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| ONR Technical Inspection Guide  Security requirements for the carriage of Class 7 dangerous goods (radioactive material) by road and rail – Guidance for inspectors |



ONR Technical Inspection Guide (TIG)

Security requirements for the carriage of Class 7 dangerous goods (radioactive material) by road and rail – Guidance for inspectors

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| Issue | Description of update(s) |
| 0 | Updated from ONR-INSP-IN-004 (Revision 1) (2019/118673) to convert from a Compliance Inspection Instruction to a Technical Inspection Guide (TIG). |
| 1 | Updated review period. |
| 1.1 | Minor update – review date extended and content presented in a more logical way more clearly aligned to the relevant ADR provisions. |

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# Introduction

1. The carriage of dangerous goods by road and rail in Great Britain (GB) is regulated by the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, also referred to as ‘CDG09’ [1].
2. ONR is the Competent Authority (CA) and Enforcing Authority for the civil carriage of Class 7 dangerous goods (radioactive material) by road and rail within GB. ONR also acts on behalf of the other CAs in the United Kingdom (UK) with respect to certain other CA functions, for example, the issuing of transport approvals. **Note:** The Secretary of State for Defence is the CA for carriage of defence Class 7 dangerous goods and Northern Ireland Environment Agency (NIEA) is the CA in Northern Ireland.
3. Radioactive material packages are required to meet the regulatory requirements of GB statutes and regulations, which are aligned with International Atomic Energy Agency (IAEA) Safety Standards and Guides, in particular, SSR-6 [2] and SSG-26 [3].
4. CDG09 Regulation 5 mandates compliance with the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) [4] and the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) [5] for national journeys. Both identify security requirements for transport of radioactive material; security provisions for transport by road are detailed within ADR Chapter 1.10 [4].
5. A table of acronyms and a glossary of terms used in this guidance are presented in [Appendices A](#_Appendix_A_–) and [B](#_Appendix_B_–) respectively.

## Purpose

1. The purpose of this document is to provide guidance to ONR’s Transport Competent Authority (TCA) inspectors on the correct interpretation and implementation of the security requirement of CDG09, ADR and RID. It will assist inspectors undertaking compliance inspections of a dutyholder’s security requirements in relation to the transport of Class 7 dangerous goods and make regulatory judgements and decisions in relation to the adequacy of compliance, and the safety of dutyholder activities.
2. Inspectors will utilise the Risk Informed and Targeted Engagements (RITE) principles when identifying their inspection scope.
3. Delivery of the annual schedule of compliance inspections is co-ordinated by the TCA Inspection Delivery Management Group (DMG) Lead.
4. As far as possible, this document shares the same structure as the regulations to aid utility. However, inspectors should note that this document has no legal status in itself (for example, it is not considered to be an Approved Code of Practice (ACoP) for evidential purposes) and in no way supersedes, adds to, or modifies, the duties placed on regulators and dutyholders by CDG09, ADR and RID, which are prescriptive.
5. This guidance is intended for use by ONR’s inspectors, not radioactive material transport sector dutyholders, for which ONR has published guidance on regulatory expectations and which remains valid [6].
6. The Department for Transport (DfT), along with the Health and Safety Executive (HSE), regulate the carriage of all classes of dangerous goods against CDG09 (except Class 7), including the security provisions within ADR Chapter 1.10 [4].
7. The security requirements for carriage of Class 7 dangerous goods are the similar to those for other classes of dangerous goods, and ONR’s understanding of these is aligned with DfT.
8. DfT publishes guidance to industry which is intended to facilitate compliance with CDG09 [7]; this is periodically reviewed and updated. ONR’s guidance to industry on carriage of Class 7 dangerous goods [6] is modelled on DfT’s guidance, with the requirements specific to Class 7 dangerous goods included. This guidance provides more detail on regulatory expectations which will assist inspectors in judging dutyholder compliance. Some aspects have been retained from the previous revision of DfT’s guidance to industry as ONR considers them to be of benefit to inspectors.
9. ONR regards DfT’s guidance as relevant good practice (RGP) and it can be viewed as an Established Standard for the purposes of the ONR Enforcement Management Model (EMM) [8].

## Relationship between CDG09 and other legislation applicable to transport of radioactive material

1. Nuclear material as identified in CDG09 Regulation 18 is not subject to the security requirements of CDG09, ADR and RID. It is subject to the Nuclear Industries Security Regulations (NISR) 2003 [9]. Specific guidance for ONR inspectors has been produced relating to the application of NISR to transport of civil nuclear material within the UK [10]. Table 3 of NISR presents categories of nuclear material and is reproduced in [Appendix C](#_Appendix_C_–).
2. ONR regulate sealed sources on nuclear sites. Otherwise, the keeping and use (including security) of sealed sources in IAEA Categories 1-5 is regulated by the environment agencies. This includes mobile radioactive apparatus (MRA) both at the ‘home base’ and at the deployment site. Permitted storage refers to storage at a location permitted by one of the environment agencies[[1]](#footnote-2). Security requirements for sealed sources in IAEA Categories 1-4[[2]](#footnote-3) GB are set out in a guidance document that is available to permit holders[[3]](#footnote-4).

In-transit storage[[4]](#footnote-5) of radioactive material undergoing carriage is subject to ADR and its security requirements. **Note:** Where the same premises are used for both permitted storage[[5]](#footnote-6) and in-transit storage, it is important to liaise with the environment agencies[[6]](#footnote-7) to ensure consistency and to ensure all regulatory requirements are met.

1. Although CDG09 applies to the carriage of dangerous goods by inland waterway, and makes reference to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) [11], it is limited in its application (CDG09 Regulation 4(2) refers).   
   Consequently, this guidance only makes reference to RID and ADR.

## 

## Scope and applicability

1. For the purposes of the IAEA transport regulations, upon which the provisions of ADR and RID are based, ‘transport’ ‘comprises all operations and conditions associated with, and involved in, the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination of loads of radioactive material and packages. This guidance is applicable to all the activities comprising ‘transport’, and aims to use plain English to aid understanding of the regulations and to describe regulatory interpretations and expectations.
2. CDG09 Regulation 8 imposes an additional security requirement which is considered to be part of ADR Chapter 1.10[[7]](#footnote-8), as follows:

‘A person involved in the carriage of dangerous goods must take all reasonable steps to ensure that unauthorised access to those goods is prevented.’

1. The provisions laid down in ADR do not apply in the circumstances specified in ADR subsection 1.7.1.4[[8]](#footnote-9), and therefore ADR security requirements do not apply under such circumstances.
2. ADR Chapter 1.10 does not apply to the carriage of limited quantities and quantities below the levels set out in ADR subsection 1.1.3.6. In accordance with ADR subsection 1.1.3.6.2, Chapter 1.10 does not apply to the following versions of excepted packages:

* UN2908 (excepted package – empty packaging) and UN2909 (excepted package – articles manufactured from natural Uranium or natural Thorium or Depleted Enriched Uranium (DEU)).
* UN2910 (excepted package – limited quantity of material) and UN2911 (excepted package – instruments or articles) – if contents are below A2 limits[[9]](#footnote-10).

1. Figure 1 is intended to assist inspectors in determining to what extent ADR Chapter 1.10 applies to radioactive material transports (quantity relates to packaged goods as well as to carriage in tanks and bulk containers).   
   Figure 1 includes conditions identified in ADR 1.10.4.
2. Dutyholders are expected to be able to identify the mass and activity of all the material they transport, and will therefore understand whether ADR or NISR 2003 is applicable. Inspectors should not be in a position of having to determine whether ADR or NISR 2003 is applicable to radioactive material transports and individual carriers. If there is any ambiguity, inspectors should seek advice from the TCA cross-purpose DMG Lead and the TCA Security DMG Lead in advance of any planned inspection.

**Yes**

NISR 2003 is applicable, ADR Chapter 1.10 is **not** applicable

Is the material to be transported nuclear material as defined in Regulation 3(3) and 3(4) of NISR 2003?

**No**

**Yes**

ADR Chapter 1.10, sections 1.10.1, 1.10.2 and 1.10.3 **are** applicable

ADR Chapter 1.10 Sections 1.10.1 and 1.10.2 **are** applicable

Is the material classified as:

* UN2908 or UN2909 ? (ADR section 1.1.3.6)
* UN2910 or UN2911 below the A2 limit (ADR section 1.1.3.6), or:
* UN2912 (LSA-1) or UN2913 (SCO-1)? (ADR section 1.10.4)

Does the consignment include high consequence radioactive material with an activity ≥ a transport security threshold of 3000 A2 per package except for the radionuclides specified in ADR Table 1.10.3.1.3?

Refer to Table 2.

