withheld, it should be assumed information shown on packages, documents, etc, is accurate. There may be a greater risk in regarding the goods as unidentified than in accepting a described nature and level of hazard.

7.4.5 Landing as soon as possible

Unless it is obvious that an incident has been dealt with successfully, the decision should be taken to land as soon as possible. It should **not** be hoped the problem can be contained or will go away, it may suddenly develop into a situation that becomes difficult to deal with whilst in flight.

7.4.6 Notifying the Pilot-in-Command of a problem

If the cabin crew are involved in an incident the pilot-in-command should be told as soon as possible about what has occurred, and be given as many details as are known. If the incident develops, the greater the warning the pilot-in-command has and the more details, the better may be the preparation to deal with the consequences.

7.4.7 Information by the Pilot-in-Command

If the pilot-in-command decides to land, air traffic control must be advised of the reason for doing so and given sufficient information, including details of the dangerous goods as shown on the NOTOC, to enable them to alert the airport authority. This is so the emergency services can be warned of any unexpected hazard and be prepared to deal with the aircraft when it lands. These details should be passed on even if the incident did not involve the dangerous goods, since the emergency services may need to be aware of what is on the aircraft in order to make decisions as to the appropriate action to take.

7.5 USING THE 'EMERGENCY RESPONSE GUIDANCE' DOCUMENT

Flight crew should not be expected to use the *Emergency Response Guidance* document for dealing with an incident until training has been given. It contains information that is not only of use in an emergency but also intended for training and the development of procedures and incident checklists.

A dangerous goods incident can only be dealt with as such when the goods are accessible - ie: it occurs in the passenger cabin or an accessible cargo compartment on a passenger aircraft or the main deck of a cargo aircraft. The method of dealing with the incident may be different depending on the location and the *Emergency Response Guidance* document gives specific guidance on dealing with incidents in all these situations, plus dealing with an incident in an inaccessible cargo compartment.

The lists in the *Emergency Response Guidance* document have been designed for incidents occurring with dangerous goods that are accessible, since the correct identification of the goods causing the problem is essential to the correct use of the drills. If the dangerous goods can be identified, the alphabetical or numerical list can be consulted for the appropriate Drill Code. The Drill Code consists of a number and a letter and a further listing gives information about this number and letter, under the headings of:-

- inherent risk;
- procedure for fire-fighting;
- risk to aircraft;
- additional considerations;
- risk to occupants;
- any additional risk;
- procedure for spillage or leakage.

Whilst it may appear so, the number in the Drill Code is not always related to the Class/Division of the dangerous goods. Moreover, it may not give actual actions which can be taken but rather present a number of possible consequences and considerations.

In deciding what action to take in relation to a suggested Drill Code, the following may also be relevant:-

- a fire should be dealt with using any available equipment, but water should only be used when it can be positively established that it will not exacerbate the fire (see paragraph 7.6);
- if there are fumes, an attempt should be made to prevent further spillage or leakage and to reduce the spread of fumes by covering with polyethylene based material;
- if the hazard results in an explosion, the aircraft should descend to an altitude where the pressure can be reduced to a minimum value commensurate with safe operation;
- if the hazard is associated with radioactive materials, toxic or infectious substances, no attempt should be made to approach them and any passengers thought to be in danger should be moved;
- spillages of both powders and liquids should be contained to prevent spreading by surrounding with non-reactive material, such as polyethylene waste bin bags, duty-free sales bags;
- powders may be better left in situ if they do not appear to be causing progressive damage or discomfort to crew or passengers (to check for damage there should be the minimum disturbance of the spillage but the edge should be moved to see what is happening underneath);
- extreme caution should be used with liquids; they may be better left in situ, if they do not appear to be causing progressive damage or discomfort to passengers, and covered with polyethylene based material;
- for a limited period polyethylene (plastic) should not react with any dangerous goods.

Operators may provide information to the pilot-in-command by extracting the relevant parts from the *Emergency Response Guidance* document; this could be done by adding the drill code to the entry in the NOTOC and providing lists that identify the information appropriate to each number and letter.

7.6 USE OF WATER AS A FIRE-FIGHTING AGENT

The drills assigned to dangerous goods in the *Emergency Response Guidance* document are not always comprehensive in describing all possible hazards. In particular, not all those dangerous goods are identified where the use of water as a fire-fighting agent would exacerbate the situation. In some instances it is possible to identify when water should not be used - eg: those in Division 4.3 or where 'W' appears as part of the Drill Code. However, there are other dangerous goods where no such guidance is given but it is known that water should not be used.

In the absence of any other guidance (eg: the Dangerous Goods Transport Document or other information provided about the dangerous goods on the aircraft) the use of water should be subject to the following considerations:

- it should not be used unless the class or division of the dangerous goods is known and there is no specific prohibition on its use in the Drill Code;
- it should not be used on any corrosive material (Class 8, 'RCM').

Additional guidance is given in Appendix 3 and it includes a list of dangerous goods that are known to react with water.

7.7 TRAINING

There are requirements that the training for flight and cabin crew include emergency procedures for dealing with incidents arising from dangerous goods. This training can be developed from any available material but the *Emergency Response Guidance* document and this Standards Document contain suggested procedures and give general considerations which might be applied when trying to contain any incident or dealing with the consequences.

The *Emergency Response Guidance* document and this Standards Document also have suggested checklists, and guidance in the use of these should form part of training if it is intended they be included in the procedures for dealing with a dangerous goods incident - further information about checklists is given in paragraph 7.8 below.

7.8 DEVELOPMENT OF PROCEDURES AND CHECKLISTS

It is possible for an emergency to arise at any time on an aircraft involving dangerous goods. Obviously, it is only when the goods can be seen that it can be established they are the cause of the problem or are likely to become involved in it.

Where a spillage or leakage has occurred or the package appears to be damaged badly, the decision needs to be taken as to whether or not to attempt to contain the effects. To do this successfully, there needs to be a plan of action to ensure no one suffers injury and no further damage is caused. Consideration needs to be given in advance as to what actions should be taken at this time and these should be developed into procedures and incorporated into the Operations Manual. An appropriate way to summarise these procedures is as a checklist. Appendices 4 and 5 are two suggested checklists - one for use by the flight crew and one for use by cabin crew; these are very comprehensive and could be abbreviated for actual use.

They are not a repeat of the checklists that are in the *Emergency Response Guidance* document but could be considered as alternatives.

Explanation and additional guidance in regard to these checklists is given in paragraphs 7.8.1 and 7.8.2 below. Further guidance can be found in the *Emergency Response Guidance* document.

7.8.1 Guidance related to the flight crew checklist

The checklist in Appendix 4 is intended to suggest actions that can be taken progressively to deal with a suspect and dangerous goods incident that occurs in-flight. It is intended for use both on cargo and passenger aircraft and relates mainly to actions that could be taken when the dangerous goods are accessible - either by being on the main deck of a cargo aircraft or in the passenger cabin. It is not intended to be used where there is warning of fire/smoke in an inaccessible cargo compartment; in these circumstances the standard drills should be used.

In using the checklist the following should be borne in mind:-

1. reference to the NOTOC, in conjunction with the checklist, is essential; the NOTOC itemises what dangerous goods are on board in cargo and will aid correct identification of the item causing the problem, thus enabling the appropriate Drill Code in the *Emergency Response Guidance* document to be ascertained;
2. the decision to send a crew member to investigate an incident should be considered carefully, since if they are overcome by smoke, fumes, etc., the crew complement will be a person short to deal with whatever then happens;
3. if dangerous goods are not involved in the incident, moving them to a safe area could prevent the problem intensifying; even if they are involved it may be desirable to try to move them to prevent a sudden worsening of the problem.

