



ONR GUIDE			
Compliance Inspection of Transport Arrangements in the Nuclear Sector			
Document Type:	ONR Nuclear Safety Technical Inspection Guide		
Unique Document ID and Revision No:	NS-INSP-GD-069		
Date Issued:	May 2019	Review Date:	May 2022
Approved by:	Kulvinder McDonald	Operational Inspection Professional Lead	
Record Reference:	CM9 Reference 2019/67877		
Revision commentary:	New document		

TABLE OF CONTENTS

1. INTRODUCTION	2
2. PURPOSE AND SCOPE	3
4. THEMATIC AREAS	4
5. TRANSPORT REGULATORY REQUIREMENTS AND GUIDANCE	5
6. DEROGATIONS AND AUTHORISATIONS TO CDG 2009.....	15
7. DEFINITIONS.....	16
8. REFERENCE DOCUMENTS - TRANSPORT REGULATIONS FOR ROAD AND RAIL...	18
APPENDIX 1 – RELATIONSHIP BETWEEN NATIONAL AND INTERNATIONAL TRANSPORT REGULATIONS.....	20
APPENDIX 2 - DEROGATIONS AND AUTHORISATIONS IN DETAIL.....	23
DEROGATIONS	23
AUTHORISATIONS.....	25

1. INTRODUCTION

- 1.1 ONR is the Great Britain (GB) Competent Authority (CA) and Enforcing Authority for the civil carriage of Class 7 goods by road and rail. ONR also acts on behalf of the other United Kingdom (UK) CAs with respect to the issuing of transport approvals namely:
- The Secretary of State for Transport and the Maritime and Coastguard Agency for transport in UK waters.
 - The Civil Aviation Authority for air transport.
 - The Department of Agriculture, Environment and Rural Affairs for road transport in Northern Ireland.
- 1.2 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 in particular Specific Safety Requirements SSR-6¹.
- 1.2.1 Explanatory material supporting SSR-6 is contained in IAEA Safety Standard – Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material – Specific Safety Guide SSG-26.
- 1.3 Regulation 5 of GB transport regulations the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 as amended (CDG 2009) mandates compliance with ADR² (for Road) and RID³ (for Rail).
- 1.4 Although CDG 2009 applies to the carriage of dangerous goods by inland waterway and makes reference to ADN⁴, it is limited to the training and examination system for safety advisers and the issuing and renewal of vocational training certificates (CDG 2009 Regulation 4(2) refers). Consequently this guidance will only make reference to ADR and RID.
- 1.5 Appendix 1 explains in detail the relationship between CDG 2009 and international transport regulations (SSR-6, ADR, and RID).
- 1.6 The objectives of the transport regulations are to ensure safety and to protect persons, property and the environment from the effects of radiation in radioactive material transport operations. This protection is achieved by:
- Containment of the radioactive contents
 - Control of external radiation levels
 - Prevention of criticality
 - Prevention of damage caused by heat.
- 1.7 These requirements are satisfied firstly by applying a graded approach to contents limits for packages and to performance standards applied to package designs depending upon the hazard of the radioactive content. Secondly, they are satisfied by imposing conditions on the design and operation of packages and on the maintenance of packages, including a consideration of the nature of the radioactive contents. Finally, they are satisfied by requiring administrative controls including, where appropriate, approval by a CA (e.g. ONR).

¹ IAEA Safety Standards - Regulations for the Safe Transport of Radioactive Material – Specific Safety Requirements (SSR-6).

² European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

³ Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).

⁴ European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).

- 1.8 Consequently, aspects of radioactive materials transport involving higher hazards are regulated by a permissioning regime in which specified package designs and transport activities require prior CA approval.
- 1.9 Conversely transport packages used for low hazard radioactive material (i.e. Excepted Packages, Industrial Packages (IP's), and Type A Packages) do not require CA approval. Such packages are self-assessed and certified by industry (i.e. Designer / Manufacturer / Consignor).
- 1.10 The transport regulations require transport duty holders to establish and implement management systems that are acceptable to the CA. The management system is required to encompass design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination, documentation, and inspection of packages, as applicable.

2. PURPOSE AND SCOPE

- 2.1 This guide has been prepared as an aid to inspection activities carried out by ONR inspectors at duty holder premises, and other relevant places, in judging the duty holder's compliance with the transport regulations.
- 2.2 This guidance provides a framework for inspection activities, within which the inspector is expected to exercise their discretion. This framework is provided to facilitate a consistent approach to compliance inspection against the requirements of the CDG 2009 (as amended).
- 2.3 The guidance is for use by inspectors in ONR. The guidance does not indicate when or to what extent inspections of the requirements of CDG 2009 should be carried out, as these matters are included in Divisional Inspection Plans, which take account of priorities established by ONR.