ADR Chapter 1.10, sections 1.10.1 and 1.10.2 **are** applicable

**No**

ADR Chapter 1.10 is **not** applicable

**No**

**Yes**

Figure 1 - Applicability of ADR Chapter 1.10 to radioactive material transport

1. The following table provides a summary of the thresholds in NISR and ADR for relevant isotopes.

Table 1 - NISR/ADR security thresholds

|  |  |  |
| --- | --- | --- |
| Material | NISR threshold[[10]](#footnote-11) | ADR Ch 1.10.3 threshold[[11]](#footnote-12) |
| U-235 enriched  >20%  >10%  >0.711% | 15g  1kg  10kg | N/A[[12]](#footnote-13)  N/A  N/A |
| Pu-238 | 15g | 0.6TBq (~0.95g) |
| Am-241 | 15g | 0.6TBq (~4.72g) |
| Np-237 | 15g | N/A |

1. Civil nuclear material as defined in NISR 2003 is transported around the UK by a combination of road and rail moves, by specialist carriers that have been approved by ONR. If a Class A or B approved carrier is due a Class 7 GDG09 inspection, inspectors should liaise with colleagues from CNSS transport security and consider whether it is appropriate and efficient to undertake a joint inspection against CDG09 and NISR 2003.

* The majority of transports are undertaken by rail. Direct Rail Services (DRS) is the only approved Class A and B carrier for rail transport of Category I, II and III civil nuclear material.
* Road transport of Category I and II civil nuclear material within the UK is undertaken by Class A approved carriers. Nuclear Restoration Services (NRS) Dounreay Division is the only approved Class A carrier.
* Road transport of Category III civil nuclear material is by approved Class B carriers. The TCA Security DMG Lead can confirm which Class B carriers are approved by ONR.

1. ADR 8.4.1 applies to all radioactive material where S21 is identified in Table A of ADR.
2. ADR 7.5.11 CV33(6) requires carriers to contact the competent authority to request instructions if a package is undeliverable.

# 

# Guidance on inspection and implementation of transport security arrangements for Class 7 dangerous goods

1. This guidance focusses primarily on the interpretation of the implementation of the security provisions contained in ADR, and is based on guidance provided by DfT to industry. Where the DfT guidance refers out to sources of further information against specific provisions of ADR, these sources are presented in [Appendix D](#_Appendix_D_–).
2. This section provides the ONR view in regard to what dutyholders’ arrangements might be expected to contain with respect to the general provisions (ADR Chapter 1.10, Section 1.10.1), security training provisions (ADR Chapter 1.10, Section 1.10.2) that are applicable to transport of all radioactive material. Additional provisions for Class 7 high consequence dangerous goods (ADR Chapter 1.10, Section 1.10.3) are also defined in this guidance.
3. ONR’s view on what dutyholders’ arrangements would be expected to contain against the ADR provisions is in each instance presented as advice for inspectors to seek to confirm during inspections. In accordance with normal practice, inspectors would identify security requirements to be sampled during an inspection based on the nature of the undertaking of the dutyholder and the nature of the radioactive material being transported.
4. ADR does not require carriers, consignors and other participants engaged in the transport of Class 7 non-high consequence dangerous goods to have Security Plans. ONR expects arrangements to be in place to meet the requirements of CDG09 Regulation 8, including justification of where alternative/more secure arrangements are not considered reasonable, and have a record of these.

## General provisions (applicable to transport of all Class 7 dangerous goods)

ADR 1.10.1.1 ‘All persons engaged in the carriage of dangerous goods shall consider the security requirements set out in this Chapter commensurate with their responsibilities.’ [4]

1. Inspectors should confirm:

* One person in the organisation engaged in the transport of Class 7 dangerous goods is identified as having overall responsibility and accountability for ensuring the security requirements are met.
* Every person engaged in the transport of Class 7 dangerous goods understands their responsibilities with regard to security; this may be, for example, by including their responsibilities in job descriptions.
* Personnel responsibilities with respect to security requirements are identified, and may include: identifying and reporting any person not authorised to be in a particular area or suspected of interfering with vehicles or wagons carrying Class 7 dangerous goods.
* Managerial responsibilities with respect to security requirements are identified, and may include: setting the company security policy, completing risk assessments and implementing security plans, ensuring application of security requirements at a transport business, storage facility, factory or terminal.
* For rail operators and those with a direct connection to the rail network a Nominated Security Contact and Deputy with clearance to receive threat and security information from ONR TCA is identified. Currently the only rail transport organisation in GB is DRS who is regulated under NISR 2023.
* If any approved Class A or B carriers transport radioactive material below the NISR nuclear material threshold (i.e. Class 7 dangerous goods/ radioactive material), compliance with the ADR Chapter 1.10 security provisions will be necessary. Where any existing security requirements are in force the onus is on the dutyholder to demonstrate that these arrangements satisfy the ADR provisions.

ADR 1.10.1.2 ‘Dangerous goods shall only be offered for carriage to carriers that have been appropriately identified.’ [4]

1. Inspectors should confirm:

* Written assurances are obtained as part of a contractor or sub-contractor approval process when offering goods to a road or rail transport contractor. Written assurances may include their most recent compliance report concerning compliance with dangerous goods security requirements.
* Class 7 dangerous goods are handed over to appropriately identified carriers whose driver can provide suitable identification and whose documents have been checked. Photo ID for drivers are checked and if applicable, their ADR vocational qualification. These are checked on the first visit to site followed by scheduled or random checks as part of a supplier audit programme.
* Rail Freight Operating Companies hold a Safety Certificate issued by the Office of Rail and Road (ORR) and this can form part of the appropriate identification process.

ADR 1.10.1.3 ‘Areas within temporary storage terminals, temporary storage sites, vehicle depots, berthing areas and marshalling yards used for the temporary storage during carriage of dangerous goods shall be properly secured, well-lit and, where possible and appropriate, not accessible to the general public.’ [4]

1. Inspectors should confirm:

* A balance has been considered between staff presence and a secure perimeter fence to secure the right security outcome. All relevant areas have been subject to a security risk assessment to establish what measures are required to prevent unauthorised access, and action taken accordingly. Site plans clearly identify which areas have restricted access.
* Access to restricted areas is controlled. Visitors or contractors are issued with temporary passes and escorted where appropriate; pass holders are given access to certain areas of the site in line with their duties and issued passes with photographic identification.
* Sensitive information, documents and IT are protected. The insider threat has been considered and transport information is kept secure to ensure it is not released to unknown external parties.
* Sites are well-lit where dangerous good are kept. Illumination complements other security equipment such as CCTV and enables any security patrols to be conducted effectively. Regular checks are carried out to ensure that all security equipment and control measures are functioning correctly.
* Rail carriers and companies which have connections to the rail network have co-operated on security matters. Where appropriate, joint risk assessments have been conducted to ensure security of the rail network is adequately considered. There have been open discussions to ensure the security requirements can be met by all participants.
* All reasonable steps are taken to ensure unauthorised access to dangerous goods is prevented. Inspectors should note this guidance is applicable for in-transit storage. Where in-transit storage is within a permitted store inspectors should liaise with the relevant environment agency.

ADR 1.10.1.4 ‘Each member of a vehicle crew shall carry with them means of identification, which includes their photograph, during carriage of dangerous goods.’ [4]

1. Inspectors should confirm:

* Photographic identification must be carried at all times during carriage by the vehicle driver and crew.
* It may be appropriate for all staff involved in the carriage of dangerous goods to be issued with photo ID passes. Random spot checks of visiting drivers and crew member’s photo ID passes is carried out.
* Staff challenge persons on site who are not familiar and who are not wearing a pass.

ADR 1.10.1.5 ‘Safety inspections in accordance with 1.8.1 and 7.5.11 shall cover appropriate security measures.’ **Note: This does not apply to rail operators** [4]

1. The purpose of this sub-section is to reinforce that inspections should include security. Inspectors should confirm:

* Driver and vehicles are required to comply with security provisions and suitable vehicle inspections at sites where loading and/or unloading takes place.
* Sites receiving or dispatching dangerous goods have suitable measures in place for checking compliance before allowing entry to premises.   
  This could include checking the driver’s photo ID and qualifications, and checking names and addresses on transport documentation.

ADR 1.10.1.6 ‘The competent authority shall maintain up-to-date registers of all valid training certificates for drivers stipulated in ADR 8.2.1 issued by it or by any recognised organisation.’ [4]

1. This is a duty of DfT (refer to CDG09 Regulation 25), therefore no guidance to inspectors is provided.

## Additional provisions for security training (applicable to transport of all Class 7 dangerous goods)

ADR 1.10.2.1 ‘The training and the refresher training specified in ADR Chapter 1.3 shall also include elements of security awareness. The security refresher training need not be linked to regulatory changes only.’ [4]

1. Inspectors should confirm:

* Businesses and organisations provide security awareness training for everyone engaged in the transport of Class 7 dangerous goods.   
  A suitable training programme has been prepared and provided to all staff involved in Class 7 dangerous goods transport operations.
* Provision of training is not to be limited to drivers, but is provided to anyone with security roles and responsibilities as well as anyone with access to transport information.
* The nature of the training can be tailored to suit the requirements of each organisation and relate to the staff member’s level of responsibility.   
  Goods vehicles and train crews play a key role in journey security, the vulnerabilities increase once the vehicle is on the road or rail network. They are provided with ongoing security awareness training and supplied with the latest available advice and guidance. More specific training is given to those with specialised security duties or the management of security.

