



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

*A United Nations Specialized Agency*

# **Annex 6 – Dangerous Goods Amendments**

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# Topics



- Background
- Current requirements in Annex 18
- Current requirements in Annex 6
- Amendments in Annex 6
- Why dangerous goods amendments
- How will it work “really”!

# Background



- The results of information received from the Universal Safety Oversight Audit Program (USOAP).
- The established process developed by States for use where implemented.
- To begin to close the gap identified between Annex 6 and Annex 18 through SMS implementation.
- Beginning of identifying the points where dangerous goods are linked to other Annexes.

# Current Provisions (or lack of)



- Annex 18-
  - Dangerous Goods Training Programs shall be established and updated as provided for in the Technical Instructions.

# Training – Part 1;4



- 1;4.2.1 Personnel must be trained in the requirements commensurate with their responsibilities.

5;1.4 Before a consignment of dangerous goods is offered for air transport, all relevant persons involved in its preparation must have received training to enable them to carry out their responsibilities, as detailed in Part 1. Where a shipper does not have trained staff, the “relevant persons” may be interpreted as applying to those employed to act on the shipper’s behalf and to undertake the shipper’s responsibilities in the preparation of the consignment. However, such persons must be trained as required by Part 1, Chapter 4.

7;4.10 An operator must ensure training is provided in accordance with the detailed requirements of 1;4 to all relevant employees, including those of agencies employed to act on the operator’s behalf, to enable them to carry out their responsibilities with regard to the transport of dangerous goods, passengers and their baggage, cargo, mail and stores.

## Training (cont'd)



- Initial and recurrent dangerous goods training programmes must be established for those who are involved with the transport of dangerous goods by air, e.g. operators, shippers, etc. 1;4.1.1
- Training programmes of operators and designated postal operators must be approved by the appropriate authority within the State. All other training programmes should be approved by the State. 1;4.1.2

# Training (cont'd)



## **Table 1-4**

“Content of training courses”

## **Table 1-5**

“Content of training courses for operators not carrying dangerous goods as cargo or mail”

## **Table 1-6**

“Content of training courses for staff of designated postal operators”

# Training Table 1-4



Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum	Shippers and packers		Freight forwarders			Operators and ground handling agents						Security staff
	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	x	x	x	x	x	x	x	x	x	x	x	x
Limitations	x		x	x	x	x	x	x	x	x	x	x



**Table 1-4. Content of training courses**

<i>Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum</i>	<i>Shippers and packers</i>		<i>Freight forwarders</i>				<i>Operators and ground handling agents</i>					<i>Security staff</i>
	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	x	x	x	x	x	x	x	x	x	x	x	x
Limitations	x		x	x	x	x	x	x	x	x	x	x
General requirements for shippers	x		x			x						
Classification	x	x	x			x						x
List of dangerous goods	x	x	x			x				x		
Packing requirements	x	x	x			x						
Labelling and marking	x	x	x	x	x	x	x	x	x	x	x	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						x						
Recognition of undeclared dangerous goods	x	x	x	x	x	x	x	x	x	x	x	x
Storage and loading procedures					x	x		x		x		
Pilots' notification						x		x		x		
Provisions for passengers and crew	x	x	x	x	x	x	x	x	x	x	x	x
Emergency procedures	x	x	x	x	x	x	x	x	x	x	x	x

- 1 — Shippers and persons undertaking the responsibilities of shippers
- 2 — Packers
- 3 — Staff of freight forwarders involved in processing dangerous goods
- 4 — Staff of freight forwarders involved in processing cargo or mail (other than dangerous goods)
- 5 — Staff of freight forwarders involved in the handling, storage and loading of cargo or mail
- 6 — Operator's and ground handling agent's staff accepting dangerous goods
- 7 — Operator's and ground handling agent's staff accepting cargo or mail (other than dangerous goods)
- 8 — Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail and baggage
- 9 — Passenger handling staff
- 10 — Flight crew members, loadmasters and load planners
- 11 — Crew members (other than flight crew members)
- 12 — Security staff who are involved with the screening of passengers and their baggage and cargo or mail, e.g. security screeners, their supervisors and staff involved in implementing security procedures