To amplify some of the suggested actions on the checklist:-

- if the incident arises in the cabin of a passenger aircraft, it should be left to the cabin crew to deal with initially;
- there should be good communication and co-ordination of actions between the flight crew and cabin crew, since it is essential that each is aware of what the other is planning and doing;
- vapours and fumes may not be easily detectable; there should be a smoking ban if there is the possibility these have penetrated the cabin or flight deck and it should remain in force for the remainder of the flight;
- water should not be used on any spillage or when fumes are present since it may spread the spillage or increase the rate of fuming; also consideration should be given to the presence of electrical components if a water extinguisher is to be used; in addition a number of dangerous goods react badly with water (see paragraph 7.6);
- spillages, fire and fire-fighting activities may cause damage to electrical systems; consideration should be given to turning off all non-essential electrical items and retaining power only to those instruments, systems and controls necessary for the continuing safety of the aircraft. Power should not be restored until it has been ascertained that it is positively safe to do so;
- after landing, if the incident was in a cargo compartment, the passengers and crew should disembark before cargo compartment doors are opened; if the incident was in the cabin, the passengers and non-essential crew should disembark before any further action is taken to remove the item or deal further with it or the effect of it;
- it should be ensured that ground staff and, if necessary, the emergency services are informed of where the incident occurred and where the dangerous goods now are; if appropriate it should be ensured that the NOTOC is given to the emergency services;
- it is essential that an entry be made in the maintenance log to ensure that checks are made for damage as a result of leakage, spillage, etc and that aircraft equipment (eg: fire extinguishers, etc) are replenished or replaced, as necessary.

7.8.2 Guidance related to the cabin crew checklist

The checklist in Appendix 5 is intended to suggest actions that can be taken progressively to deal with a suspected dangerous goods incident that occurs to goods in the possession of a passenger.

In using the checklist the following should be borne in mind:-

1. it may not be possible to deal in total with the incident; the aim should be to ensure that the flight can continue safely, that so far as is possible no one is discomforted and there is no damage;

2. if there is fire or spillage it may become worse suddenly through, eg: contact with cabin furnishings or the air;

3. there are a number of dangerous goods which can react with paper or cloth and these should not be used to mop up spillages because of the possibility of a reaction; however, if the item has already been in contact with these materials they could be considered for use as a last resort.

To amplify some of the suggested actions on the checklist:-

- if dangerous goods can be identified by name or UN number, it may be possible to obtain information about them from the flight crew if a copy of the *Emergency Response Guidance* document is carried;
- cabin equipment made from polyethylene or a similar plastic material can be utilised to pick up and contain any spillage, if this is needed;
- oven gloves or fire-resistant gloves, if likely to be absorbent, should be covered with polyethylene bags;
- the assistance of a number of cabin crew members may be required in order to deal effectively with the problem;
- if there is only one cabin crew member available, the pilot-in-command should be consulted as to whether a passenger should be asked to assist in dealing with the incident
- there should be good communication and co-ordination of actions between the cabin crew and flight crew, since it is essential that each is aware of what the other is planning and doing;
- gas-tight breathing equipment should always be worn to deal with smoke, fumes or fire;
- water should not be used on any spillage or when fumes are present since it may spread the spillage or increase the rate of fuming; also consideration should be given to the presence of electrical components if a water extinguisher is to be used; in addition a number of dangerous goods react badly with water (see paragraph 7.6);
- the spillage of a flammable liquid onto fabric may increase the release of a flammable vapour, making the possibility of a fire more likely if an ignition source (eg: a lighted cigarette) is present;
- removing a leaking container would preclude further leakage which might escalate the incident;
- the residue of the leakage, both for powders and liquids, should be contained to prevent spreading by surrounding with non-reactive material, such as polyethylene waste bin bags, duty-free sales bags etc;
- powders may be better left in situ if they do not appear to be causing progressive damage or discomfort to crew or passengers (to check for damage there should be the minimum disturbance of the spillage but the edge should be moved to see what is happening underneath);
- extreme caution should be used with liquids; they may be better left in situ, if they do not appear to be causing progressive damage or discomfort to passengers, and covered with polyethylene based material;
- polyethylene bags containing leaking items, etc, should be placed in a toilet, if possible; on pressurised aircraft this should vent any fumes away from the passengers but it might not be so on an unpressurised aircraft;
- badly contaminated cabin furnishings, carpet, etc, might need to be removed; they should be stowed in a toilet or in an area well away from passengers and crew, in polyethylene bags if possible;

- the use of therapeutic masks with portable oxygen bottles or the passenger drop-out oxygen system, to assist passengers if smoke or fumes are present, should not be considered since smoke or fumes could be inhaled through the valves or holes in the masks. Giving passengers a wet towel or other wet cloth to hold over the nose and mouth is more effective in filtering out smoke or fumes;
- regular inspections should be made of any item which has been removed to ensure it is not causing any further problem;
- it should be ensured that ground staff and, if necessary, the emergency services are informed of where the incident occurred and where the dangerous goods now are;
- it is essential that an entry be made in the maintenance log to ensure that checks are made for damage as a result of leakage, spillage, etc, and that aircraft equipment (eg: fire extinguishers, etc) are replenished or replaced, as necessary.

7.9 EMERGENCY RESPONSE KIT

There is no requirement for the carriage of an emergency response kit but some operators may choose to carry one. Whilst the aim of carrying the kit is to deal with incidents arising in the passenger cabin, it might also be of use on cargo aircraft if there is an incident with dangerous goods that are accessible.

The aim of such a kit is to ensure there are items available that can be used to deal with the containment and absorption of dangerous goods should there be a spillage or leakage.

Typically, a kit might consist of:-

- supply of large, good quality polyethylene bags;
- bag ties;
- several pairs of long rubber gloves, which are flexible and of good quality;
- small quantity of sand;
- sodium bicarbonate.

It should be noted that polyethylene is reasonably resistant to all dangerous goods, at least for a short while. Sand is inert and can be used safely, except when there are products containing Hydrofluoric acid; these are identified by UN number UN 1786 and 1790. Sodium bicarbonate can be used safely with all acids but there may be some bubbling and carbon dioxide may be given off.

The emergency response kit suggested above is more comprehensive than that listed in the *Emergency Response Guidance* document, in that sand and sodium bicarbonate have been added to the list of items. If a kit is to be carried the inclusion of these would greatly enhance its usefulness without adding significantly to either weight or cost and would then provide the means of suitably dealing with the containment or absorption of all dangerous goods, at least in the short term.

It will be noted that paper is not included in the kit; this is because it can react with a number of chemicals so that it disintegrates quickly or begins to smoulder. Its use is not recommended, unless there are positive indications that there will be no reaction (eg: the container for the item is paper or fibreboard/cardboard or it is already in contact with these).

Although rubber gloves are included in the kit, other personal protective equipment may be needed, such as portable breathing equipment, goggles, overalls, etc.

If an emergency response kit is carried, instructions in its use should be included in training.

7.9.1 Guidance related to the checklist when using an emergency response kit

Appendix 6 has a suggested checklist for the actions that could be taken to deal with a spillage or leakage of dangerous goods using an emergency response kit.