ADR 1.10.2.2. ‘Security awareness training shall address the nature of security risks, recognising security risks, methods to address and reduce such risks and actions to be taken in the event of a security breach. It shall include awareness of security plans (if appropriate) commensurate with the responsibilities and duties of individuals and their part in implementing security plans.’ [4]

1. Inspectors should confirm:

* Security awareness training covers the topics listed above. The training includes what each person’s role is in providing security and the company procedures to be followed for reporting suspicious activity, thefts or breaches of security. A test of staff understanding and/or written advice could be provided on completion of the training.

ADR 1.10.2.3. ‘Such training shall be provided or verified upon employment in a position involving dangerous goods transport and shall be periodically supplemented with refresher training.’ [4]

1. Inspectors should confirm:

* Security awareness training is refreshed at two to three year intervals, or following a significant event or a major update to the security plan.   
  The training programme reminds operators when refresher training is due. New employees or contractors engaged in the carriage of dangerous goods are provided with relevant training at the induction stages of their employment at the organisation or site.

ADR 1.10.2.4. ‘Records of all security training received shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer for a period of time established by the competent authority.’ [4]

1. Inspectors should confirm:

* Training records are kept electronically or in hard copy and should be retained in a secure location for a minimum of the period of validity of the training, or for three years. ONR must be able to inspect applicable training records on request.

## Provisions for High Consequence Dangerous Goods (applicable to transport of high consequence radioactive materials only)

ADR 1.10.3.1 - Definition of High Consequence Dangerous Goods

ADR 1.10.3.1.1 - 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. [4]

1. Inspectors should confirm:

* Transport dutyholders involved in the carriage of dangerous goods have established a system whereby the consignor identifies (to them) that Class 7 high consequence dangerous goods are to be transported.
* A system is applied to regular transports. Whilst information may be gathered using the same system, specific consideration should be given to determining and applying particular security requirements that are required for individual freight movements. A process should be in place to ensure that relevant information is shared between the carrier, consignor and consignee.

ADR 1.10.3.2 – not relevant – list of high consequence dangerous goods other than Class 7.

1. No guidance to inspectors is necessary.

ADR 1.10.3.1.3 - For dangerous goods of Class 7, high consequence radioactive material (HCRM) is that with an activity equal to or greater than a transport security threshold of 3000 A2 per single package (see also ADR Table 2.2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in table 1.10.3.1.3 (reproduced in Table 1). [4]

Table 2 - ADR Table 1.10.3.1.3 – 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 |
| 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. Inspectors should confirm:

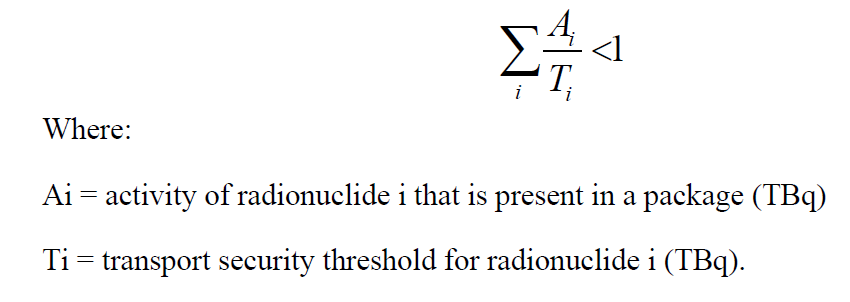
* Transport dutyholders involved in the carriage of Class 7 dangerous goods recognise the material to be transported as high consequence radioactive material if a single package contains sufficient material to result in a transport security threshold equal to or greater than 3000 A2. Noting the high consequence radioactive material is based on package content not consignment content.
* Transport operators involved in the carriage of dangerous goods recognise the material to be transported as high consequence radioactive material if it includes radionuclides in sufficient quantity to result in a transport security threshold equal to or greater than the values specified in Table 2 (ADR Table 1.10.3.1.3).

ADR 1.10.3.1.4 - For mixtures of radionuclides, determination of whether or not the transport security threshold has been met or exceeded can be calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide. If the sum of the fractions is less than 1, then the radioactivity threshold for the mixture has not been met nor exceeded. [4]

1. ONR inspectors should confirm:

* The transport dutyholders understand how to calculate whether the transport security threshold has been met or exceeded. This is calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide (Equation 1). If the sum of the fractions are less than 1 the radioactivity threshold for the mixture has not been met or exceeded. The calculation can be made with the formula:

Equation 1



* Transport dutyholders involved in the carriage of Class 7 dangerous goods have correctly calculated the transport security threshold and determined whether the transport security threshold has been met or exceeded.

ADR 1.10.3.1.5 - When radioactive material possesses subsidiary risks of other classes, the criteria of table 1.10.3.1.2 shall also be taken into account (see also 1.7.5). [4]

1. Inspectors should confirm:

* The transport dutyholders should be able to confirm whether the Class 7 dangerous goods to be transported possess subsidiary risks of other classes of dangerous goods, if carried in quantities greater than those indicated[[13]](#footnote-14). This is by application of ADR Table 1.10.3.1.2 (reproduced in [Appendix F](#_Appendix_F_–)). Inspectors should seek advice from the TCA Cross-Purpose DMG Lead on a case by case basis, if required. ONR will liaise with the enforcing authority for the non-Class 7 dangerous goods if it is confirmed Class 7 dangerous goods to be transported do possess subsidiary risks of other classes.
* The transport dutyholders understand how to use ADR Table 1.10.3.1.2 (and those it references) to take account of the subsidiary risks of other classes of dangerous goods, if the Class 7 dangerous goods to be transported contains these in quantities greater than those indicated.

ADR 1.10.3.2 - Security Plans

ADR 1.10.3.2.1 - Carriers, consignors and other participants specified in 1.4.2 and 1.4.3 engaged in the carriage of high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material   
(see 1.10.3.1.3) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.10.3.2.2. [4]

1. Inspectors should confirm:

* The security plan is based on the overall operation of the business, not on individual movements, and is tailored to suit the company’s operational activities. The format of the security plan is expected to take into account the business operation; each organisation may adopt an approach that best suits them. The requirements listed at ADR 1.10.3.2.2 (a) to (h) are the minimum for inclusion in a transport security plan (which is not the same as a site security plan). DfT guidance to industry includes a transport security plan template [12]; ONR regards use of this template as good practice and inspectors should recommend dutyholders use it (noting it is good practice not a regulatory requirement).
* Appropriate security plans are in place in instances where more than one site or location is used during the carriage of Class 7 high consequence dangerous goods. It may be appropriate to have separate security plans in place for each site or location if there are many different characteristics and security measures at each. Conversely, it may be appropriate for there to be a company-wide security plan covering multiple sites. Transport dutyholders should engage with sites consigning or receiving Class 7 high consequence dangerous goods to ensure security has been adequately addressed, ensure that security plans are in place for all participants as required and plans interface adequately.
* Plans take into account other plans which may be in place, any risk to the site or carrier, and any unique circumstances or location of premises. Security plans are considered ‘live’ documents and kept under review so that they reflect changes to sites, the nature of the operation and key personnel. Security plans and procedures are tested by holding regular exercises that adequately test security measures, such as an access control test.
* The plan clearly identifies those involved in the dangerous goods transport chain and what their security roles and responsibilities are, including dealing with security incidents.
* Consideration should be given to detailing the measures for the appropriate protection to the main vulnerable areas, which include the consigning site, consignee site, any temporary in-transit storage sites, any modal or intermodal transfer points and any stops necessary for operational or other reasons.

ADR 1.10.3.2.2 - The security plan shall comprise at least the following elements (guidance to inspectors is provided against each point from (a) to (h)):

(a) Specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;

1. Inspectors should confirm:

* An appropriate person or persons has responsibility for the management of security depending on the size of the business. If there are several sites in the business, one person may be appointed with overall responsibility and authority for implementation of the security plan(s) with a security co-ordinator or manager at each site.
* The person responsible for security controls the security plan and shares information as required within the organisation. Security responsibilities are documented in the security plan and form part of the person’s job role specification or are included in the person’s job description.