# Training

## Table 1-4 (cont'd)



### KEY

- 1 — Shippers and persons undertaking the responsibilities of shippers
- 2 — Packers
- 3 — Staff of freight forwarders involved in processing dangerous goods
- 4 — Staff of freight forwarders involved in processing cargo or mail (other than dangerous goods)
- 5 — Staff of freight forwarders involved in the handling, storage and loading of cargo or mail
- 6 — Operator's and ground handling agent's staff accepting dangerous goods
- 7 — Operator's and ground handling agent's staff accepting cargo or mail (other than dangerous goods)
- 8 — Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail and baggage
- 9 — Passenger handling staff
- 10 — Flight crew members, loadmasters and load planners
- 11 — Crew members (other than flight crew members)
- 12 — Security staff who are involved with the screening of passengers and their baggage and cargo or mail, e.g. security screeners, their supervisors and staff involved in implementing security procedures

# Operator's not carrying dangerous goods



Table 1-5. Content of training courses for operators not carrying dangerous goods as cargo or mail

Contents	7	8	9	10	11
General philosophy	X	X	X	X	X
Limitations	X	X	X	X	X
Labelling and marking	X	X	X	X	X
Dangerous goods transport document and other relevant documentation	X				
Recognition of undeclared dangerous goods	X	X	X	X	X
Provisions for passengers and crew	X	X	X	X	X
Emergency procedures	X	X	X	X	X

- 7 — Operator's and ground handling agent's staff accepting cargo or mail (other than dangerous goods)
- 8 — Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail (other than dangerous goods) and baggage
- 9 — Passenger handling staff
- 10 — Flight crew members, loadmasters and load planners
- 11 — Crew members (other than flight crew members)

# Postal Authorities



**Table 1-6. Content of training courses for staff of designated postal operators**

<i>Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum</i>	<i>Designated postal operators</i>		
	A	B	C
General philosophy	x	x	x
Limitations	x	x	x
General requirements for shippers	x		
Classification	x		
List of dangerous goods	x		
Packing requirements	x		
Labelling and marking	x	x	x
Dangerous goods transport documents and other relevant documentation	x	x	
Acceptance of the dangerous goods listed in 1;2.3.2	x		
Recognition of undeclared dangerous goods	x	x	x
Storage and loading procedures			x
Provisions for passengers and crew	x	x	x
Emergency procedures	x	x	x

**KEY**

- A — Staff of designated postal operators involved in accepting mail containing dangerous goods
- B — Staff of designated postal operators involved in processing mail (other than dangerous goods)
- C — Staff of designated postal operators involved in the handling, storage and loading of mail

*Note.— Guidance on the aspects of training to be covered by staff of designated postal operators can be found in S-1;3.*

# Training Table 1-6



Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum	Designated postal operators		
	A	B	C
General philosophy	x	x	x
Limitations	x	x	x
General requirements for shippers	x		
Classification	x		
List of dangerous goods	x		
Packing requirements	x		
Labelling and marking	x	x	x
Dangerous goods transport document and other relevant documentation	x	x	
Acceptance of the dangerous goods listed in 1;2.3.2	x		
Recognition of undeclared dangerous goods	x	x	x
Storage and loading procedures			x
Provisions for passengers and crew	x	x	x
Emergency procedures	x	x	x

# Training Frequency



- ‘Recurrent’ training must be provided every 24 months (1;4.2.3).
- If ‘recurrent’ training is completed within the final three months of validity of previous training, the period of validity extends from the month on which the recurrent training was completed until 24 months from the expiry month of that previous training. (1;4.2.3)
  - For example: If the date of initial training was April, 2007 and the date of recurrent training was February, 2009 the next training session is required by April, 2011.
- *Note.— Initial dangerous goods and security awareness training is not necessary for a new employee with previous training, that is both relevant and verifiable (1;4.2.2 and 1;5.2).*