3. MANAGEMENT SYSTEM

- 3.1 Transport regulations establish requirements that when satisfied ensure the safety and protection of persons, property and the environment from the effects of radiation in the carriage of radioactive material. This protection is achieved by requiring:
 - Containment of the radioactive contents,
 - Control of external radiation levels,
 - Prevention of criticality,
 - Prevention of damage caused by heat.
- 3.2 These requirements are satisfied by:
 - Applying a graded approach to contents limits for packages (including unpackaged radioactive materials) and conveyances and to performance standards applied to package designs depending upon the hazard of the radioactive contents,
 - Imposing conditions on the design and operation of packages and on the maintenance of packages, including a consideration of the nature of the radioactive contents,
 - Requiring administrative controls, including, where appropriate, approval by competent authorities.

- 3.3 Consequently ADR/RID § 1.7.3 requires duty holder to establish a Management System that is acceptable to the CA. The table in Section 5 of this document includes guidance on the content of Management Systems.
- 3.4 The management system for any particular organisation should be designed and developed to suit the organisation's needs and activities; certification to management system standards (e.g. ISO 9001) is not mandatory.

4. THEMATIC AREAS

- 4.1 An organisation may be involved in more than one transport activity e.g. design, manufacture, testing, maintenance and carriage, or involved in all phases from design to carriage.
- 4.2 Transport arrangements have typically been broken down into the following 14 thematic areas:
 - 1 Management Systems.
 - 2 Arrangements for Package Design.
 - 3 Package Manufacture and Supply Chain.
 - 4 Package Modification Control.
 - 5 Package Maintenance and Operation.
 - 6 Package Preparation for Consignment.
 - 7 Safe Carriage of Packages.
 - 8 Management and Control of Transport Interfaces.
 - 9 Radiation Protection Programme.
 - 10 Training and Competence.
 - 11 Emergency Planning and Testing.
 - 12 Security.
 - 13 Dangerous Goods Safety Advisor (DGSA) and Other Advice.
 - 14 Incidents, Events and Compliance History.

Depending upon the duty holder's activities, all or only some of the thematic areas will apply.

- 4.3 The following table contains regulatory requirements and guidance for each thematic area.

5. TRANSPORT REGULATORY REQUIREMENTS AND GUIDANCE

Regulation 5 of GB transport regulations (CDG 2009 as amended) mandates compliance with ADR (for Road) and RID (for Rail)

Thematic Area	Transport Requirement and Guidance	Additional Guidance (Note – The text below is not intended as a check list but rather as a prompt for inspectors to use when planning an inspection)
Management Systems	<p>ADR/RID § 1.7.3 requires duty holders to establish a Management System that is acceptable to the CA. The Management System should enable an organisation to manage the inter-related parts of its business in order to achieve its objectives. These objectives include product or service quality, operational efficiency, environmental performance, health and safety in the workplace etc. The level of complexity of the Management System will depend on each organisation’s specific context. For smaller organisations, it may simply mean having strong leadership from the business owner, without the need for extensive documentation. More complex organisations may need extensive documentation and controls in order to fulfil their legal obligations and meet their organizational objectives. An organisation may be involved in more than one transport activity e.g. design, manufacture, testing, maintenance and carriage, or involved in all phases from design to carriage. The management system for any particular organisation should be designed and developed to suit the organisation’s needs and activities. Certification to Management System standards (e.g. ISO 9001) is not mandatory.</p>	<p>NS-INSP-GD-017 Revision 4 - Nuclear Safety Technical Inspection Guide - LC 17- Management Systems - TRIM Folder 1.1.3.793. 2017/263509. http://www.onr.org.uk/operational/tech_insp_guides/ns-insp-gd-017.pdf</p> <p>IAEA Safety Standards – The Management System for the Safe Transport of Radioactive Material – Safety Guide – TS-G-1.4 https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1352_web.pdf</p> <p>AEA Safety Standards - Compliance Assurance for the Safe Transport of Radioactive Material - Safety Guide TS-G-1.5 https://www-pub.iaea.org/MTCD/publications/pdf/pub1361_web.pdf</p> <p>Is the management system documented in a form which makes it easily available to personnel who need it to perform their duties? Is the manager responsible for ensuring that the management system is implemented identified? Are the role and responsibilities of the responsible manager clearly identified? Are there adequate procedures for document issue, approval & change? Are there adequate procedures for work performed at locations other than the main base of operations? Does the duty holder perform planned, continuing and systematic evaluations or audits of factors which affect conformity and safety? Are quality assurance results fed back to the manager responsible for the function to ensure adequate corrective action? Are there sufficient competent personnel?</p>