(b) Records of dangerous goods or types of dangerous goods concerned;

1. Inspectors should confirm:

* A summary of the types of Class 7 dangerous goods regularly carried is included within the security plan, including: the radioisotope(s) being transported, the physical and chemical form of the material and the quantity being transported. The summary could include a table which lists the UN numbers and shipping names identifying which are high consequence dangerous goods.
* A reference to the Dangerous Goods Safety Adviser (DGSA) Annual Report could be made, which should include a summary of the dangerous goods moved over the previous 12 months. The consignor and the carrier retain a copy of the dangerous goods transport document and additional information, for a minimum of three months from the date of carriage and where documents are kept electronically shall be able to reproduce the documentation in a printed form in accordance with the requirements of ADR 5.4.4.

(c) Review of current operations and assessment of security risks, including any stops necessary to the transport operation, the keeping of dangerous goods in the vehicle, tank or container before, during and after the journey and the intermediate temporary storage of dangerous goods during the course of intermodal transfer or transhipment between units as appropriate;

1. Inspectors should confirm:

* An overview of the current operation is included at the start of the security plan to describe its purpose and scope. This sets out the reasons for the plan, how and why it applies to the business and to the carriage of Class 7 high consequence dangerous goods. The plan is regularly reviewed to determine whether any changes to security procedures are necessary.
* A key objective is to reduce the potential risk as far as possible by expediting the carriage and specifically minimising or eliminating the time high consequence dangerous goods are stopped on route. For example, eliminating overnight stops or breaks in the journey and minimising the time between delivery and collections should be considered.   
  Additionally, whether drivers should be encouraged to keep their cab doors and windows closed and locked throughout the journey should be considered.

(d) Clear statement of measures that are to be taken to reduce security risks, commensurate with the responsibilities and duties of the participant, including:

- training;

- security policies (e.g. response to higher threat conditions, new employee/employment verification, etc.);

- operating practices (e.g. choice/use of routes where known, access to dangerous goods in intermediate temporary storage (as defined in (c)), proximity to vulnerable infrastructure etc.);

- equipment and resources that are to be used to reduce security risks;

1. Inspectors should confirm:

* The security plan includes the following measures which contribute to transport security. The specific instructions and guidance given to drivers and crew plus what specific measures are taken in the event of unplanned or unusual circumstances should be included in this section.
* **Training** (refer to section ‎2.2).
* **Security policies**: A security policy statement is included in the security plan. Depending on the nature of the operation, and potential vulnerabilities, there are documented and predetermined arrangements for responding to changes in the National Threat Levels. The security plan considers changes to business or national threat levels.
* **Employment checks**: The security plan documents the policy for pre-employment checks of any new employee who will be involved in the transport of high consequence dangerous goods. Verification of original identity documents, licences or qualifications and permission to work in the UK are required. Five year employment record checks should be made on everyone engaged in the transport of high consequence dangerous goods, typically as part of a routine recruitment process.
* **Operating practices**: The security plan documents how high consequence dangerous goods are accepted and the process for determining specific security requirements necessary for a particular movement such as how movements are controlled and monitored to ensure security. Additionally, the plan details how any problems with the movement are dealt with, for example security during unplanned intermediate stops, how road and rail interfaces are managed at intermodal depots and how public access to vehicles or trains has been restricted.
* **Equipment and resources**: The security plan statement of measures identifies and records the equipment and resources deployed in the security arrangements for the transport of high consequence dangerous goods. It is possible that the equipment may not be solely for that purpose, e.g. lighting may be provided for operational safety and CCTV in place for preventing vandalism and criminal activity. Resources that are available and will be utilised when there are necessary breaks in a journey should be identified.

(e) Effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;

1. Inspectors should confirm:

* The security plan documents the system or procedures in place for reporting a security incident or a security concern. There is an internal procedure to guide staff on what action to take and who they should report to. Information is shared or exchanged with other carriers, consignors, CAs as well as Police or Security Services, dependent on the nature of the incident. The process for reporting is recorded in the security plan.

1. Inspectors should note:

* ONR’s procedure for incident reporting includes incident category TS02 ‘Theft (actual or attempted) or loss (permanent or temporary) of the Class 7 goods in carriage [12]. ADR does not require reporting of loss of documentation unless it causes a secondary breach of regulations (for example losing consignment notes during transport or within three months). Inspectors should encourage dutyholders to report Class 7 dangerous goods transport documentation loss as good practice.

(f) Procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;

1. Inspectors should confirm:

* The requirement for testing of security plans is documented, for example within existing quality and management systems. ADR does not specify the periodicity at which security plans should be tested. Inspectors should recommend annual testing of security plans is considered good practice, in line with testing of emergency plans and arrangements.
* Testing procedures can be extended to include access control or staff vigilance tests at locations where high consequence dangerous goods are stored during transport. Testing of the security plan can be in the form of a desk top exercise or any other test which adequately tests the security measures in place.
* As well as keeping a record of tests and investigating any ‘failures’, it is good practice to review and, if necessary’ update security plans on a regular basis, preferably annually, to ensure the accuracy of its content. Updating the security plan following any security incident or test where lessons have been learned or a change of operations or in response to an event has been considered.

(g) Measures to ensure the physical security of transport information contained in the security plan; and

1. Inspectors should confirm:

* The security plan states how it is protected from unauthorised access, for example, held electronically on a password-protected computer in a location with restricted access. If printed, the plan should be kept secure and treated as a sensitive document, only shared with emergency services or the CA on request. Everyone with access to the security plan is aware that the information it contains should only be made available on a need to know basis.

(h) Measures to ensure that the distribution of information relating to the transport operation contained in the security plan is limited to those who need to have it. Such measures shall not preclude the provision of information required elsewhere in ADR.

**Note**: Carriers, consignors and consignees should co-operate with each other and with competent authorities to exchange threat information, apply appropriate security measures and respond to security incidents.

1. Inspectors should confirm:

* The security plan describes how the distribution of information about the dangerous goods transport operations is restricted to only those who need the information.
* The ADR NOTE is for all participants engaged in the carriage of high consequence dangerous goods by road or rail. It also includes all bodies with access to the rail network including BTP, Network Rail and DfT.   
  An internal reporting procedure should be in place to record any security related incidents, which once investigated, could be shared internally to all sites and cascaded externally through membership of trade organisations, or by attendance at industry forums. The need to co-operate also extends to determining and documenting processes and arrangements to exchange information and apply appropriate security.

ADR 1.10.3.3 - Devices, equipment or arrangements to prevent the theft of the vehicle carrying high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3) and its cargo, shall be applied and measures taken to ensure that these are operational and effective at all times. The application of these protective measures shall not jeopardize emergency response.

**Note**: When appropriate and already fitted, the use of transport telemetry or other tracking methods or devices should be used to monitor the movement of high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see ADR 1.10.3.1.3).

1. Inspectors should confirm:

* The application of measures to prevent theft has been determined by the transport operator with input from consignors. Examples of devices and equipment include locks, seals and tracking devices. Advice has been sought from commercial organisations, Counter Terrorism Security Advisers (CTSAs) or the National Protective Security Authority (NPSA) as appropriate. There is a system in place for reporting failures of devices, equipment or arrangements. It is advisable that drivers have a means of communication at all times when carrying high consequence dangerous goods.
* ‘Arrangements’ in this context covers the operational procedures that are in place, which may include the deployment of resources to provide surveillance, placing of shipping containers door to door to prevent access, or ensuring specific measures are in place for particularly sensitive goods such as operating non-stop services.
* The ADR NOTE refers to tracking systems, which are widely available for goods vehicles and trailers; fitting such equipment represents best practice when carrying high consequence dangerous goods It may also be appropriate to consider tracking the freight or container itself if the goods are particularly sensitive or attractive to thieves.

ADR 1.10.4 – The requirements of 1.10.1, 1.10.2, 1.10.3 and 8.1.2.1 (d) do not apply when the quantities carried in tanks or in bulk on a transport unit do not exceed those referred to in 1.1.3.6.3. In addition the provisions of this Chapter do not apply to the carriage of UN No. 2912 RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) and UN No. 2913 RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I).This ADR provision relates to specified quantities of radioactive materials referenced in ADR, below which the requirements of these security provisions do not apply.

ADR 1.10.5 - For radioactive material, the provisions of this chapter are deemed to be complied with when the provisions of the “Convention on Physical Protection of Nuclear Material” [12] and the IAEA circular on   
“The Physical Protection of Nuclear Material and Nuclear Facilities” [13] are applied.

1. This ADR provision confirms the security provisions of ADR are deemed to be complied with when the provisions of the convention on physical protection of nuclear material and the IAEA circular on “The Physical Protection of Nuclear Material and Nuclear Facilities” are applied.   
   ONR’s Security Assessment Principles (SyAPs) address the UK’s approach to compliance with this convention [14], with SyDP 6.7 specifically addressing transport off-site. Dutyholders meet the provisions of the convention by complying with the requirements of NISR, SyDP 6.7 and the associated ONR security guidance [15].