# Training Test



- Once training is complete a test must be provided to confirm understanding (1;4.2.4.)
- *Note.— The test can be taken orally as there is no requirement that it be written.*

# Training Training Record



- A Training Record must be kept by the employer on each employee, which includes:
  - the name of the person trained,
  - the most recent training completion month,
  - a description, copy or reference to training materials used to meet the training requirements,
  - the name and address of the organization providing the training, and
  - evidence which shows the person has satisfactorily completed the test.
- *Note.— This record is to be kept for a minimum of 36 months from the most recent training completion date and must be made available to the employee and the appropriate national authority, upon request (1;4.2.5).*



# Annex 6



- Referred to Annex 18 for all dangerous goods requirements.
- Current practice is many States have in their Operating Regulations the requirement for the Approved Dangerous Goods Training Program (regardless of whether dangerous goods are authorized) however, the requirement to have one was in the Technical Instructions.
- The States not issuing Dangerous Goods Authorizations never went to the requirements in the Technical Instructions.

# Amendments to Annex 6



- A new Chapter was developed for Dangerous Goods requirements to Annex 6 (November 2014).
- There will be an evaluation of possible actions where clarity and interfaces can be identified in Annex 18 and the Technical Instructions.

# States Responsibilities



- Notes to emphasize the related information in Annex 18
- Provisions for Operators that do not transport dangerous goods
- Provisions for Operators that do transport dangerous goods
- Provision of Information

# State Responsibilities



- Ensure operators that do NOT transport DG as cargo
  - Establish a training program that meets the requirements of Annex 18 and the Technical Instructions, Part 1, Chapter 4, Table 1-5 and any additional State regulations. Details shall be included in the operations manual.
  - Establish DG policies and procedures to meet at a minimum, the requirements in Annex 18, the Technical Instructions and any State regulations.

# DG Policies and Procedures



- To allow operator personnel to:
  - 1) identify, reject and report undeclared dangerous goods, including COMAT classified as dangerous goods; and
  - 2) report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred.

# States Responsibilities



- Ensure operators that DO transport DG as cargo:
  - Establish a DG Training Program that meets the requirements of Annex 18 and the Technical Instructions, Part 1, Chapter 4, Table 1-4 and any additional State regulations. Details shall be included in the operations manual.
  - Establish DG policies and procedures to meet at a minimum, the requirements in Annex 18, the Technical Instructions and any State Regulations.

# DG Policies and Procedures



- To allow operator personnel to:
  - 1) identify, reject and report undeclared dangerous goods, including COMAT classified as dangerous goods; and
  - 2) report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred.

# DG Policies and Procedures



- To allow operator personnel to:
  - 3) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft;
  - 4) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo.



# Provision of Information



- The operator shall ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are informed of the operator's operational approval and limitations with regard to the transport of dangerous goods.

# Attachment K



- Guidance regarding the carriage of dangerous goods as cargo. Annex 6, Chapter 14, includes dangerous goods operational requirements that apply to all operators.

# Definitions



- Cargo. Any property carried on an aircraft other than mail and accompanied or mishandled baggage.
- Note 1.— This definition differs from the definition of “cargo” given in Annex 9 — Facilitation.

# COMAT



- Note 2.— COMAT that meet the classification as dangerous goods and which are transported in accordance with Part 1;2.2.2 or Part 1;2.2.3 or Part 1;2.2.4 of the Technical Instructions are considered as “cargo” (e.g. aircraft parts such as chemical oxygen generators, fuel control units, fire extinguishers, oils, lubricants, cleaning products).

# COMAT



- CHAPTER 1. DEFINITIONS
- COMAT. Operator material carried on an operator's aircraft for the operator's own purposes.
- Why is the definition important for DG?

