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GAPS IN THE RADIOACTIVE MATERIAL TRANSPORTATION SECURITY REGULATORY PROCESS

Lorenz R. “Richie” Spangler, CHMM, CDGP

Nuclear/Radiological Security Lead

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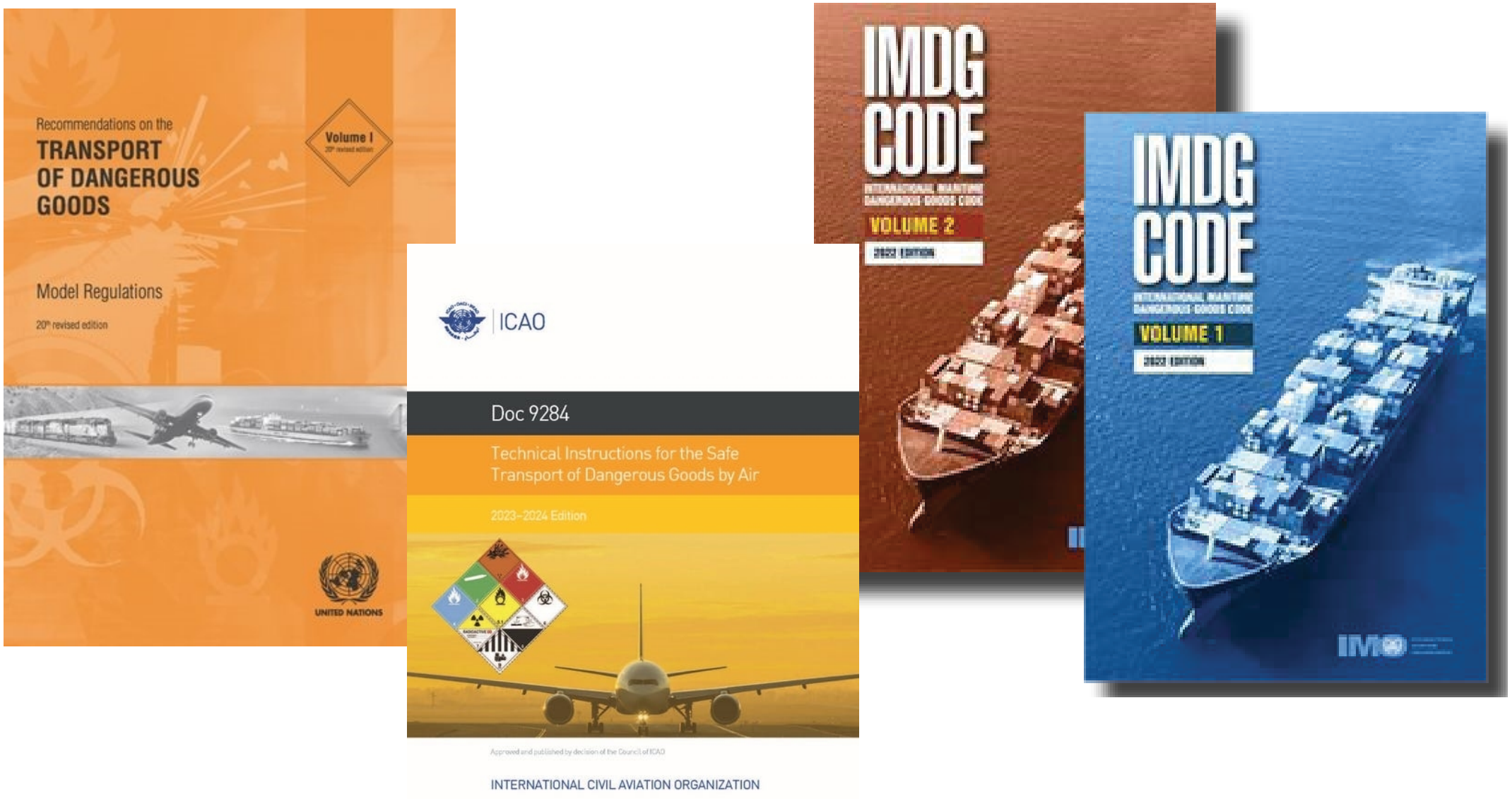
INTERNATIONAL TRANSPORT GOVERNING DOCUMENTS



HIGH CONSEQUENCE SHIPMENTS

1.4.3.1 ***Definition of high consequence dangerous goods***

1.4.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption.