## Provisions for supervision of vehicles

1. ADR identifies progressively less secure allowances for the supervision of vehicles carrying dangerous goods dependant on the situation. The storage of radioactive material in a vehicle should only be permitted if there is no storage facility (in-transit or otherwise) available. Where a storage facility could be made available/provided, it should be provided and used in preference to storage in vehicles.
2. If material is stored in vehicles in a publicly accessible/visible location (including secure depots) then the vehicle must remain marked and placarded whilst the material is onboard.

ADR special provision for operation 21 (S21) - The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply to all material, in whatever mass. In addition, these goods shall be subject at all times to supervision to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

However, the provisions of Chapter 8.4 need not be applied where:

(a) The loaded compartment is locked or the packages carried are otherwise protected against illicit unloading; and

(b) The dose rate does not exceed 5μSv/h at any accessible point on the outer surface of the vehicle.

In addition, these goods, when subject to the provisions in 1.1.3, shall be supervised in accordance with the security plan in 1.10.3.2 at all times to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.[4]

1. Excepted packages or packages transported as a WHITE I with a TI of 0 may meet the criteria of this special provision. However, consideration of the requirement of CDG09 Reg 8 would still require the packages to be off-loaded and stored in a storage facility if reasonable to do so.

ADR 8.4.1 - Vehicles carrying dangerous goods in the quantities shown in special provisions S1 (6) and S14 to S24 of Chapter 8.5 for a given substance according to Column (19) of Table A of Chapter 3.2 shall be supervised or alternatively may be parked, unsupervised, in a secure depot or secure factory premises.

If such facilities are not available, the vehicle, after having been properly secured, may be parked in an isolated position meeting the requirements of (a), (b) or (c) below:

(a) A vehicle park supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver;

(b) A public or private vehicle park where the vehicle is not likely to suffer damage from other vehicles; or

(c) A suitable open space separated from the public highway and from dwellings, where the public does not normally pass or assemble.

The parking facilities permitted in (b) shall be used only if those described in (a) are not available, and those described in (c) may be used only if facilities described in (a) and (b) are not available. [4]

1. The dutyholder should provide justification for the use of any of the alternative options (a, b or c) and should include consideration of CDG09 Reg 8, demonstrating why it would not be reasonable to store the packages in a more secure location than the vehicle.

## Undeliverable consignments

ADR 7.5.11 special provision for loading, unloading and handling CV33 (6) - Where a consignment is undeliverable, the consignment shall be placed in a safe location and the competent authority shall be informed as soon as possible and a request made for instructions on further action. [4]

1. Dutyholders should have, within their arrangements, a process for dealing with undeliverable consignments. For carriers this should include the ability to contact the consignor and/or consignee in the first instance.
2. Carriers should have processes in place for securing consignments, and redelivering to the same location, where practicable.
3. Where a consignment needs to be redirected to a different location the consignor should have in place a method by which they can issue a new/amended transport document with the correct consignee address.
4. Where a consignment is subject to ADR 1.10.3 security plan requirements the security plan should include specific consideration of the consignment being undeliverable and the actions to be taken to ensure the package is secured.
5. If the consignor and/or consignee cannot be contacted and the package cannot be secured by the carrier or where the carrier requires further advice they may contact ONR via the contact details provided on the ONR website. The contact number for “Safety, transport and safeguards incidents” should be used unless the consignment is being transported in accordance with NISR in which case the “security incident” number should be used.

[www.onr.org.uk/about-us/contact-us/notify-onr/](http://www.onr.org.uk/about-us/contact-us/notify-onr/)

# References

|  |  |
| --- | --- |
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| [3] | IAEA, “IAEA Safety Standard Specific Safety Guide SSG-26 - Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material,” 2018. [Online]. Available: https://www.iaea.org/publications/14685/advisory-material-for-the-iaea-regulations-for-the-safe-transport-of-radioactive-material-2018-edition. |
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| [10] | ONR, “CNSS-SEC-GD-002 - Nuclear Industries Security Regulations 2003 (NISR): Guidance for Inspector”. |
| [11] | United Nations - Economic Commission for Europe, “European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN),” 1 January 2019. [Online]. Available: https://unece.org/DAM/trans/danger/publi/adn/ADN2019/ADN\_2019\_E\_Web.pdf. |
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# Appendix A – Table of acronyms

| Term/acronym | Description |
| --- | --- |
| ADN | International Carriage of Dangerous Goods by Inland Waterways |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road |
| BTP | British Transport Police |
| CDG09 | Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (Statutory Instrument 2009 No. 1348) |
| CA | Competent Authority |
| CTSAs | Counter Terrorism Security Advisers |
| DEU | Depleted Enriched Uranium |
| DfT | Department for Transport |
| DRS | Direct Rail Services |
| DMG | Delivery Management Group |
| EMM | Enforcement Management Model |
| EA | Environment Agency |
| GB | Great Britain |
| HAAS | High Activity Sealed Sources |
| HCDGs | High Consequence Dangerous Goods |
| HMG | His Majesty’s Government |
| HSE | Health and Safety Executive |
| LSA | Low Specific Activity |
| NaCTSO | National Counter Terrorism Security Office |
| NPSA | National Protective Security Agency |
| NRS | Nuclear Restoration Services |
| NRW | Natural Resources Wales |
| NIEA | Northern Ireland Environment Agency |
| ONR | Office for Nuclear Regulation |
| ORR | Office of Rail and Road |
| RGP | Relevant Good Practice |
| RID | Regulations Concerning the International Carriage of Dangerous Goods by Rail |
| SEPA | Scottish Environment Protection Agency |
| SCO | Surface Contaminated Object |
| SyAPs | Security Assessment Principles |
| SIA | Security Industry Association |
| TCA | (ONR) Transport Competent Authority |
| UK | United Kingdom |

# Appendix B – Glossary of terms

| Glossary | Description |
| --- | --- |
| A1 | The activity value of special form radioactive material which is listed in the table in ADR 2.2.7.2.2.1 or derived in ADR 2.2.7.2.2.2 and is used to determine the activity limits for the requirements of ADR. |
| A2 | The activity value of radioactive material, other than special form of radioactive material, which is listed in the Table in ADR 2.2.7.2.2.1 or derived in ADR 2.2.7.2.2.2 and is used to determine the activity limits for the requirements of ADR. |
| Carriage | The change of place of dangerous good, including stops made necessary by transport conditions and including any period spent by the dangerous goods in vehicles, tanks and containers made necessary by traffic conditions before, during and after the change of place.  This definition also covers the intermediate temporary storage of dangerous goods in order to change the mode or means of transport (trans-shipment). This shall apply provided that transport documents showing the place of dispatch and the place of reception are presented on request and provided that packages and tanks are not opened during intermediate storage, except to be checked by the competent authorities. |
| Carrier | The enterprise which carries out the transport operation with or without a transport contract. |
| Class 7 dangerous goods | Radioactive material |
| Class 7 high consequence dangerous goods | Radioactive material with the potential for misuse in a terrorist incident and which may, as a result, produce serious consequences such as mass casualties or mass destruction (whether to infrastructure, the environment or the economy) or, particularly for radioactive material, mass socio-economic disruption. |
| Competent authority | Any person or organisation with the legal authority or power to perform a specific function. |
| Contamination | In the context of ADR, contamination means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm2 for beta and gamma emitters and low toxicity alpha emitters, or 0.04 Bq/cm2 for all other alpha emitters.  Non-fixed contamination means contamination that can be removed from a surface during routine condition of carriage.  Fixed contamination means contamination other than non-fixed contamination. |
| In-transit / temporary storage | Storage is only considered temporary or in-transit if it meets the following criteria:   * Packages are being stored for the purpose of changing transport mode/means of transport. * Packages are not opened (apart from for inspection by authorities). * Transport documentation is available detailing the origin and final destination.   A 12-month period is considered the upper bounding case for a transport operation (unless a longer duration can be justified) and is the basis for ADR provisions. If a package has not been received by the consignee within a 12-month period, it would normally either need to be re-consigned (in accordance with whatever safety case underpins its use) or, if its location is unknown, it would be considered to be lost.  A storage facility may be both a permanent store and in-transit store at the same time, or alternate between states depending on the material within it, This should be clearly identified by the dutyholders’ management arrangements and risk assessments. Permanent storage is permitted by the relevant environment agency, however there is exemption guidance stating for in-transit storage but this would not normally be expected to be longer than 14 days. |
| Nuclear material | Material listed in the table on the categorisation of nuclear material, including the material listed in its footnotes, in Section 4 of IAEA Nuclear Security Series No 13, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5). |
| Radioactive material | Any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in ADR 2.2.7.2.2.1 to 2.2.7.2.2.6. |
| High consequence dangerous goods | Goods which have the potential for misuse in a terrorist event and which, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption. |
| High consequence radioactive material | High consequence radioactive material is that with an activity equal to or greater than the transport security threshold of 3000 A2 per single package (see also ADR 2.2.7.2.2.1) except for the radionuclides specified in ADR Table 1.10.3.1.3 with associated transport security thresholds. |
| Secular equilibrium | A situation in which the quantity of a radioactive isotope remains constant because its production rate (e.g. due to decay of a parent isotope) is equal to it decay rate. |
| Security | For the purposes of ADR Chapter 1.10, security means the measures or precautions to be taken to minimise theft or misuse of dangerous goods that may endanger persons, property or the environment. |
| Special form radioactive material | In the context of ADR, either:   1. An in dispersible solid radioactive material; or 2. A sealed capsule containing radioactive material |
| Transport category | As defined in ADR 1.1.3.6.3 |
| Transport | For the purposes of the IAEA transport regulations upon which the provisions of ADR and RID are based, ‘transport’ comprises all operations and conditions associated with, and involved in, the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination of loads of radioactive material and packages. |
| Transport security threshold | Value in TBq as defined in 1.10.3.1.3 which when exceeded, for a single package, contents becomes High Consequence Radioactive Material. |
| Stops during a journey | For the purposes of ADR and RID, parking or necessary short stops during a journey is not considered temporary storage. |