# States

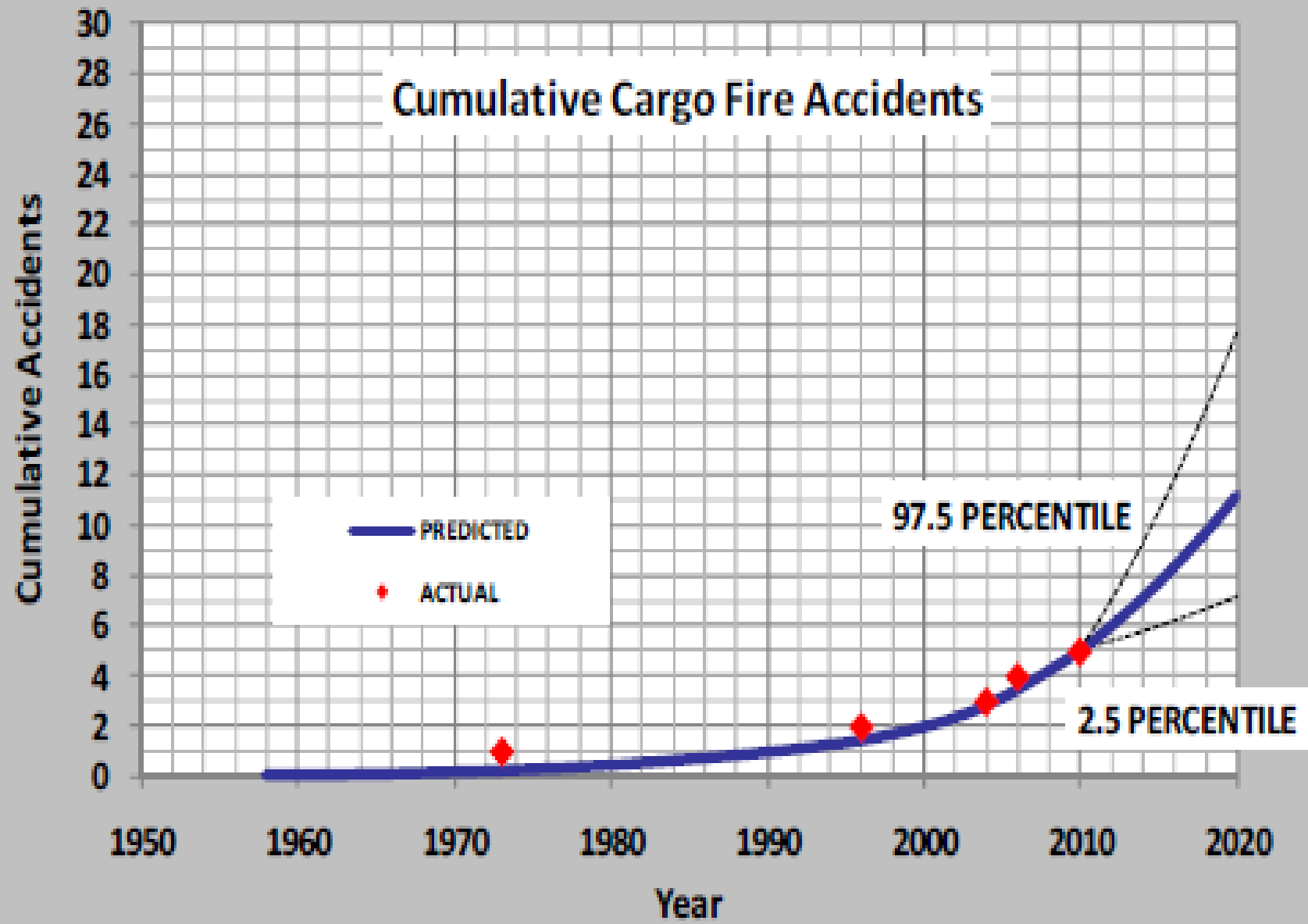


- Any limitations in the operations specification if an operator is approved or is not approved to transport dangerous goods as cargo. When an operator is approved to transport dangerous goods as cargo any limitations should be included.
- An operational approval may be granted for the transport of specific types of dangerous goods only (e.g. dry ice, biological substance, Category B, and dangerous goods in excepted quantities) or COMAT.