To amplify some of the suggested actions on the checklist:-

- Better decisions can be taken if the item can be accurately identified and the correct emergency response ascertained; there may be a label on the container that will give the information required and this will aid prompt and effective clean-up action.
- If there is no label on a container giving emergency information, there may still be a recognisable proper shipping name or UN/ID number (with or without the prefix letters) that can be checked against the alphabetical and numerical lists in the *Emergency Response Guidance* document.
- If it is suspected that there might be a reaction with sand, a sample can be tested first by placing a small quantity on the edge of the spillage and waiting for 2-3 minutes; any reaction would become apparent in that time but it would not be catastrophic.
- Sodium bicarbonate should not be used on any dangerous goods except acids.
- The aim in removing an item from the cabin is to try to ensure that further fuming or leakage will not cause discomfort to passengers or crew and will not be detrimental to the continued good order of the flight; this is done by securing the item in at least two polyethylene bags, in a position so that further leakage cannot occur, and placing the bags in a location remote from the passengers and crew.
- The decision to try to remove the residue of a spillage, or leave it in situ and cover, may depend on the extent of that spillage and the effect it is having on passengers and crew; despite passenger reaction it might be preferable not to attempt to remove the residue but leave it covered by sand or sodium bicarbonate.
- It is unlikely that all traces of spillage will be removed unless the affected cabin furnishings, carpet, etc are also removed.

7.10 RAISING OF A DANGEROUS GOODS INCIDENT REPORT

When there has been a problem on an aircraft involving dangerous goods, it may be a dangerous goods incident that is reportable to the authority. A report should be raised and submitted as detailed in paragraph 2.5.

PART 8 – DANGEROUS GOODS INSTRUCTORS AND TRAINING REQUIREMENTS

8.1 Minimum Qualification

The instructor of dangerous goods courses to teach Shippers, Packers, Cargo Agents, and Operators' Cargo Acceptance Staff should have as a minimum the following qualifications:-

1. Have a current IATA dangerous goods training accreditation or a pilot holding a Commercial Pilot Licence or Air Transport Pilots Licence with experience in dangerous goods.
2. Successfully completed a course in instructor's techniques.
3. Successfully completed dangerous goods training in Category 6 based on the ICAO or IATA Dangerous Goods Training Programme.
4. Must work for an airline for at least 5 years and has been involved in the acceptance of dangerous goods.
5. Must have adequate instructional skills.

The instructor of dangerous goods courses to instruct Load Planners, Flight Crew, Passenger Handling Staff, Cabin Crew, Loading and Warehouse Personnel should have as a minimum the following qualifications:-

1. Successfully completed dangerous goods training in Category 6 based on the ICAO or IATA Dangerous Goods Training Programme.
2. The incumbent has the ability to instruct.
3. Must work for an airline for at least 5 years and has been involved in the acceptance of dangerous goods.
4. Must have adequate instructional skills.

8.2 Approval of Instructors

After the applicant has fulfilled the requirements stated in 8.1, an inspector from the Air Safety Department will sit in and observe the course conducted by the candidate. In the course the inspector will assess the following: -

1. Examination measurement;
2. Teaching aids/materials;
3. Evaluation and certification of course participants;
4. Demonstrated ability as an instructor;
5. Demonstrated ability to prepare a lesson plan;
6. Experience in cargo operations including dangerous goods handling and acceptance;
7. Knowledge of relevant regulation and legislation relating to dangerous goods;
8. Ability to formulate question papers;
9. Security of exam papers.

It would be beneficial if the applicant has attended a course designed for instructors of dangerous goods. Where possible, new instructors of dangerous goods should construct dangerous goods courses together with an established instructor.

8.3 Requirements for training

Dangerous goods training is mandated by the International Civil Aviation Organization (ICAO) in their Technical Instructions for the Safe Transport of Dangerous Goods by Air. This dangerous goods training requirement is implemented by the authority.

Dangerous goods training programmes for operator staff, and agencies acting on behalf of operators, must be reviewed and approved by the authority. Dangerous goods training programmes for other parties, i.e. shippers, packers, cargo agents, etc., may be required to be reviewed and approved by the authority. It is advised that the authority be contacted if such training is contemplated.

Recurrent (refresher) training must take place **within 24 months of previous training** to ensure that knowledge is current. In the case of Cabin Crew it should be within 12 months.

The primary objective of dangerous goods training is **safety**. The training must include the following:

- **General familiarisation training** – to provide the student with an understanding of the general philosophy and main provisions of the regulations.
- **Function specific training** – to provide the student with detailed training in the requirements applicable to the job function for which the student will be responsible.
- **Safety training** – to provide the student with an understanding of the hazards presented by dangerous goods, as well as safe handling and emergency response procedures to be followed.

The ideal size of a dangerous goods course is 10 to 15 participants, enabling the instructor to give personal attention to all students. The maximum number of students should never exceed 20.

Each course should be limited to one category of personnel. The level of competence in the language of the course should be as uniform as possible. Students taking a refresher course should not be mixed with those taking the course for the first time.

8.4 Minimum requirements for training curricula

The dangerous goods instructor will have to produce a lesson plan to ensure that he covers the required material comprehensively. The required material depends on the category of staff being addressed. As a minimum the material to be covered during training are listed in Table 1-4 & 1-5 of the ICAO TI. The IATA Dangerous Goods Training Programs are acceptable by the authority.

NOTE: *Depending on the responsibilities of the person, the aspects of training to be covered may vary from those shown in tables 1-4 & 1-5 of the ICAO TI – e.g. it may be more appropriate for a packer to cover the aspects with which a shipper should be familiar; if an operator carries only cargo, those aspects relating to passengers may be omitted from the training programme for his staff and flight crew.*

Careful preparation of “need to know” information is the basis of successful training.

8.5 Standard of training

The standard of training should be measured by the competency of the participants on completion of the course and not be length of course. The criteria for a course is the level of the course examination, and the way it can demonstrate the ability of the participants to perform his job function and the ability to extract the required information from the regulations.

Criteria for the course examination of the basic and refresher courses is given in course objectives and test criteria section of the guidelines. The examination should be designed to enable the participant to demonstrate an understanding of all the subjects covered. The difficulty level should be such that the examination tests the ability of the participant to perform the job function in compliance with the Technical Instructions.

Clear objectives should be stated at the start of each part of the course, and the course should include sufficient exercises to demonstrate achievement of these objectives.

The following schedules are typical schemes for the allocation of time spent on each subject by the various groups of participants. They are offered as guidance for instructors and may be amended as necessary to fit the needs of the group. For example, some instructors have increased the duration of the basic course from one week to two weeks because of language difficulties.

8.6 SHIPPERS, CARGO AGENTS AND AIRLINE STAFF PERFORMING THE ACCEPTANCE FUNCTION

- **Introductory course** – It is suggested that an in-depth shipping or acceptance course, consisting of sufficient exercises to provide the student with confidence, and including a standard final test according to these guidelines would involve a total of 40 hours classroom time.
- **Recurrent training (Refresher)** – Required every 24 months, or more frequently if mandated by the authority**.** It is suggested that a refresher course, consisting of sufficient exercises to provide the student with confidence, and including a test equivalent to the introductory course test, would involve at least 24 hours classroom time.