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# Appendix C – NISR 2003 Table 3: Categories of nuclear material

NISR 2003 Regulation 3 ‘Meaning of “nuclear material”, “Category I/II nuclear material” and “Category III nuclear material”



# Appendix D – Sources of further information cited in DfT guidance to facilitate compliance with ADR provisions

| ADR sub-section | Description |
| --- | --- |
| 1.10.1.1 | Information and guidance regarding a job applicant’s ‘right to work’ documents can be accessed via the following link <https://www.gov.uk/legal-right-work-uk>. |
| 1.10.1.3 | Guidance on physical security can be found on the National Protective Security Authority (NPSA) website at: [The Catalogue of Security Equipment | NPSA](https://www.npsa.gov.uk/cse-categories) The CPNI protects national security by providing protective security advice. Their advice covers physical security, personnel security and cyber security/information assurance.  A risk assessment template and information on conducting a risk assessment is contained in the Department for Transport (DfT) publication, ‘security guidance on the carriage of dangerous goods by road and rail’, which is available on the DfT website at [**https://www.gov.uk/government/publications/security-requirements-for-moving-dangerous-goods-by-road-and-rail**](https://www.gov.uk/government/publications/security-requirements-for-moving-dangerous-goods-by-road-and-rail). |
| 1.10.2.2. | Further security training can be obtained from private training suppliers or other government departments including the NPSA [National Protective Security Authority | NPSA](https://www.npsa.gov.uk/) and Counter Terrorism Security Advisers (CTSAs). [ProtectUK | Home](https://www.protectuk.police.uk/) Guidance for the design and delivery of security awareness training for the carriage of dangerous goods by road and rail can be found on the DfT website at: [Dangerous goods security awareness training - GOV.UK (www.gov.uk)](https://www.gov.uk/government/publications/dangerous-goods-security-awareness-training) |
| 1.10.3.2.2 (d) | Dutyholders can obtain up to date information and guidance regarding the National Threat Levels via accessing the following link [Threat Levels | MI5 - The Security Service](https://www.mi5.gov.uk/threats-and-advice/terrorism-threat-levels) |

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# Appendix E – General guidance on physical security measures for temporary storage areas

**Introduction**

1. Physical security should be designed to make it as difficult as reasonably practical for an intruder or insider to steal or have unauthorised access to dangerous goods. Good security is a combination of physical measures, sound procedures and the awareness and attitude of managers and employees. Actual measures may vary from location to location, depending on the nature of the business. This Annex highlights effective physical security measures at temporary storage sites including depots and on vehicles used for the transport of Class 7 dangerous goods. The implementation of security measures should be pragmatic and proportionate. Further information and advice regarding physical security systems can be accessed via the NPSA website [Protective Security Advice | NPSA](https://www.npsa.gov.uk/advice-guidance).
2. Inspectors should note this guidance is applicable for in-transit storage. Where in-transit storage is within a permitted store inspectors should liaise with the relevant environment agency to ensure all regulatory requirements have been met.

**Physical security**

1. All good physical security regimes are based on the principle – deter, detect and delay. In order for this principle to work, detection must come before delay.

* Deter – the overt physical and electronic security measures that might deter a would-be intruder.
* Detect – alarm systems, with visual (CCTV) verification, to detect the presence of an intruder.
* Delay – physical security measures that delay the intruder long enough to allow a response force to attend.

**Access control**

1. Keep access points to a minimum and make sure the boundary between public and private areas of a building is secure and clearly signed. Good quality access controls should be in use such as magnetic swipe identification cards or 'proximity' cards which are readable from a short distance. When inspecting access control, establish that there are controls in place to prevent tailgating and the possibility of bypassing barriers.

**Searching on entry and exit**

1. Where appropriate, it should be a condition of entry and/or exit to a site that people may undergo a body search and vehicles are to be searched. Body searches should be witnessed and only trained staff should carry them out. Where there are areas of particular sensitivity and/or risk, random searching on entry and exit could be undertaken. Further information and advice regarding searching can be accessed via the NPSA website [Protective Security Advice | NPSA](https://www.npsa.gov.uk/advice-guidance). Additionally, information about training security guards to conduct any searching requirements and details on training providers, can be found via the Security Industry Authority (SIA) website <http://www.sia.homeoffice.gov.uk/Pages/training.aspx>.

**Doors**

1. Generally, doors should:

* Be strong in construction;
* Have commensurate good quality locking hardware;
* Delay forced entry;
* Prevent undetected entry;
* Allow safe egress.

1. Security doorsets form part of an integrated site security system. It is paramount their performance is considered in conjunction with other aspects of site security such as CCTV, lighting, detection systems, guarding and security procedures.
2. More information can be accessed by following the link: [Protective Security Advice | NPSA](https://www.npsa.gov.uk/advice-guidance).
3. Any external security doorsets that are infrequently used should be internally secured (having ensured compliance with relevant fire safety regulations).

**Windows**

1. There are many types of windows, each operating in a unique way. Irrespective of this, a number of key features affect the security resistance afforded by windows. These should be taken into account when determining a window’s likely resistance to forced entry; undetected or otherwise. These features are as follows:

* Mode of opening;
* Materials used to manufacture the window and how they are assembled;
* Locking mechanism;
* Hinges;
* Glazing method and type of glazing used; and
* Installation method.

1. If there is not already one in place, a good quality alarm system should be fitted to external windows. Further information regarding the security of domestic windows, can be found accessed via the CPNI website: [Protective Security Advice | NPSA](https://www.npsa.gov.uk/advice-guidance)

**Perimeter security**

1. Fences and walls will protect a site by:

* Deterring and delaying intruders;
* Marking a boundary;
* Protecting guards and staff from surprise attack;
* Enabling the use of guard dogs;
* Acting as a barrier to vehicles;
* Enabling the use of Perimeter Intruder Detection Systems (PIDS);
* Protecting against explosive attack.

1. Walls have the following additional uses:

* To protect against rockets, small arms, blast and fragments;
* To prevent observation of guard and patrol movements; and of other protective measures;
* Creating a 'stand-off' for any explosive device.

1. Fences and walls provide only limited delay against intruders; the least secure types can only delay a skilled intruder for a few seconds. A perimeter barrier intended to impede intruders should, therefore, combine a fence or wall with security lighting and human or electronic surveillance, e.g. a PIDS and CCTV.
2. Toppings are designed to increase the difficulty of climbing a fence or wall by increasing the overall height of the fence and also snagging and/or cutting the intruder. It should not aid an intruder by providing a firm hand or foothold. There are many different types of topping available including, barbed tape coils, barbed wire and spikes.

**Gates**

1. Gates must be compatible with and at least as strong as the perimeter fence. Hinges should have been engineered to prevent a gate being lifted off. A good security padlock of hardened steel should be used. Make sure the bar on any standard padlock is as short as possible and, ideally, the padlock should have a shroud with hardened steel. This makes it harder to open using cutting equipment and so buys time.

**Lighting**

1. Lighting can be an important security measure, but may in fact assist an intruder if used incorrectly. Ideally a security lighting system should:

* Deter intrusion, or at least reduce an intruder's freedom of action;
* Assist in the detection of intruders either by direct vision or by CCTV;
* Conceal guards and patrols.

1. The guard plan, CCTV and lighting requirement must be carefully co-ordinated taking account of the following rules:

* Lighting should not illuminate guards or patrols;
* Lighting should support guards and CCTV;
* It should not cause nuisance or hazards;
* It must be cost-effective and compatible with site conditions;
* An even level of illumination is more important than absolute light levels. This prevents dark areas in which intruders can lurk.