# Special Operations

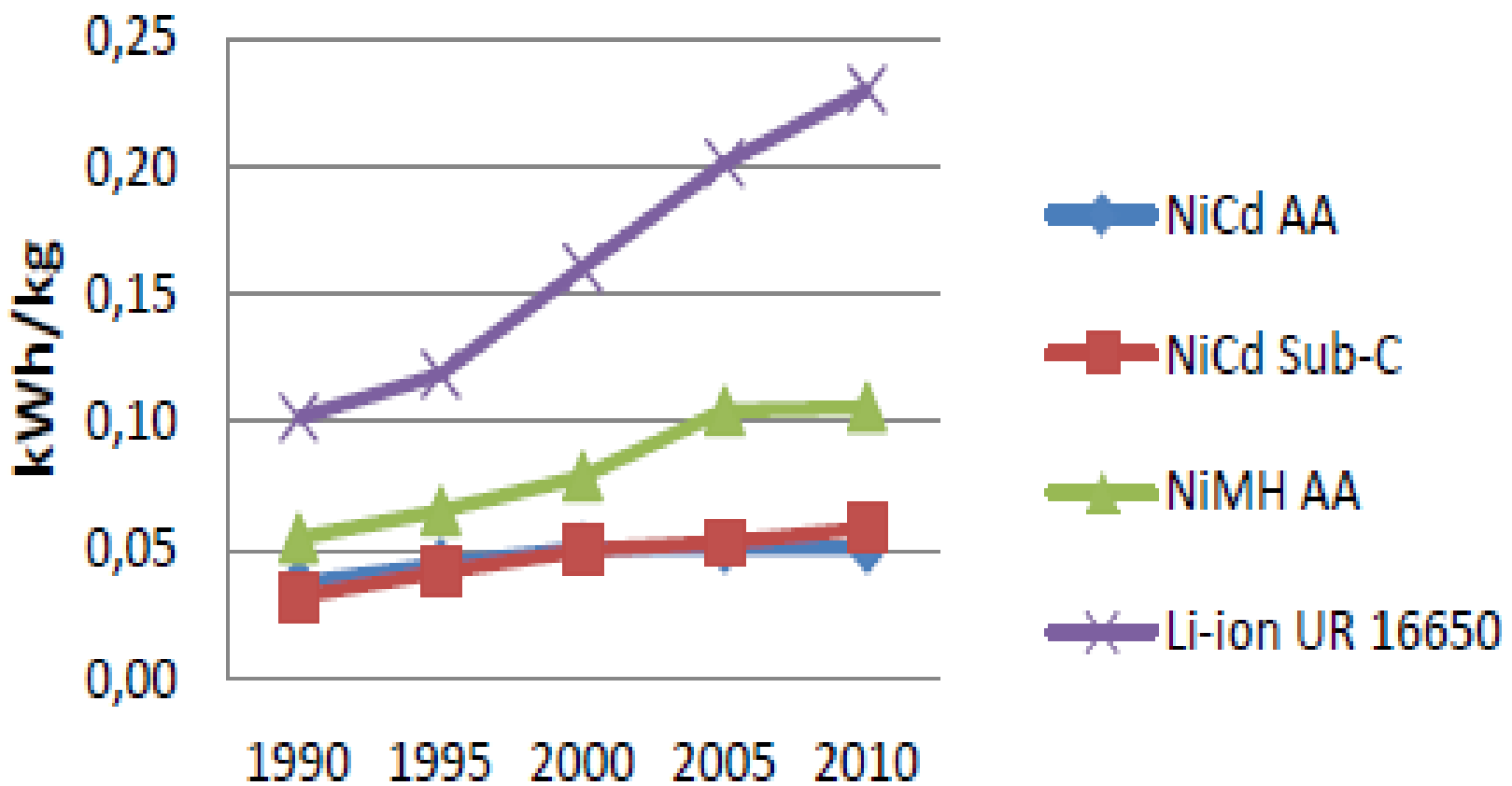


- Carriage of dangerous goods other than as cargo (i.e. medical flights, search and rescue) are addressed in Part 1, Chapter 1, of the Technical Instructions. The exceptions for the carriage of dangerous goods that are either equipment or for use on board the aircraft during flight are detailed in Part 1, 2.2.1, of the Technical Instructions.