The course should include:-

- Operators' and shippers' responsibilities;
- Limitations: excepted and limited quantities, State and operator's variations;
- Classification and identification: the nine hazard classes with their main criteria, the alphabetic list and precedence of hazards table, special provisions, Not Otherwise Specified (N.O.S.) entries, mixture and solutions;
- Packaging, marking and labelling requirements: UN specifications, limited quantities, compatibility and segregation of packages, overpacks;
- Shipment of radioactive materials;
- Procedures: Loading storage and inspection, emergency procedures;
- Information requirements: Air Waybills, Dangerous Goods Declaration, and Captain's Notification **;**

8.7 COURSE OBJECTIVES FOR SHIPPERS, CARGO AGENTS AND AIRLINE STAFF PERFORMING THE ACCEPTANCE FUNCTION

At the completion of the course, the participants should be able to verify that a dangerous goods shipment has been properly prepared and be able to handle a dangerous goods shipment in accordance with the requirements of the ICAO Technical Instructions.

Upon successful completion of the course, the participant should be able to: -

- Fully understand and differentiate between shippers' and operators' responsibilities
- Identify all dangerous goods which are:-

    1. Forbidden for air transport;
    2. Permitted as cargo under the ICAO Technical Instructions;
    3. Excepted from the ICAO Technical Instructions in all or in part.

- Identify, without error the nine classes of dangerous goods by their principle criteria;
- Extract the relevant information from the List of Dangerous Goods and apply it;
- Apply the general packing requirements and the specific packing instructions or to verify that they have been followed;
- Verify that the use of packing complies with the limitations of the specification indicated on the package;
- Properly mark and label a dangerous goods package or verify that the marking or labelling requirements has been met;
- Complete a Shipper's Declaration for Dangerous Goods or verify that the information provided on the form complies with the regulations;
- Properly enter the appropriate information on the Air waybill or verify that the information was entered properly;
- Comply with the requirements for providing the pilot-in-command with the pertinent information on the dangerous goods loaded aboard his aircraft;

- Recognise and apply the appropriate State and/or Operator variations;
- Using an acceptable checklist, correctly accept or reject a shipment;
- Apply relevant emergency procedures.

8.8 STAFF PERFORMING FLIGHT CREW AND LOADING FUNCTIONS

An awareness course should include the following:-

- general philosophy;
- limitations;
- list of dangerous goods;
- marking and labelling;
- pilot's notification;
- emergency procedures;
- loading procedures;
- compatibility and provisions for passengers and crew.

IATA Dangerous Goods Training Programme Book 2 covers this material. Recurrent training must take place within 24 months of previous training to ensure knowledge is current, unless the authority has defined a shorter period.

8.9 STAFF PERFORMING PASSENGER HANDLING AND FLIGHT ATTENDANT FUNCTIONS

The course should include the following:-

- general philosophy;
- limitations;
- provisions for passengers and crew;
- general label identification;
- emergency procedures.

IATA Dangerous Goods Training Programme Book 3 covers this material. Recurrent training must take place within 24 months of previous training to ensure knowledge is current, except for cabin crew, which must take place within 12 months. The validity period shall be from the date of issue or, in the case of renewal, from the date of expiry, provided the training was undertaken within the final 3 months of the validity.

8.10 STAFF PERFORMING LOADING AND WAREHOUSE FUNCTIONS

The course should include the following: -

- general philosophy;
- limitations;
- marking and labelling;
- handling and loading procedures;
- compatibility;
- emergency procedures.

IATA Dangerous Goods Training Programme Book 4 covers this material. Recurrent training must take place within 24 months of previous training to ensure knowledge is current, unless authority has defined a shorter period.

8.11 Completion of the introductory and recurrent course

Exercises should be used throughout the course to monitor the progress of the participants.

To complete the course the participant must be required to successfully pass a comprehensive examination.

The participants who completed the test satisfactorily should be given a Certificate.

Since initial and refresher training are required by Part 6 of the ICAO Technical Instructions, records of those taking the course and those passing the course should be kept.

8.12 TEST CRITERIA

The test should be designed to ensure that the student demonstrates an understanding of all subjects listed under the heading “Course Objective Guidelines”.

The difficulty level should ensure that each student demonstrate that he can perform his job function in compliance with the ICAO Technical Instructions.

The student will demonstrate his competency level by completing a test that will include at least three (3) complete shipment acceptance problems or for shippers, at least two (2) of these three (3) problems must be similar shipment preparation exercises. These together with general questions will ensure testing of all objectives as detailed in the “Course Objective Guidelines”. If these general questions contain any “Yes/No” or multi choice, the ICAO Technical Instructions reference must be required.

8.13 MARKING

Points shall be deducted for each error, missing answer, or additional information, which is not applicable to the question.

A minimum of 80 percent of the total score is required for passing.

8.14 TRAINING RECORDS

A record of training must be maintained which must include:

- The individual’s name;
- The most recent training completion date;
- A description, copy of reference to training materials used to meet the training requirements;
- The name and address of the organisation providing the training; and
- A copy of the certificate issued when the individual was trained, which shows that a test has been completed satisfactorily.

PART 9 – ADDRESSES OF RELEVANT ORGANIZATIONS

9.1 CIVIL AVIATION AUTHORITY OF FIJI

The following is the address, etc, of the section of the Civil Aviation Authority of Fiji referred to in the various parts.

Air Safety Department

Civil Aviation Authority of Fiji
Private Mail Bag NAP 0354
NADI AIRPORT

Tel no: 6721555
Fax no: 6725125

9.2 GOVERNMENT DEPARTMENTS

The following are the addresses of the government departments referred to in Part 5 (Animals).

Department of the Environment

Department of the Environment
PO Box 2131
Government Buildings
SUVA

Tel no: 3311699
Fax no: 3312879
e-mail: env@itc.gov.fj

Ministry of Agriculture, Fisheries and Forests

Robinson Complex
Private Mail Bag
RAIWAQA

Tel no: 3384233
Fax no: 3385048

KORONIVIA Tel no: 3477044

NADI AIRPORT Tel no: 6722522

Fiji Police Force

Ratu Sukuna House
PO Box 239
SUVA

Tel No: 3312999
Fax No: 3300996

Ministry of Home Affairs

PO Box 2349
Govt Building
1st Floor, New Wing
SUVA

Tel No: 3211210
Fax No: 3300346

Director Occupational Health & Safety Services
PO Box 2216
Govt Building
SUVA

Tel No: 3314999
Fax No: 315029

9.3 OTHER ORGANISATIONS

The following are the addresses, etc, from which copies of the training material referred to in Part 2 can be obtained.