1.4.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in Table 1.4.1 below.

Table 1.4.1: Indicative list of high consequence dangerous goods

Class 1, Division 1.1	explosives
Class 1, Division 1.2	explosives
Class 1, Division 1.3	compatibility group C explosives
Class 1, Division 1.4	UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456, 0500, 0512 and 0513
Class 1, Division 1.5	explosives
Class 1, Division 1.6:	explosives
Division 2.1	flammable gases in bulk
Division 2.3	toxic gases (excluding aerosols)
Class 3	flammable liquids of packing groups I and II in bulk
Class 3 and Division 4.1	desensitized explosives
Division 4.2	goods of packing group I in bulk
Division 4.3	goods of packing group I in bulk
Division 5.1	oxidizing liquids of packing group I in bulk
Division 5.1	perchlorates, ammonium nitrate, ammonium nitrate fertilizers and ammonium nitrate emulsions or suspensions or gels, in bulk
Division 6.1	toxic substances of packing group I
Division 6.2	infectious substances of Category A (UN 2814 and UN 2900) and medical waste of Category A (UN 3549)
Class 8	corrosive substances of packing group I in bulk

NOTE: *For the purposes of this table, "in bulk" means transported in quantities greater than 3 000 kg or 3 000 l in portable tanks or bulk containers.*

Table 1.4.2: Transport security thresholds for specific radionuclides

Element	Radionuclide	Transport security threshold (TBq)
Americium	Am-241	0.6
Gold	Au-198	2
Cadmium	Cd-109	200
Californium	Cf-252	0.2
Curium	Cm-244	0.5
Cobalt	Co-57	7
Cobalt	Co-60	0.3
Caesium	Cs-137	1
Iron	Fe-55	8000
Germanium	Ge-68	7
Gadolinium	Gd-153	10
Iridium	Ir-192	0.8
Nickel	Ni-63	600
Palladium	Pd-103	900
Promethium	Pm-147	400
Polonium	Po-210	0.6
Plutonium	Pu-238	0.6
Plutonium	Pu-239	0.6
Radium	Ra-226	0.4
Ruthenium	Ru-106	3
Selenium	Se-75	2
Strontium	Sr-90	10
Thallium	Tl-204	200
Thulium	Tm-170	200
Ytterbium	Yb-169	3

1.4.3.1.3 For dangerous goods of Class 7, high consequence radioactive material is that with an activity equal to or greater than a transport security threshold of 3 000 A_2 per single package (see also 2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in Table 1.4.2 below.

PLANS AND TRAINING REQUIREMENTS

- Should versus Shall for “High Consequence”
- UN Orange Book says shall
  - ICAO TI says should
  - IMDG Code says should
- Why?

1.4.3.2.2.1 Carriers, consignors and others (including infrastructure managers) engaged in the transport of high consequence dangerous goods (see 1.4.3.1) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.4.3.2.2.2.

1.7.4 Security Plans

1.7.4.1 Applicability

Operators, shippers and others (including infrastructure managers) engaged in the transport of high consequence dangerous goods (see 1.7.3) should adopt, implement and comply with a security plan that addresses at least the elements specified in 1.7.4.2.

1.4.3.2.3 For radioactive material, the provisions of this Chapter and of section 7.2.4 are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material (INFCIRC/274/Rev.1, IAEA, Vienna (1980)) and the IAEA circular on “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities” (INFCIRC/225/Rev.5, IAEA, Vienna (2011)) are applied.

WHY?

- 2003 ICAO Dangerous Goods Panel Meeting
  - Addressed the incorporation of the security recommendations
  - Several key outcomes:
    - Add a section to Annex 18 (Dangerous Goods) rather than Annex 17 (Aviation Security)
    - Security was to be included as a recommendation (should) rather than a requirement (shall).

1.3.6.6 The meeting also developed complementary provisions for the Technical Instructions. Because of the difficulties that some members envisaged in enforcing such provisions in their States through their dangerous goods legislation, it was agreed to give the provisions only the status of recommendation. A new Chapter 5 to Part 1 of the Technical Instructions was developed, covering general security provisions, training and security plans.

WHY?