## Capacity Improvement for Portable Rechargeable Batteries



	2002	2012
Lithium ion cells	800 M	4.40 B
Notebooks	40 M	202 M
Cellular/Smart Phones	420 M	1.70 B
Tablets	0	125 M
Power Tools	0	25 M

# Oversight of Lithium Batteries



- Non compliant shippers
- Lack of oversight from National Authorities
  - Legislative framework
  - Resources
  - Knowledge
- Counterfeit and “refurbished” batteries
- Regulatory complexity
- Billions of lithium ion cells and batteries, equipment and vehicles with lithium ion batteries safely manufactured and shipped annually

# Oversight of Lithium Batteries



- Quantity of manufacturing and transport makes oversight a responsibility aviation authorities do not have resources or in some cases expertise to accomplish.
- Dangerous Goods Programs for Operators have become a critical safety concern.
- Noncompliant shipments are a critical safety concern.

# Operator Programs



- Procedures in DG Programs to detect non compliant shipments will be in place regardless of where an operator is operating.
- As most of the transport is global now, many States do not have any authority where the cargo/DG originates.
- The real line of defense against undeclared shipments is operator awareness.

# Cargo Forecast



- Over the next 20 years, world air cargo traffic will grow 5.2% per year. Air freight, including express traffic, will average 5.3% annual growth, measured in RTKs. Overall, world air cargo traffic will increase from 202.4 billion RTKs in 2011 to more than 558.3 billion RTKs in 2031.”
- World air cargo will more than double over the next 20 years.