International Civil Aviation Organisation (ICAO)

Document Sales Unit
ICAO
1000 Sherbrooke Street West, Suite 400
Montreal, Quebec
Canada

Tel no: (514) 285 8219
Fax no: (514) 288 4772
Telex: 05-24513
Sita : YUL CAYA

International Air Transport Association (IATA)

Customer Service Representative
2000 Peel Street
Montreal, Quebec
Canada H3A 2R4

Tel No: 1 (514) 985 6326
Fax No: 1 (514) 844 7711
Email: sales@iata.org

Appendix 1 Application Form for carriage of munitions of war and/or dangerous goods

EXAMPLE

APPLICATION TO CARRY MUNITIONS OF WAR AND/OR DANGEROUS GOODS

NOTE – This form applies to (a) all requests to carry munitions of war and (b) only those requests to carry dangerous goods where they do not comply with the normal requirements of the Technical Instructions. Part 1 must be completed in all instances. Part 2 must be completed for munitions of war. Part 3 must be completed when munitions of war are also dangerous goods or when only dangerous goods are involved. If there is insufficient space to list all items, they can be listed on a separate sheet. Application and/or dangerous goods are to be carried and should be submitted to Civil Aviation Authority of Fiji, Air Safety Department; Fax No: (679) 725125

1. ALL FLIGHTS

Operator:	Date of flight:
Airport of departure:	Flight No:
Airport of destination:	AWB No:
Shipper:	Consignee:

2. MUNITIONS OF WAR

Import/Export Licence No and Expiry Date:

Number (i.e. quantity), type, calibre and make of weapons/munitions:

3. DANGEROUS GOODS

Proper Shipping name:

UN No:	Class/Division and Compatibility Group:	Packing Instruction No:
Net quantity (total):	Gross weight (total):	Number of Packages:

Name, address, telephone, telex/SITA code, fax number, e-mail address of applicant:

1.1 GUIDANCE FOR THE USE OF THE FORM

The form shown on the previous page has been designed to facilitate application for an approval (this includes a permission or exemption) for the carriage on aircraft of munitions of war and some dangerous goods.

For munitions of war, this form should be used for all requests for approval and all Parts should be completed if the munitions of war are also dangerous goods, even if they are already covered by an existing approval for the transport of dangerous goods. If the munitions of war are not also dangerous goods, only Parts 1 and 2 are appropriate.

For dangerous goods that are not munitions of war, this form should only be used when they do not comply with the normal requirements of the Technical Instructions (e.g. they are 'Forbidden') and are not covered by any existing approval. In this case, Parts 1 and 3 are appropriate.

If the form does not have sufficient space to list all the items for which an approval is being sought, they may be listed on a separate sheet.

For munitions of war in passengers' baggage, whilst this form is not ideally suited for application for the carriage of munitions of war in such circumstances, it can be used and those parts not relevant should be left blank (such as Air Waybill number, import/export licence numbers, etc).

This form should not be used for application for the permanent approval to transport dangerous goods that are referred to in paragraph 2.2.1. The application form referred to in that paragraph can be obtained from the Air Safety Department and its correct use would assist the Air Safety Department responding to applications without delay.

Appendix 2 – CAAF Occurrence Report form.

To report any DG incident, use the Authority's Mandatory Occurrence Report (MOR) form – OR 001, which can be accessed from it's website: www.caaf.org.fj

Appendix 3 Dangerous goods which react with water

It is known that a number of dangerous goods react with water to a degree; sometimes the reaction can be severe. Usually, where there is a severe reaction, the classification assigned to the goods is that of having either a primary hazard or subsidiary risk of being water reactive. However, there are other dangerous goods that react with water but this is not immediately apparent from the classification. The following groups of dangerous goods are known to react with water and in such circumstances can produce flammable, toxic or corrosive fumes:

- Substances which are in Division 4.3 (water reactive substances);
- Substances which have a Division 4.3 subsidiary risk;
- All entries in the Alphabetical and Numerical Lists of the *Emergency Response Guidance* document where 'W' appears as a letter in the Drill Code.

Listed below are all the UN numbers for the dangerous goods that fall into these criteria, together with others for goods which are known to produce a reaction with water but which do not fall into the criteria. Water should never be used to deal with either a fire or spillage involving any of these dangerous goods.

Note: Some Class 8 substances (corrosives) may also react with water; although those that are known to do so are included in the list below, it is recommended that water is not used to deal with any fire or spillage involving a corrosive substance. The list below only includes those corrosive substances that have either a Division 4.3 subsidiary risk or a 'W' as a letter in the drill code; it does NOT include all Class 8 substances.

UN 1176	UN 1390	UN 1407	UN 1426
UN 1182	UN 1391	UN 1408	UN 1427
UN 1183	UN 1392	UN 1409	UN 1428
UN 1196	UN 1393	UN 1410	UN 1431
UN 1239	UN 1394	UN 1411	UN 1432
UN 1242	UN 1395	UN 1413	UN 1433
UN 1250	UN 1396	UN 1414	UN 1435
UN 1289	UN 1397	UN 1415	UN 1436
UN 1292	UN 1398	UN 1417	UN 1555
UN 1295	UN 1400	UN 1418	UN 1560
UN 1298	UN 1401	UN 1419	UN 1670
UN 1305	UN 1402	UN 1420	UN 1699
UN 1340	UN 1403	UN 1421	UN 1714
UN 1360	UN 1404	UN 1422	UN 1715
UN 1389	UN 1405	UN 1423	UN 1716
UN 1717	UN 2013	UN 2495	UN 2879
UN 1724	UN 2033	UN 2496	UN 2880
UN 1728	UN 2078	UN 2503	UN 2950
UN 1729	UN 2206	UN 2508	UN 2865
UN 1739	UN 2226	UN 2513	UN 2968
UN 1745	UN 2236	UN 2530	UN 2985
UN 1746	UN 2240	UN 2547	UN 2986
UN 1747	UN 2250	UN 2571	UN 2987
UN 1748	UN 2257	UN 2577	UN 2988
UN 1752	UN 2262	UN 2578	UN 3078
UN 1753	UN 2267	UN 2604	UN 3080
UN 1762	UN 2281	UN 2605	UN 3094
UN 1763	UN 2290	UN 2606	UN 3096
UN 2765	UN 2308	UN 2609	UN 3121

UN 1766	UN 3228	UN 2616	UN 3123
UN 1767	UN 2353	UN 2624	UN 3125
UN 1769	UN 2380	UN 2670	UN 3129
UN 1771	UN 2395	UN 2692	UN 3130
UN 1780	UN 2407	UN 2739	UN 3131
UN 1781	UN 2416	UN 2740	UN 3132
UN 1784	UN 2434	UN 2741	UN 3133
UN 1799	UN 2435	UN 2742	UN 3134
UN 1800	UN 2441	UN 2743	UN 3135
UN 1801	UN 2445	UN 2744	UN 3148
UN 1804	UN 2463	UN 2745	UN 3170
UN 1815	UN 2466	UN 2746	UN 2182
UN 1816	UN 2467	UN 2747	UN 3205
UN 1818	UN 2474	UN 2748	UN 3206
UN 1825	UN 2477	UN 2751	UN 3207
UN 1829	UN 2478	UN 2798	UN 3208
UN 1830	UN 2480	UN 2799	UN 3209
UN 1831	UN 2481	UN 2805	UN 3246
UN 1832	UN 2482	UN 2806	UN 3247
UN 1870	UN 2483	UN 2813	UN 3274
UN 1892	UN 2484	UN 2826	UN 3277
UN 1898	UN 2485	UN 2830	UN 3292
UN 1928	UN 2486	UN 2835	
UN 2010	UN 2487	UN 2844	
UN 2011	UN 2488	UN 2869	
UN 2012	UN 2489	UN 2870	

Appendix 4 Suggested Checklist for flight crew in dealing with an in-flight emergency involving dangerous goods

SUSPECTED DANGEROUS GOODS INCIDENT - FLIGHT CREW CHECKLIST

INITIAL ACTIONS
Follow appropriate aircraft emergency procedures fire/smoke removal.
No smoking sign on.
If smoke/fumes detectable;
- don goggles and oxygen mask, with oxygen at 100%;
- set air conditioning to maximum flow, no re-circulation.

If incident in passenger cabin;
- detail cabin crew to take initial action, using cabin crew checklist;
- establish co-ordinated action between cabin and flight crew.