<p>Arrangements for Package Design</p>	<p>ADR/RID Chapter 6.4 contains the requirements for the construction, testing and approval of packages for radioactive material and for the approval of such material. The designer of a transport package needs to be able to demonstrate or assure the manufacturer, user, and certifying body that all necessary steps and design processes have been addressed during all phases of design. For example, the designer needs the means to assure that the final design specifications, drawings, and procedures have been produced taking account of regulatory requirements, design bases, codes, and standards. The designer also needs to demonstrate that any proposed changes, modifications or deviations from the accepted design are carefully considered, justified, controlled, documented and implemented in a quality assured manner, as well as being consistent with, or better than, the controls applied to the original design. If the designer is responsible for prototype manufacture and testing, the quality assurance (QA) system needs to ensure that any prototype packages, including scale models, are specified correctly, made exactly as required, and are consistent with the production package's materials and fabrication methods.</p>	<p>A prerequisite for ONR's to issue CA approval for a package design is the assessment and acceptance of the duty holder's management system.</p> <p>Are there suitably documented arrangements between the Designer / Manufacturer / Tester / Maintainer to ensure satisfactory co-ordination including:-</p> <ul style="list-style-type: none"> ➤ The timely transfer of all design data. ➤ The arrangements to assist the Designer with traceability of parts & processes. ➤ The procedures to deal adequately with non-conforming parts. ➤ Which persons or offices are responsible for controlling the above arrangements and associated data. <p>Is the above data kept up-to-date and made available to staff who need access to perform their duties?</p> <p>Are there adequate procedures to ensure that released parts with deviations from applicable design data are reported to the Designer in a timely manner?</p> <p>Does the duty holder seek specialist knowledge as necessary?</p>
--	--	--

<p>Package Manufacture and Supply Chain</p>	<p>ADR/RID § 6.2.2.5.3.1 requires a manufacturer's quality system to contain all the elements, requirements, and provisions adopted by the manufacturer. It shall be documented in a systematic and orderly manner in the form of written policies, procedures and instructions. The manufacturer should have a QA system that is capable of clearly demonstrating that the package has been manufactured strictly in accordance with the agreed specification. Alternatively, where production has deviated from the agreed specification, it has been done in a controlled and authorized manner with appropriate reference to the designer or design authority, and with the necessary QA records being created. It is necessary to provide for suitable purchase control of all material and services, and measures are needed for the various aspects of procurement control such as supplier evaluation and selection, purchasing data, purchasing verification. Items supplied by the customer or end user that are incorporated into the final product also require appropriate control within the QA programme.</p>	<p>Are there suitably documented arrangements between the Designer / Manufacturer / Tester / Maintainer to ensure satisfactory co-ordination including:-</p> <ul style="list-style-type: none"> ➤ The timely transfer of all design data. ➤ The responsibilities & procedures of the Manufacturer for developing and validating manufacturing data against supplied design data. ➤ The arrangements to assist the Designer with traceability of parts & processes. ➤ The procedures to deal adequately with non-conforming parts. ➤ The procedures to ensure configuration control of parts to enable determination & identification for conformity. ➤ Which persons or offices are responsible for controlling the above arrangements and associated data. <p>Is the above data kept up-to-date and made available to staff who need access to perform their duties?</p> <p>Are test specimens and prototype models made under controlled conditions?</p> <p>Are there adequate procedures to ensure that released parts with deviations from applicable design data are reported to the Designer in a timely manner?</p> <p>Are there adequate procedures for vendor & subcontractor assessment, audit & control?</p> <p>Are external suppliers identified by the quality system?</p> <p>Are external suppliers controlled using the following techniques as appropriate to ensure conformity?</p> <ul style="list-style-type: none"> ➤ Qualification and auditing of the suppliers system. ➤ Evaluation of capability to establish conformity to applicable design data. ➤ First article inspection to verify conformity to applicable data. ➤ Incoming inspection and test where appropriate. ➤ A vendor rating system which gives confidence in performance and reliability. ➤ Additional work, including inspection and checks needed to enable parts to be delivered as spares, which are not included in the normal production cycle. ➤ Supplier personnel satisfy the competency standards of the quality system of the organisation placing the contract. ➤ Quality measurements are clearly identified by the supplier. ➤ Supplier records and reports showing conformity are available for review and audit. ➤ Is the control of buyer furnished equipment included in the Quality system? <p>Are there adequate procedures for the verification of incoming materiel against applicable design data?</p> <p>Are there adequate procedures for handling, storage & packaging (by suppliers & internally)?</p>
<p>Package Modification Control</p>	<p>ADR/RID Chapter 6.4 contains the requirements for the construction, testing and approval of packages for radioactive material and for the approval of such material. Proposed changes, modifications or deviations from the accepted design are carefully considered, justified, controlled, documented and implemented in a quality assured manner, as well as being consistent with, or better than, the controls applied to the original design.</p>	<p>See arrangements for package design for additional guidance.</p>