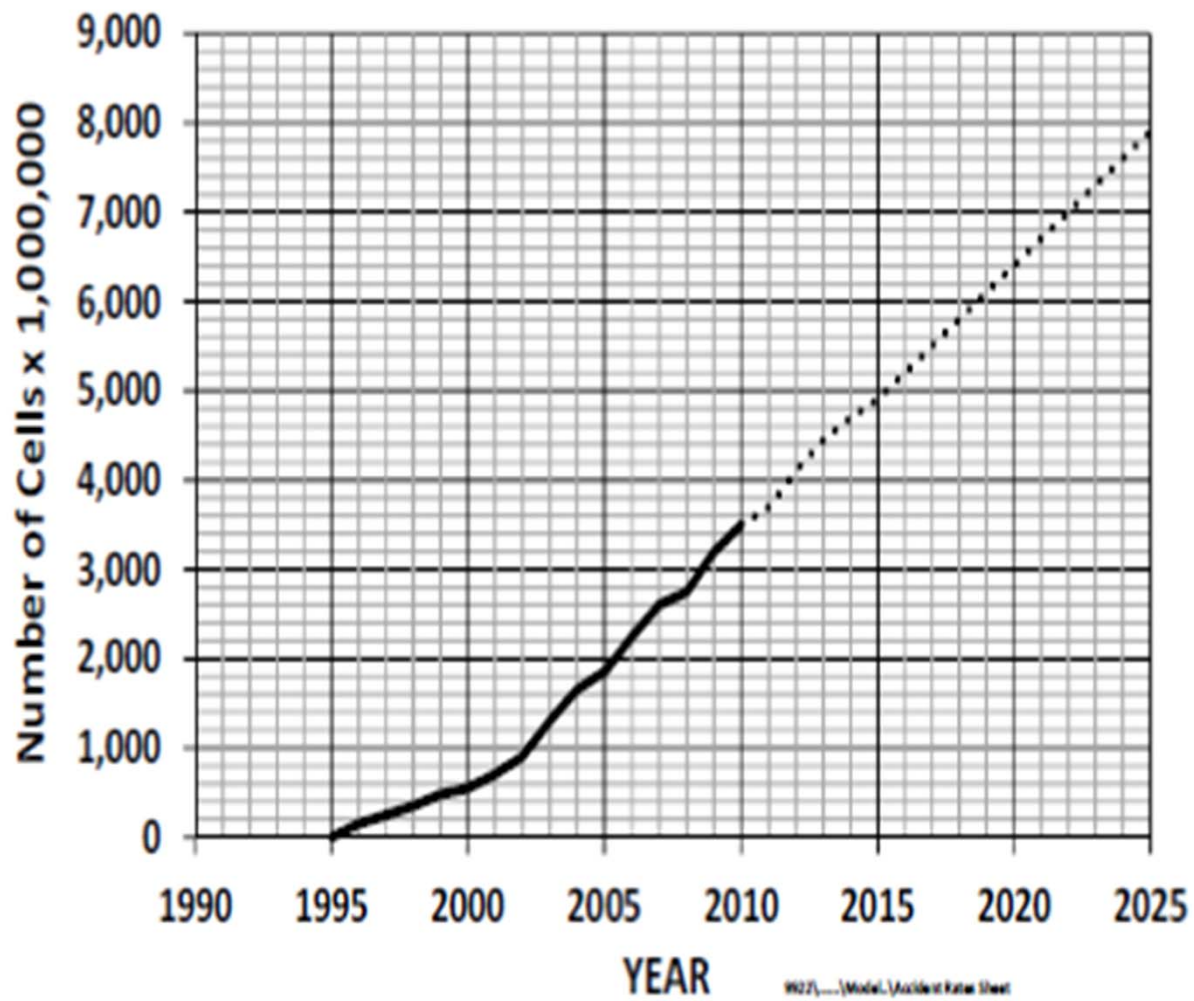


Figure 3. Estimated Annual Number of Secondary Lithium Battery Cells Produced Worldwide

# How will this work?



- The dangerous goods training and Ops manual approval process may be structured differently in different States.
  - All an Ops responsibility
  - A dangerous goods responsibility
  - A cooperative responsibility
- The process may vary depending on the size and structure within the State.



# Oversight



- Once provisions are approved the oversight process continues to be a systematic approach between Dangerous Goods and Operations.
- The determination if the provisions are effective and adequate, is to evaluate compliance with Annex 18 and the Technical Instructions.