If fire/smoke in accessible hold, check for dangerous goods using NOTOC
Identify item, if possible by;
- consulting NOTOC, making visual check, asking passenger.

If goods not accessible, consider likely involvement in incident.
If identified check for name or number in *Emergency Response Guidance.*
If listed *Emergency Response Guidance* determine drill code.
Use drill code to decide on suitable action.

SUBSEQUENT ACTIONS
<u>If item on fire or producing visible smoke:</u>

- break open package, if necessary and safe to do so, for effectiveness of fire-fighting agent;
- use fire extinguisher (**but do not use water unless this is known to be safe**);
- check fire is out, but be prepared for re-ignition.

<u>If item is leaking</u> (if using Emergency Response Kit - see appropriate checklist):
- avoid contact; always use personal protective equipment - eg: gloves, goggles, overalls;
- stop leak if possible by plugging hole and/or inverting package;
- if possible, place package in polyethylene bag and close securely;
- place package in safe location, eg a toilet or isolate from other cargo; and restrain;
- remove or contain leakage **(but see Notes).**

<u>If risk of explosion:</u>
- maximum altitude - 10,000 or MSA, whichever is the higher;
- reduce cabin pressure differential to 1 psi maximum.

FURTHER CONSIDERATIONS
Landing as soon as possible.
Turning off non-essential electrical power.
Use NOTOC to notify ATC of dangerous goods on board in cargo.

AFTER LANDING
Disembark passengers and crew:
- for hold incident - before opening any cargo hold doors;
- for cabin incident - so affected area not traversed.

Inform ground personnel/emergency services of nature of item and where stowed.
Make appropriate entry in maintenance log.

Notes

1. For a limited period polyethylene (plastic) should not react with any dangerous goods.
2. Powders may be better left in situ if not causing damage; if removal needed they can be picked up using safety cards or stiffened polyethylene/plastic based material.
3. Use extreme caution with unknown liquids; they may be better left in situ and covered with polyethylene/plastic.
4. There may be visible or invisible fumes. If there is smoke, SMOKE warnings may be triggered.
5. If contamination within the air conditioning system AVIONICS SMOKE, MIN EQT BAY SMOKE or BAT SMOKE warnings may be triggered simultaneously. Apply AIR COND SMOKE procedure only if visible smoke or strong fumes present.
6. Ensure crew communication established. Avoid use of inter-phone position to minimise interference from oxygen mask breathing noise.
7. It is recommended to set the EMERGENCY pressure selector to overpressure position.
8. It is recommended to switch CAB FANS to OFF, to prevent re-circulation of contaminated cabin air.

Appendix 5 Suggested checklist for cabin crew in dealing with an in-flight emergency involving dangerous goods

SUSPECTED DANGEROUS GOODS INCIDENT - CABIN CREW CHECKLIST

INITIAL ACTIONS

- Notify pilot-in-command.
- Ask passenger to identify item or potential hazard.
- If identified by name or UN number, ask flight crew if they have information on item.
- If smoke/fumes detectable don goggles and oxygen masks, with oxygen at 100%.
- Collect items of possible use:
  - polyethylene bags - eg: waste bin bags, bags for duty-free sales;
  - rubber gloves, oven gloves or fire-resistant gloves;
  - airsickness bags (opened out or turned inside out);
  - plasticised passenger in-flight safety cards.

SUBSEQUENT ACTIONS

- Seek assistance:
  - from another cabin crew member, or
  - with agreement of pilot-in-command, from a passenger.
- Don gloves; have available other personal protective equipment - eg: goggles, overalls.

- <u>If item on fire or producing visible smoke:</u>
  - use standard procedure;
  - break open package, if necessary and safe to do so, for effectiveness of fire-fighting agent;
  - use fire extinguisher (**but do not use water unless this is known to be safe**);
  - check fire is out, but be prepared for re-ignition.

- <u>If item is leaking</u> (if using Emergency Response Kit - see appropriate checklist):
  - avoid contact; always use personal protective equipment - eg: gloves, goggles, overalls;
  - stop leak if possible by plugging hole and/or inverting package;
  - if possible, place package in polyethylene bag and close securely;
  - place package in safe location, eg a toilet or isolate from other cargo and restrain;
  - remove or contain leakage **(but see Notes);**
  - cover affected area with polyethylene bag(s), airsickness bag(s), safety cards;
  - regularly inspect item for further signs of leakage.

FURTHER CONSIDERATION

- Keep pilot-in-command informed.
- Move passengers away from affected area.
- Give first aid to affected passengers.
- If smoke/fumes likely to incapacitate passengers:
  - distribute wet towels or cloths **(but do not deploy drop-out oxygen system).**

AFTER LANDING

- Disembark passengers:
  - so affected area not traversed;
  - so no need to pass close to where item is stowed.
- Inform ground personnel/emergency services of nature of item and where stowed.
- Make appropriate entry in maintenance log.

Notes:

1. For a limited period polyethylene (plastic) should not react with any dangerous goods.
2. Powders may be better left in situ if not causing damage; if removal needed they can be picked up using safety cards or stiffened polyethylene/plastic based material.
3. Use extreme caution with unknown liquids; they may be better left in situ and covered with polyethylene/plastic based material. Do not use paper or cloth to mop-up spillage unless certain there will be no reaction.

Appendix 6 - Suggested checklist for dealing with an in-flight emergency involving dangerous goods, using an emergency response kit

SUSPECTED DANGEROUS GOODS INCIDENT - FLIGHT CREW CHECKLIST

INITIAL ACTIONS

- Check kit contains:
  - large and small polyethylene bags;
  - bag ties;
  - several pairs of flexible rubber gloves;
  - sand **(but do not use on anything identified as containing Hydrofluoric acid);**
  - sodium bicarbonate **(can be used with all acids).**

- Collect other items of possible use:
  - oven gloves or fire-resistant gloves;
  - airsickness bags (opened out or turned inside out);
  - plasticised passenger in-flight information safety cards;
  - personal protective equipment - eg: PBE, goggles, overalls.

ACTIONS TO REMOVE ITEM FROM VICINITY OF PASSENGERS AND CREW

- Don rubber gloves or put hands in polyethylene bags; or use other gloves and protect in same way as hands.
- Stop leak if possible by plugging hole and/or inverting item.
- Prepare polyethylene bag of sufficient size by opening out to fullest extent.
- Place item in bag with closure or point of leakage uppermost.
- Tie bag tightly and securely around item, but allow for pressure equalisation.
- Remove gloves, etc taking care to avoid skin contact with any contamination.
- Place bag containing item, gloves, etc, into another bag; tie this tightly and securely as before.
- Take bag away from passengers and crew; avoid smoking section.
- Stow bag in safe location, eg: a toilet, or isolate from passengers; and restrain.

ACTIONS TO CLEAN-UP SPILLAGES OR CONTAIN LEAKAGES

- If sand available and usable, contain spillage by covering/surrounding with sand.
- For acids, cover spillage with sodium bicarbonate, to neutralise.
- Use safety cards or stiffened polyethylene bags to pick-up powders or contaminated sand/sodium bicarbonate; place in polyethylene bag and secure.
- Place in another bag all used items and bag containing contaminated sand/sodium bicarbonate.
- Secure this bag and stow as above.
- Cover any residue of spillage with polyethylene bag(s), airsickness bag(s), safety cards.
- If furnishing (eg: seat covers) contaminated, remove if possible, place in polyethylene bag;
- Secure and stow as before; or cover with polyethylene bag(s), airsickness bag(s), safety cards; or
- Remove if possible, place in polyethylene bag, secure, stow away from passengers and crew.