<p>Package Maintenance and Operation</p>	<p>ADR/RID § 4.1.9.1.8 requires before each shipment of any package, it shall be ensured that all the requirements specified in the relevant provisions of ADR/RID and in the applicable certificates of approval have been fulfilled. ADR/RID § 4.1.9.1.9 requires that the consignor shall also have a copy of any instructions with regard to the proper closing of the package and any preparation for shipment before making any shipment under the terms of the certificates.</p>	<p>Is the requirement to ensure that the package is maintained in accordance with the design intent clearly defined? Are there adequate procedures for identification and traceability of packages and components? Are there adequate procedures for package testing? Are there adequate procedures for calibration of tools, jigs and test equipment (traceable to national standards) and are they implemented? Are the following resources (as applicable) available and adequate for maintenance and operation related activities?</p> <ul style="list-style-type: none"> ➤ Accommodation and working environment. ➤ Documentation (package certificates, operating instructions, maintenance records, quality plans and dose records) ➤ Equipment and tools. ➤ Special processes and associated materials. ➤ NDT, welding equipment and facilities. ➤ Inspection and test equipment and facilities. ➤ Competent personnel. <p>Are there adequate arrangements for quarantining non-conforming parts / items / packages?</p>
<p>Package Preparation for Consignment</p>	<p>ADR/RID § 4.1.9.1.6 requires before a packaging is first used to carry radioactive material, it shall be confirmed that it has been manufactured in conformity with the design specifications to ensure compliance with the relevant provisions of ADR/RID and any applicable certificate of approval. ADR/RID § 1.4.2.1.1 (a) requires consignors to ascertain that the dangerous goods are classified and authorized for carriage in accordance with ADR/RID. ADR/RID § 1.4.2.1.1 (b) requires consignors to furnish carriers with the required transport documents (ADR/RID § 5.4) including certificates. ADR/RID § 1.4.2.1.1 (c) requires consignors to use only packaging approved for and suited to the carriage of the substances concerned and bearing the marks prescribed by ADR/RID. A non-exhaustive list of other participants and their respective obligations is given in ADR/RID § 1.4.3. They include: Loader, Packer and Filler.</p>	<p>Users of packages, who are very often the owners/consignors of packages containing radioactive material, have a multitude of tasks to perform in order to dispatch a package safely and in a compliant manner. The consignor must ensure that the package used for the transport operation is the correct one and is appropriate for its intended contents. The consignor should also ensure that the package is in a fit state to transport the material. In the case of a reusable package, it should have been properly serviced and maintained. In the case of a new package, the user should ensure that it has been manufactured, assembled and prepared for transport correctly. The consignor very often prepares the material for loading into the package and carries out that operation. For some material, such as uranium hexafluoride or spent nuclear fuel, this must be done under carefully controlled conditions in accordance with detailed procedures. Even the preparation of a straightforward industrial gamma radiography unit requires careful and strict adherence to prescribed procedures to ensure radiological safety and compliance with the transport Regulations. The consignor is also responsible for appropriate monitoring of the package before dispatch as well as for correct labelling of the package or shipment, to assure safety during transport. The consignor has to prepare the necessary transport documents and be aware of the difference between various national Regulations when conducting international transport movements. If a third party carrier is to be used, the consignor should be satisfied that the carrier knows how to transport radioactive material safely and in compliance with the Regulations.</p>