# Oversight

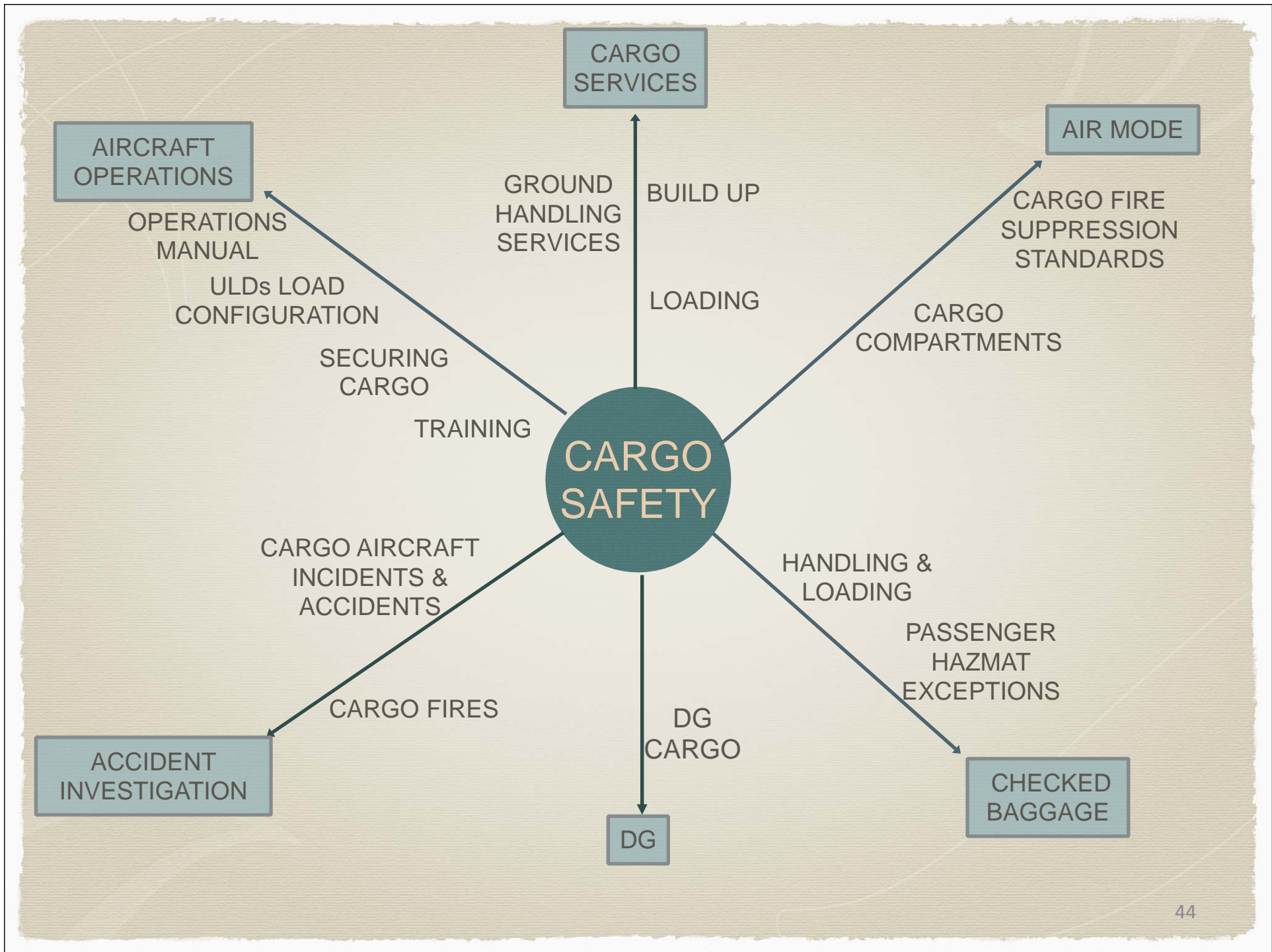


- If compliance is not achieved there are only two choices:
  - The provisions are not adequate, or
  - The operator is not following the approved programs and manual provisions.
- The provisions in the Ops manual should put procedures in place that accomplish compliance with Annex 18 and the Technical Instructions in addition to any State regulations.

# SMS



- SMS has exposed the gap presented by cargo and dangerous goods.
- Dangerous Goods and Cargo are cross discipline more and more as technology and commerce change.
- Aircraft parts, suppression, passenger baggage, operator equipment used in flight all touch other areas of dangerous goods and cargo.
- We must do a better job of cross discipline communication and collaboration.



AIRCRAFT OPERATIONS

AIRPORTS

AIR MODE

OPERATIONS MANUAL

PASSENGER NOTIFICATION

COMAT

INSTALLED EQUIPMENT

TRAINING

EMERGENCY SERVICES

TRAINING

MAINTENANCE RECOMMENDATIONS (DISPOSAL)

CARGO

FIGHT CREW TRAINING AND RESPONSE

EXEMPTIONS/ APPROVALS

DG

CARGO AIRCRAFT INCIDENTS & ACCIDENTS

CARGO FIRES

TRAINING AND OPS MANUALS

ACCIDENT INVESTIGATION

TRAINING

PASSENGER BAGGAGE

AIRCRAFT PARTS

DISPOSAL

CABIN SAFETY

EQUIPMENT USED DURING OPERATION

REPAIR STATIONS

# Any Questions



- Ask Katherine!!