1. Perimeter lighting. This provides a well-lit area in the form of a strip around the perimeter. To be effective an intruder must have to pass through this well-lit area. The lighting column should not be useable as an aid to scaling the fence.
2. Area Lighting. This generally refers to the areas around buildings within the protected area. The aim is to produce even illumination without dense shadows.
3. Floodlighting. This is used to cast a strong light on the walls of buildings so that intruders are visible either in silhouette or by the shadows which they cast. Lights should be mounted up high, out of reach of intruders.
4. Gatehouse Lighting. This is used at the perimeter entrance and gatehouse in order to:

* Reveal approaching vehicles and pedestrians and allow guards to identify them, verify passes, carry out vehicle searches, and
* Conceal guards within the gatehouse while allowing them to see out.

1. Topping up Lighting. This is used to eliminate dark areas not adequately lit by area lighting or floodlighting. Such areas may be lit locally by small light fittings (e.g. bulkhead fittings) or from a distance by narrow angle floodlights.

**CCTV**

1. CCTV should form only part of a whole security system and should not be used on its own. It cannot completely replace security staff, but it may enable fewer to be used, their employment on a wider range of duties, or use of an off-site guard/response force. In its simplest form a CCTV system consists of a television camera joined by a transmission link such as a cable to a monitor sited in the guard room or central control point. More complex systems use several cameras and monitors or a single monitor with a switching system to display camera pictures in sequence. Additional facilities such as recorders, automatic switching in response to an alarm signal may be used. Additional information on CCTV systems can be accessed via the CPNI website [Protective Security Advice | NPSA](https://www.npsa.gov.uk/advice-guidance). Systems may also require registration under data protection legislation.
2. Using CCTV can help clarify whether a security alert is real and is often vital in post-incident investigations, but only if the images are good enough to identify what happened and provide admissible evidence in court.
3. External lighting will help the effectiveness of security staff and improve the capabilities of CCTV systems if it is carefully designed and used. Effective CCTV systems may help to deter a terrorist attack or even identify planning activity. Good quality images can provide crucial evidence in court.
4. Security staff who are employed in-house are not required to be Security Industry Authority (SIA) licensed. If contract security staff, are employed they must be licensed by the SIA. This includes operating CCTV equipment and applies regardless of whether CCTV cameras are fixed or have a pan, tilt and zoom capability and where operators:

* Proactively monitor the activities of members of the public whether they are in public areas or on private property;
* Use cameras to focus on the activities of particular people either by controlling or directing cameras to an individual's activities;
* Use cameras to look out for particular individuals;
* Use recorded CCTV images to identify individuals or to investigate their activities.

1. CCTV considerations:

* Are the CCTV cameras regularly maintained?
* Do the cameras cover the entrances and exits to a building?
* Do the cameras cover critical areas such as where Class 7 radioactive material is stored?
* Are the images stored in accordance with the evidential needs of the police and with data protection legislation? Duty holders can obtain advice from their local CTSA concerning the evidential needs of the police.
* Could an individual be positively identified from the recorded images on the CCTV system?

**Class 7 non-high consequence dangerous goods**

1. Parts of the site where dangerous goods are stored are to be secured. A safe may be adequate for the secure storage of small quantities of dangerous goods. For slightly larger quantities it might be sufficient to install a secure cage, constructed of weld-mesh material with a locking door, possibly to British Standards such as BS1722:2006 (fencing) and BS3621:2007 (locks) rather than trying to secure an entire building. Access to secure storage areas should be limited to appropriately recruited and trained staff.
2. If Class 7 non-high consequence dangerous goods are stored in vehicles or secure buildings, then chain link fencing may be used provided the vehicles themselves are adequately secured. There may be occasions when fencing or access control may not be required at all. For example if:

* Vehicles are fitted with high quality security features, such as high security locks, grilles and anti-theft equipment;
* Trailers cannot be detached and/or towed away; or
* Bollards to prevent unauthorised vehicle access/egress are present.

**Class 7 high consequence dangerous goods**

1. At sites where small quantities of Class 7 high consequence dangerous goods are stored, localised storage may be appropriate, or perhaps ‘double layered’ security arrangements such as a safe within a cage.
2. Perimeter security of Class 7 high consequence dangerous goods sites should comprise good quality weld mesh or palisade fencing, preferably constructed to BS1722:2006 standard. Access should ideally be controlled using photographic identification.
3. Security fencing is best fitted with intruder detection equipment that alerts a security control point. There is no requirement for PIDS in the regulations, but on opening of the site each day, procedures should include a check of the secure storage and associated holding. If Class 7 radioactive material has been stolen, or there are signs of interference or attempted theft, this is to be reported to the Police immediately.

**Vehicle communications – High consequence dangerous goods**

1. Vehicles should be fitted with radios or some other means of two-way communications between the driver and their base. Panic buttons can be fitted that a driver presses if under duress, possibly in a hi-jack situation. This will send an alert to the operator so the Police can be contacted. During transport, the carrier should provide, in the vehicle, a means for personnel to communicate with a designated contact point as specified in the security plan.

**Dangerous load cards – High consequence dangerous goods**

1. Drivers carrying Class 7 high consequence dangerous goods should carry a dangerous load card. It does not specify the vehicle, the driver, or the type of high consequence dangerous goods being carried. A driver should only produce this card if they are stopped by a Police or Driver and Vehicle Standards Agency (DVSA) officer and are suspicious about the bona fides of the officer. The card tells the Police and DVSA that the driver will not open the vehicle until the officer’s identity has been verified. The Police and DVSA have approved this procedure. The carrier will need to decide if any load is of high consequence, based on information provided by the consignor. The dangerous load card can be downloaded from the DfT website via this link: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/338874/dangerous-load-card.pdf>.

**Storage of vehicles**

1. Overnight storage of vehicles in locked buildings is often only practical for light vans. Heavy commercial vehicles need more space, and are generally kept outside. Vehicles should not be left parked against perimeter fences. Although the fence may protect the rear doors from being opened, the top and sides remain vulnerable. If Class 7 high consequence dangerous goods are pre-loaded for departure they are more vulnerable if left overnight. Wherever practicable, vehicles should not be left loaded overnight or for any significant period of time before departure. If vehicles have to be pre-loaded for operational reasons, they should be left in a secure location, locked, with any alarms or immobilisers set and the keys kept in a safe place.

**Secure vehicles**

1. All vehicles should have some form of immobilisation. Has the vehicle been fitted with an alarm and immobiliser? Information on security devices for vehicles can be found on the Thatcham website via the following link: [Security Information - Thatcham Research](file:///C:\Users\PSanyal\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\2UYL73JO\Security%20Information%20-%20Thatcham%20Research).

**Physical vehicle security**

1. Are the vehicles fitted with strong high security locks? Many security locks depend on the driver to operate them manually. ‘Slam locks’ can be fitted to load space access points in commercial vehicle bodies. Are vehicles fitted with a bulkhead dividing the driver/passenger area and the load compartment in panel vans, in order to isolate goods in the load compartment? A bulkhead fitted in a panel van means that access is only through the side or rear loading doors, which can be secured with additional locks.
2. Bulkheads come in a variety of materials, such as solid steel, plywood or steel mesh. Correctly fitted mesh bulkheads can give adequate security, but still allow thieves to see the goods, which may make a break-in more likely. Solid bulkheads are better.

**Immobilisers**

1. Immobilisers aim to render the vehicle and/or trailer immovable. Immobilisation systems can be used in isolation or integrated into an alarm system. Virtually all insurance approved alarm systems will incorporate, as standard, some form of immobilisation as part of the overall security system.
2. Wheel clamps are an effective form of immobilisation, especially on the smaller wheels of light commercial vehicles. Wheel clamps for large commercial vehicles are heavy and cumbersome. Drivers have to fit them and lock them into place, so the risk that they either will not fit them, or that they will fit them incorrectly (particularly at night), is higher than for other vehicle immobilisation devices.
3. To immobilise an articulated trailer, kingpin or trailer leg locks are the most common and effective way. Kingpin locks are a heavy hardened steel clamp or cover, which fits round or over the kingpin and locks it in position. It makes it impossible for the kingpin on the trailer to be coupled with the fifth wheel coupling on the tractor unit. Fitting kingpin locks can be a difficult and dirty job. Trailer leg locks are an alternative. Both kingpin and trailer leg locks are manually operated devices so the driver has to put them on and lock them into position.

**Alarms**

1. Immobilisation does not stop a criminal from vandalising a vehicle or unloading it where it stands. Alarm systems do two things:

* they create a loud sound that provides both a warning and a deterrent; and
* when fitted in conjunction with a vehicle immobiliser, they ‘buy time’.