SUBSEQUENT ACTIONS

- Keep pilot-in-command informed.
- Regularly inspect bag containing item for further signs of leakage or reaction.
- Ensure no one touches or interferes with any of the bag.s
- Move passengers away from affected area; give first aid to affected passengers.
- If smoke/fumes likely to incapacitate passengers.

Distribute wet towels or cloths (but do not deploy drop-down oxygen system.

Notes

1. For a limited period polyethylene (plastic) should not react with any dangerous goods.
2. Powders may be better left in situ if not causing annoyance to passengers or damage. Use extreme caution with unknown liquids; if spread on carpet or furnishings they may be better left in situ and covered.
3. Do not use water, Do not use paper or cloth to mop-up spillage unless certain there will be no reaction.
4. Sand is inert with all substances other than those containing Hydrofluoric acid (UN nos 1786 and 1790).
5. Use of sodium bicarbonate on acids is safe but there may be bubbling and evolution of carbon dioxide.

APPENDIX 7 NOTIFICATION TO PILOT-IN-COMMAND (NOTOC)

The carriage of special cargo which may need the attention from the crew must be reported to the Captain at the pre-flight briefing by means of the “Special Load Notification to Captain” or (NOTOC).

- The cargo-handling department shall initiate the NOTOC completing all known information.
- The load control department shall enter aircraft registration and the loading positions specifying by compartment number or ULD position.
- The loading supervisor shall note all deviations to planned load on the form and inform the load control department as well as the Captain.
- One copy of the NOTOC will be inserted in the Loadsheet file, the other copies should be distributed according to Company Policy.

In case no special load will be loaded at a station, the indication on the Loadsheet must be “NOTOC/NO”.

If for balance reasons the load has to be redistributed in transit, issuing of another NOTOC may be required showing the new loading positions.

Handling companies may use their own forms provided these are in accordance with ICAO Technical Instructions specifications.

The use of the form is a requirement under Part 7;4.1 of the Technical Instructions.

(Suggested NOTOC form)

Notification To Captain

(front)

SPECIAL LOAD – NOTIFICATION TO CAPTAIN													
Station of Loading	Flight Number	Date	Aircraft Registration	Prepared by									
DANGEROUS GOODS													
Station of Unloading	Air Waybill Number	Proper Shipping Name	Class or Division For Class 1 compat. grp	UN or ID Number	Sub Risk	Number of Packages	Net quantity or Transp. Ind. per package	Radio-active Mat. Categ.	Packing Group	Code (see reverse)	CAO (X)	ULD	POSITION

OTHER SPECIAL LOAD *** There is no evidence that any damaged or leaking package containing dangerous goods have been loaded on the aircraft.**							
Stat of Unload	Air Waybill Number	Contents and Description	Number of Packages	Quantity	Supplementary Information	Code (see reverse)	LOADED
							ULD ID / POSITION
Loading Supervisor's Signature	Captain's Signature		Other Information				

* This sentence must be shown on the NOTOC. T he location is left to the discretion of the carrier.

(Suggested NOTOC form)

Notification To Captain

(reverse)

BACK OF NOTOC

DANGEROUS GOODS

IMP Code	Name	Class	Divisional/ Compatibility Group
RCX	Explosives	1	*1.3C
REX			1.1, 1.2, 1.3, 1.4F, 1.5, 1.6
RGX			*1.3G
RXB			1.4B
RXC			1.4C
RXD			1.4D
RXE			1.4E
RXG			1.4G
RXS			1.4S
RFG	Flammable Gas	2	2.1
RNG	Non-flammable, Non-toxic gas		2.2
RCL	Cryogenic Liquid		2.2
RPG	Toxic Gas		2.3
RFL	Flammable liquid	3	
RFS	Flammable solid	4	4.1
RSC	Spontaneously combustible		4.2
RFW	Dangerous when wet		4.3
ROX	Oxidizer	5	5.1
ROP	Organic peroxide		5.2
RPB	Toxic substance	6	6.1
RIS	Infectious substance		6.2
RRW	Radioactive - White	7	Cat. I
RRY	Radioactive - Yellow		Cat II and III
RCM	Corrosive substance	8	
RSB	Polymeric beads	9	
MAG	Magnetized material		
ICE	Carbon dioxide, solid (dry ice)		
RMD	Miscellaneous dangerous goods		
CAO	Cargo Aircraft Only	-	

OTHER SPECIAL LOAD

IMP Code	Name
AVI	Live animals
EAT	Foodstuffs
FIL	Undeveloped film/ Unexposed Films
HUM	Human Remains
PEA	Hunting trophies, skin and all articles made from or containing parts of species listed in CITES
PEF	Flowers
PEM	Meat
PEP	Fruits and vegetables
PER	Perishables
PES	Seafood/fish for human consumption
VAL	Valuable cargo

***Codes RCX and RGX assigned exclusively to those items identified in IATA DGR current edition as authorised on cargo aircraft. All other explosives in Division 1.3 are forbidden for air transportation and are to be assigned the code REX.**

Appendix 8
Shipper's Declaration Suggested Form

<table>
<tr><td colspan="3">Shipper</td><td colspan="3">Air Waybill No.
Page of Pages
Shipper's Reference Number
(optional)</td></tr>
<tr><td colspan="3">Consignee</td><td colspan="3">For optional use
for
company logo
name and address</td></tr>
<tr><td colspan="3">Two completed and signed copies of this declaration must be handed to the operator.</td><td colspan="3" rowspan="3">WARNING
Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This declaration must not, in any circumstances, be completed and /or signed by a consolidator, a forwarder or an IATA cargo agent.</td></tr>
<tr><td colspan="3">TRANSPORT DETAILS</td></tr>
<tr><td colspan="2">This shipment is within the limitations prescribed for:(delete non-applicable)
PASSENGER AND CARGO AIRCRAFT / CARGO AIRCRAFT ONLY</td><td>Airport of Departure:</td></tr>
<tr><td colspan="3">Airport of Destination:</td><td colspan="3">Shipment Type: (Delete non-applicable)
NON-RADIOACTIVE / RADIOACTIVE</td></tr>
<tr><td colspan="6">NATURE AND QUANTITY OF DANGEROUS GOODS</td></tr>
<tr><td colspan="5">Dangerous Goods Identification</td><td rowspan="2">Quantity and type of packing</td><td rowspan="2">Packing Instruction</td><td rowspan="2">Authorisation</td></tr>
<tr><td>Proper Shipping Name</td><td>Class or Division</td><td>UN or ID No.</td><td>Packing Group</td><td>Subsidiary Risk</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="8">Additional Handling Information</td></tr>
<tr><td colspan="4">I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.</td><td colspan="4">Name/Title of Signatory

Place and Date

Signature
(see warning above)</td></tr>
</table>

Appendix 9

DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT

The recommended check list appearing on the following pages is intended to verify shipments at origin.

Never accept or refuse a shipment before all items have been checked.

Is the following information correct for each entry?