- IMO changed the overall code from a recommendation to a requirement, mostly:

> The Code, was initially adopted in 1965 as a recommendatory instrument. It was in 2002 that the general Assembly at its seventeenth session adopted by resolution A.716(17) the IMDG Code, and decides to give it a mandatory status under the umbrella of SOLAS Convention, from 1 January 2004. However, some parts of the Code remain recommendatory.
>
> - paragraph 1.1.1.8 (Notification of infringements)
> - paragraphs 1.3.1.4 to 1.3.1.7 (Training)
> - chapter 1.4 (Security provisions) except 1.4.1.1, which is mandatory

- 1.4.1.1 is applicable to accessing sensitive port areas, is not applicable to personnel not accessing these areas and does not address dangerous goods security.

ICAO STATE VARIATIONS

VARIATIONS FROM THE TECHNICAL INSTRUCTIONS

In accordance with the provisions of Annex 18, 2.5, Contracting States are required to notify ICAO of those cases where they have adopted provisions different from those contained in these Instructions. The variations which have been notified by States are listed in Attachment 3, together with notified variations from airline operators.

STATE VARIATIONS FROM THE TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

To: Chief, Cargo Safety Section (CSS)
International Civil Aviation Organization
999 University Street
Montreal, Quebec
CANADA H3C 5H7

Email: krooney@icao.int

_____ (State) wishes the following variation(s) to be published on the ICAO website at www.icao.int/safety/DangerousGoods for incorporation in the 2015-2016 Edition of the Technical Instructions:

Variation	*Relevant paragraphs*

_____ Signature

_____ Title

USG-17 STATE VARIATION

- USG-17 requires compliance with 49 CFR 172 Subpart I: Safety and Security Plans
  - Includes all of the high consequence shipments
- 49 CFR 172.800(b)(15):

> (15) International Atomic Energy Agency Code of Conduct (IBR, see § 171.7) Category 1 and 2 materials, Nuclear Regulatory Commission, Category 1 and Category 2 radioactive materials as listed in Table 1, appendix A to 10 CFR part 37, and Highway Route Controlled quantities as defined in 49 CFR 173.403.

- 49 CFR 172.802(b)(3):

> (3) A plan for training hazmat employees in accordance with § 172.704 (a)(4) and (a)(5) of this part.

USG-17 STATE VARIATION

- 49 CFR Subpart H, 172.704(a)(4):

> (4) ***Security awareness training.*** Each hazmat employee must receive training that provides an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must also include a component covering how to recognize and respond to possible security threats. New hazmat employees must receive the security awareness training required by this paragraph within 90 days after employment.

- 49 CFR Subpart H, 172.704(a)(5)

> (5) ***In-depth security training.*** Each hazmat employee of a person required to have a security plan in accordance with subpart I of this part who handles hazardous materials covered by the plan, performs a regulated function related to the hazardous materials covered by the plan, or is responsible for implementing the plan must be trained concerning the security plan and its implementation. Security training must include company security objectives, organizational security structure, specific security procedures, specific security duties and responsibilities for each employee, and specific actions to be taken by each employee in the event of a security breach.

TO WHOM DOES THE TRAINING APPLY

As defined in § 171.8, a "person who offers or offeror" is any person who does either or both of the following: (1) performs, or is responsible for performing, any pre-transportation function required under the HMR for transportation of a hazardous material in commerce; or (2) tenders or makes the hazardous material available to a carrier for transportation in commerce.

Pre-transportation functions are functions specified in the HMR under § 171.8 that are required to assure the safe transportation of a hazardous material in commerce, and include:

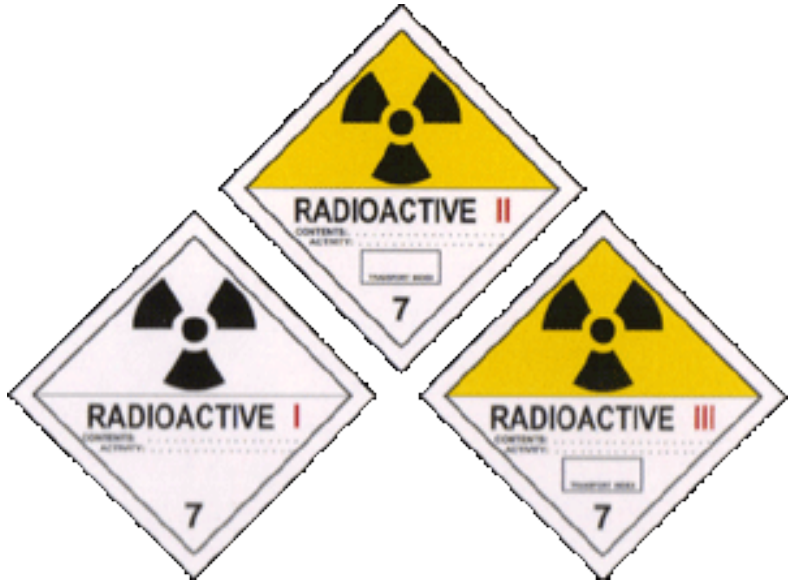
(1) Determining the hazard class of a hazardous material.
(2) Selecting a hazardous materials packaging.
(3) Filling a hazardous material packaging, including a bulk packaging. 171.8
(4) Securing a closure on a filled or partially filled hazardous materials package or container or on a package or container containing a residue of a hazardous material.
(5) Marking a package to indicate that it contains a hazardous material.
(6) Labeling a package to indicate that it contains a hazardous material.
(7) Preparing a shipping paper.
(8) Providing and maintaining emergency response information.
(9) Reviewing a shipping paper to verify compliance with the HMR or international equivalents.
(10) For each person importing a hazardous material into the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.
(11) Certifying that a hazardous material is in proper condition for transportation in conformance with the requirements of the HMR.
(12) Loading, blocking, and bracing a hazardous materials package in a freight container or transport vehicle.
(13) Segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo.
(14) Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains a hazardous material.

If a broker, freight forwarder, or agent performs one or more pre-transportation functions to prepare a hazardous materials shipment for transportation in commerce, then the broker, freight forwarder, or agent is an offeror under the HMR and is subject to all applicable regulatory requirements, including the security plan requirements. A third party logistics company or broker who contracts with a carrier to transport a shipment on behalf of the original shipper is not considered an offeror for purposes of the HMR unless it also performs one or more pre-transportation functions to prepare the shipment for transportation in commerce.

IMDG STATE VARIATIONS

- Not in use, but the US added its own requirement in 49 CFR 176.13(b):

> (b) A carrier may not transport a hazardous material by vessel unless each of its hazmat employees involved in that transportation is trained as required by subpart H of part 172 of this subchapter.



AIR MODE TRAINING

- Prior Category Based Training did not identify DG security as a training element

- Current Competency-Based Training does not recognize DG security in the task list template

Table 1-4. Content of training courses

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
	Categories of 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
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

TABLE 6.7.B
Dangerous Goods Task List Template

				Knowledge Base	Classifying dangerous goods	Preparing dangerous goods shipment	Pro-cessing/ accepting cargo	Managing cargo pre-loading	Accepting passenger and crew baggage	Trans-porting cargo/ baggage	Collecting safety data
0	Understanding the basics of dangerous goods										
	0.1	Dangerous goods applicability									
		0.1.1	Understand the definition								
		0.1.2	Recognize the legal framework (global, national)								
		0.1.3	Identify the application and scope								
		0.1.4	Differentiate hazard and risk								
	0.2	Understanding the general limitations									
		0.2.1	Develop a sense of forbidden dangerous goods								

RECOMMENDATIONS

1) Develop a detailed crosswalk with a gap analysis between the aviation security requirements and those required for high consequence dangerous goods shipments by the Orange Book. This analysis needs to include an evaluation of whether the scope of personnel that require the aviation security training covers the scope of who requires security plan training.

2) Develop a detailed crosswalk with a gap analysis between the port security requirements and those required for high consequence dangerous goods shipments by the Orange Book. This analysis needs to include an evaluation of whether the scope of personnel that require the port security training covers the scope of who requires security plan training.

3) Update the mode-specific provisions to address the gaps by changing the recommendations to requirements (should to shall) where necessary.

RECOMMENDATIONS

4) Add/harmonize the definition of who requires security plans for high consequence dangerous goods shipments and which personnel require training across all modes.

5) Evaluate the role of the IAEA in addressing the specific need for state variations to be communicated to the mode-specific groups (ICAO and IMO) when a state has a requirement that supersedes the mode-specific recommendations related to security of high consequence dangerous goods shipment.

6) Ensure the training and workshops to raise awareness for the need of security during transport of radioactive material and the necessity for regulatory regimes to address transport security of radioactive material include the appropriate personnel. This would include the liaisons that represent the member states and operators to the appropriate mode-specific groups to communicate state and operator variations related to dangerous goods security.

THANK YOU

QUESTIONS?