1. An alarm system powered off the vehicle’s own battery may be perfectly sufficient for light commercial vehicles in low risk operations, where the battery is locked under the bonnet. Large commercial vehicles with exposed batteries on the chassis require a back-up facility for alarm systems. There is little point in having an alarm system that can be rendered inoperable merely by disconnecting the battery terminals.
2. Key switches turn a system on or off (automatic systems ‘pulse’ to allow the driver to re-enter the cab or to unload).
3. In the case of high risk loads, independent alarm security may be fitted to the tractor unit and the trailer, tank or container. Where a single shared alarm system covers the tractor and the trailer, tank or container when they are coupled, the back-up battery may be on the trailer, tank, or container. It provides independent protection when the trailer, tank, or container is free-standing. However, this may leave the tractor without any alarm protection at all when separated. In this case, it is important to immobilise the tractor.

**Tracking systems**

1. When appropriate and already fitted, the use of transport telemetry or other tracking methods or devices should be used to monitor the movement of high consequence dangerous goods.
2. Some tracking system manufacturers offer 24 hour monitoring via a movement sensor linked to the tracking unit. The system manufacturer is then able to alert the owner if the vehicle is illegally moved. This means a faster response to theft. Some on-board tracking systems offer additional features, which can monitor the product levels in tankers for example. These enable the operator to have live visibility of the vehicle’s location as well as the quantity of product unloaded. Portable tracking devices are available that can be fitted into a load space, a shipping container for example, which can send an alert if the doors are opened.

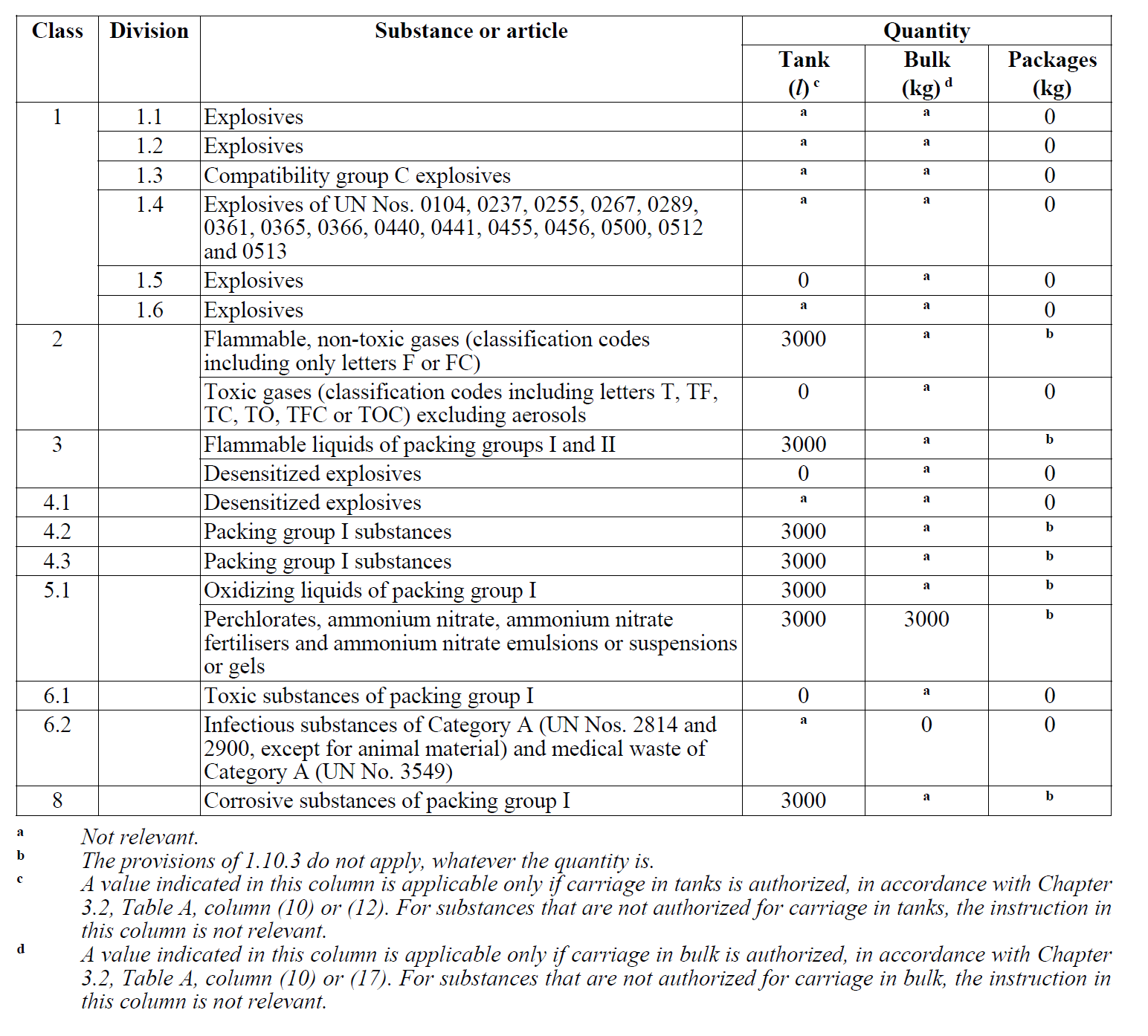
**Cameras on vehicles**

1. Cameras are regularly used on the back of goods vehicles to help the driver manoeuvre the vehicle. These are also a valuable covert measure to monitor the security of the load. More frequently now, forward facing cameras are being fitted.

**Key control**

1. Parked vehicles should be locked when not in use and the keys kept in a lockable container. This can either be a key safe where any missing keys can be noted at a glance or, if required, a secure metal cabinet. Duplicate keys should have similar protection. The room in which keys are secured should also be protected from access by unauthorised personnel.
2. In respect of storage areas for Class 7 dangerous goods, effective key control is critical in ensuring that resistance to forced entry provided by a doorset is not undermined by unauthorised people gaining access to the keys. It is very important that there are procedures in place to control the issue of keys and to ensure that the loss or theft of keys is quickly identified and reported. Each key should be stamped with a number or symbol to relate it to a particular lock location or system.

# Appendix F – ADR Table 1.10.3.1.2: List of high consequence dangerous goods



1. The environment agencies are: Environment Agency (EA), Scottish Environment Protection Agency (SEPA) and Natural Resources Wales (NRW) [↑](#footnote-ref-2)
2. [Categorization of Radioactive Sources | IAEA](https://www.iaea.org/publications/7237/categorization-of-radioactive-sources) [↑](#footnote-ref-3)
3. The National Counter Terrorism Security Office (NaCTSO) guidance, issued in 2024, is available from NaCTSO. It is not available to download due to its security classification. [↑](#footnote-ref-4)
4. A 12-month period is considered the upper bounding case for a transport operation (unless a longer duration can be justified) and is the basis for ADR provisions. If a package has not been received by the consignee within a 12-month period, it would normally either need to be re-consigned   
   (in accordance with whatever safety case underpins its use) or, if its location is unknown, it would be considered to be lost. [↑](#footnote-ref-5)
5. For England, Wales and Northern Ireland, the exemptions guidance [Scope of and exemptions from the radioactive substances legislation in England, Wales and Northern Ireland](https://assets.publishing.service.gov.uk/media/663cc4684f29e1d07fadc460/radioactive-substances-legislation-scope-exemptions-guidance.pdf) details when ‘storage in transit’ becomes permanent storage when: it is stored in one location for a period exceeding 14 days; or it is unpackaged, or it arrives at the destination where it will be used or disposed of. For Scotland, exemption guidance is <https://www.gov.scot/publications/scope-radioactive-substances-legislation-scotland-guidance-document/pages/2/> [↑](#footnote-ref-6)
6. Note NIEA is the transport CA in Northern Ireland. [↑](#footnote-ref-7)
7. This additional requirement therefore does not apply where ADR Chapter 1.10 does not apply   
   (refer to para. ‎22). [↑](#footnote-ref-8)
8. ADR 1.7.1.4 exclusions include radioactive material as integral means of transport and when incorporated into persons for diagnosis etc. [↑](#footnote-ref-9)
9. Only likely to exceed A2 limits if transporting special form where the A1 limit exceeds the A2 limit. [↑](#footnote-ref-10)
10. Per consignment/convey [↑](#footnote-ref-11)
11. Per package [↑](#footnote-ref-12)
12. N/A materials reach the NISR threshold before the ADR 1.10.3 threshold so will never be considered HCRM under ADR. [↑](#footnote-ref-13)
13. No civil Class 7 material regularly moved in GB possesses subsidiary risks of other classes of dangerous goods, carried in quantities greater than indicated. Inspectors should seek advice from the TCA cross-purpose Delivery Management Group Lead if they encounter an ‘edge case’. [↑](#footnote-ref-14)