SHIPPER'S DECLARATION FOR DANGEROUS GOODS (DGD)

		YES	NO*	N/A
1.	Two copes in English and in the IATA format (8.1.1.1, 8.1.2.1, 8.1.2.3)	☐	☐	
2.	Full name and address of Shipper (8.1.6.1)	☐	☐	
3.	Full name and address of Consignee) (8.1.6.2	☐	☐	
4.	Name and Telephone Number of a person responsible for Division 6.2 Infectious Substance shipment (8.1.6.2	☐	☐	☐
5.	If the Air Waybill number is not shown enter it (8.1.6.3)	☐		
6.	The number of pages shown (8.1.6.4)	☐	☐	
7.	If full name of Airport or City of Departure or Destination is not shown, Enter it (8.1.6.6 and 8.1.6.8)	☐		
8.	The non applicable Aircraft Type deleted (8.1.6.5) and the word "Radio-active" deleted (8.1.6.8)	☐	☐	
Identification				
9.	Proper Shipping Name and the technical name in parentheses for asterisked entries (8.1.6.9.1, Step 1)	☐	☐	
10.	Class or Division, and for Class 1, the Compatibility Group (8.1.6.9 Step 2)	☐	☐	
11.	UN or ID Number, preceded by prefix (8.1.6.9.1, Step 3)	☐	☐	
12.	Packing Group (8.1.6.9.1, Step 4)	☐	☐	☐
13.	Subsidiary Risk (8.1.6.9.1 Step 5)	☐	☐	☐
Quantity and Type of Packing				
14.	Number and Type of packages	☐	☐	
15.	Quantity and unit of measure (net or gross, as applicable) per package (8.1.6.9.2, Step 6)	☐	☐	☐
Additional Handling Information				
16.	If different dangerous goods are packed in one outer packaging, are the following rules applied:	☐	☐	☐
	Compatible according to Table 9.3.A (note exception for chemical kits/first aid kits. See Packing Instruction 915 and Y915)	☐	☐	☐
	For UN packages containing Division 6.2 (5.0.2.11(c))	☐	☐	☐
	"All packed in one type of packaging)" (8.1.6.9.2, Step 6)	☐	☐	☐
	Calculation of "Q" value (5.0.2.11; 5.0.3.2; 8.1.6.9.2, Step 6)	☐	☐	☐
17.	Overpack:			
	Indication "Overpack used" (8.1.6.9.2, Step 7)	☐	☐	☐
	Compatible according to Table 9.3.A (5.0.1.5(a) and (c))	☐	☐	☐
Packing Instructions				
18.	Packing Instruction Number (8.1.6.9.3, Step 8)	☐	☐	☐
Authorisation				
19.	Indication of "Limited Quantity" or "Ltd. Qty. " if "Y" packing instruction used (8.1.6.9.4, Step 9)	☐	☐	☐
20	The Special Provision Number if A1, A2, A51 or A109 (8.1.6.9.4, Step 9)	☐	☐	☐
21	Indication that governmental authorisation is attached, including a copy in English (8.1.6.9.4, Step 9)	☐	☐	☐
22.	Additional approvals for items under (8.1.6.9.4, Step 9)	☐	☐	☐

23. For self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, or samples thereof, is the mandatory statement shown (8.1.6.11.1) ☐ ☐ ☐

24. **Prior arrangement statement** for Infectious Substances (8.1.6.11.1) ☐ ☐ ☐

25. **Name and Title of signatory, Place and Date** indicated (8.1.6.12 an 8.1.6.13) ☐ ☐

26. **Signature** of Shipper (8.1.6.14) ☐ ☐

27. **Amendment** or alteration signed by Shipper (8.1.2.6) ☐ ☐ ☐

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28. The number of dangerous goods pieces if packages of dangerous and non-dangerous in one shipment (8.2.1) ☐ ☐ ☐

29. The **Handling Information** box shows: "Dangerous goods per attached Shippers declaration" or "DG" (8.2.2) ☐ ☐ ☐

30. "Cargo Aircraft only" or "CAO", if applicable (8.2.2) ☐ ☐ ☐

PACKAGE(S) AND OVERPACKS

31. Packages conforms with packing instruction and is undamaged (9.1.1.3) ☐ ☐ ☐

32. Same number and type of packagings and overpacks delivered as shown on DGD ☐ ☐ ☐

Markings

33. For UN specification Packaging, are they marked according to 6.0.4.2 ☐ ☐ ☐

- Symbol and Specification Code ☐ ☐ ☐

- X, Y, or Z agreed with Packing Group/Packing instruction ☐ ☐ ☐

- Maximum Gross Weight not exceeded (Solids or Inner Packagings) ☐ ☐ ☐

34. The Proper Shipping Name(s) including technical name where required, and the UN or ID Number(s) (7.1.5.1(a)) ☐ ☐

35. The full name(s) and Address (es) of Shipper and Consignee(7.1.5.1(b)) ☐ ☐

36. The Net Quantity of Explosives and Gross Weight of the package for Class 1 items (7.1.5.1(c)) ☐ ☐ ☐

37. The Name and Telephone Number of a person responsible for Division 6.2 infectious Substances shipment (7.1.5.1 (d)) ☐ ☐ ☐

38. The Special Marking requirements shown for Packing Instruction 202 (7.1.5.1(e)) 916, 917 ☐ ☐ ☐

39. In case of Carbon Dioxide, Solid (Dry Ice), the Net Weight marked on the Package (7.1.5.1(f)) ☐ ☐ ☐

40. For Limited Quantity packaging: "LIMITED QUANTITY" or "LTD.QTY" (7.1.5.3) ☐ ☐ ☐

Labelling

41. The Primary Risk label(s) with Class or Division Number affixed to each package as per 4.2, Column E (7.2.3.2) ☐ ☐ ☐

42. The Subsidiary Risk label(s), without Class or Division Number, as per 4.2, Column E (7.2.3.2) ☐ ☐ ☐

43. Cargo Aircraft Only label, adjacent to the Hazard label(s)(7.2.4.2:7.2.6.3) ☐ ☐ ☐

44. "Orientation" labels(7.1.6.1;7.2.6.4) ☐ ☐ ☐

45. For Magnetized Material, the Handling Label (Subsection 4.2, Column E and (7.2.3.9) ☐ ☐ ☐

46. "Cryogenic Liquid" labels (7.2.4.4; 7.3.21) ☐ ☐ ☐

47. All above labels correctly affixed (7.2.6) and have all irrelevant marks and labels been removed(7.1.1;7.2.1) ☐ ☐ ☐

For Overpacks

48. If specification markings are not visible the required statement marked (7.1.4.2) ☐ ☐ ☐

		YES	NO*	N/A
	GENERAL			
49.	Packaging use marking as required must be clearly visible or reproduced on the outside of the overpack (7.1.5)	☐	☐	☐
50.	If more than one overpack, identification marks and the total quantity of dangerous goods must be indicated adjacent to the proper shipping name	☐	☐	☐
51.	"Cargo Aircraft only" restrictions (5.1.1.5(c))	☐	☐	☐
52.	State and Operator variations complied with (2.9)	☐	☐	☐
53.	The Emergency Response Telephone Number as required by USG-12	☐	☐	☐
54.	Advance arrangements for Infectious, Self-Reactive Substances of Division 4.1 and Organic Peroxides of division 5.2 made and confirmed (9.1.2; 9.1.3)	☐	☐	☐
55.	For "Cargo Aircraft Only" shipments, a cargo aircraft operations on all sectors	☐	☐	☐

Comments:

Checked by:

Place: Signature:

Date:

Time:

***IF ANY QUESTION IS ANSWERED WITH A 'NO' DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.**