<p>Safe Carriage of Packages</p>	<p>Third party carriers differ considerably in the type of work on which they engage, their business style, objectives, and to a certain extent, the type of operative they employ. Apart from a few nuclear transport specialists, most carriers handle a variety of goods including many different categories of dangerous goods. Nevertheless, in the case of radioactive material, the carrier has to ensure that the driver (in the case of road transport) is adequately trained, knows what the regulatory requirements are and how to comply with them. The carrier also must know what transport documents are required, what information they should contain, what action to take in the case of an emergency, and how the vehicle or container should be placarded or labelled. Segregation distances frequently need to be determined, and radiation exposures to people and undeveloped film need to be limited. In this manner, basic radiation protection principles are implemented. ADR/RID § 5.4.4.1 requires the consignor and the carrier to retain a copy of the dangerous goods transport document and additional information and documentation as specified in ADR/RID, for a minimum period of three months. ADR § 8.1 states general requirements concerning transport units and equipment on board. It includes requirements for fire fighting equipment, miscellaneous equipment and equipment for personal protection. ADR § 8.2 includes the requirements concerning the training of the vehicle crew.</p>	<p>The QA programme for a carrier can be relatively simple and straightforward. A QA programme is needed which:</p> <ul style="list-style-type: none"> ➤ Defines and describes the management system; ➤ Helps recognize and identify the radioactive package to be transported; ➤ Enables all necessary safety and regulatory provisions for carriage to be identified and met; ➤ Lets the carrier know that all the necessary information has been provided by the consignor, including any special transport or handling requirements; ➤ Enables the carrier to know what emergency arrangements exist, and the actions required of the carrier as well as the driver in such arrangements; ➤ Lets the carrier know that the transport operation was accomplished in a controlled, safe and compliant manner, and enables clear demonstration of that to others, and ➤ Describes how the carrier monitors the system, by review and self-audit. ➤ Identifies training requirements (including awareness training) for all those involved in the carriage of radioactive materials. <p>It is possible to have multiple carriers involved in transporting a single consignment (e.g. A fuel flask may travel on both road and rail on a single journey). In such cases the management and control of carrier interfaces can have a significant impact on safety.</p>
----------------------------------	---	--

<p>Management and Control of Transport Interfaces</p>	<p>In most cases, radioactive material transport often involves a number of different people or organizations, and a wide variety of different activities and equipment (e.g. Designer, Manufacturer, Consignor, Carrier and Consignee etc.). It is not often that one QA programme will cover all aspects of transport. More often, it will be several QA programmes linked together (with clearly defined interfaces) which give the necessary assurances. There could be more than one organization involved in the design and testing phases. There may be several manufacturers as well as several organisations using, servicing, maintaining, and modifying the packages.</p>	<p>Do the management arrangements of those organisations involved with a particular transport clearly define interfaces and responsibilities? Are quality measurements clearly identified by the supplier of product (e.g. package) or service (e.g. carrier)? Are there adequate procedures to ensure that released parts with deviations from applicable design data are reported to the Designer in a timely manner? Are there adequate procedures for vendor & subcontractor assessment, audit & control? Supplier personnel satisfy the competency standards of the quality system of the organisation placing the contract. Supplier records and reports showing conformity are available for review and audit.</p>
<p>Radiation Protection Programme</p>	<p>ADR/RID § 1.7.2.1 requires the carriage of radioactive material shall be subject to a Radiation protection programme which shall consist of systematic arrangements aimed at providing adequate consideration of radiation protection measures. ADR/RID § 1.7.2.3 states the nature and extent of the measures to be employed in the programme shall be related to the magnitude and likelihood of radiation exposure. ADR/RID § 1.7.2.5 requires workers to be appropriately trained in radiation protection (including the protection of others that may be affected by their actions).</p>	<p>NS-INSP-GD-054 Revision 6 - Nuclear Safety Technical Inspection Guide – The Ionising Radiations Regulations 2017 http://www.onr.org.uk/operational/tech_insp_guides/ns-insp-gd-054.pdf</p> <p>IAEA Safety Standards – Radiation Protection Programmes for the Transport of Radioactive Material – Safety Guide TS-G-1.3 https://www-pub.iaea.org/MTCD/Publications/PDF/pub1269_web.pdf</p> <p>IAEA Safety Standards – Occupational Radiation Protection – General Safety Guide GSG-7 https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1785_web.pdf</p>

<p>Training and Competence</p>	<p>ADR/RID §1.3.1 requires persons whose duties concern the carriage of dangerous goods, shall be trained in the requirements governing the carriage of such goods appropriate to their responsibilities and duties. ADR/RID § 1.3.3 requires records of training received shall be kept by the employer and made available to the employee or competent authority, upon request. The need for appropriately trained personnel as well as the provision of pertinent training is confirmed. Measures to identify and document the necessary training, certification, refresher training, and records are addressed. ADR/RID § 1.7.2.5 requires workers to be appropriately trained in radiation protection (including the protection of others that may be affected by their actions). ADR § 8.2 includes the requirements concerning the training of the vehicle crew.</p>	<p>Have certifying staff (personnel with delegated authority to certify compliance on behalf of the organisation) been clearly identified? Is their background & experience appropriate to discharge their responsibilities? Do they have adequate authority to discharge their responsibilities? Has adequate training been included for certifying staff? Is the training updated with changes in the organisation and its technology and staff re trained as necessary? Does training include a feedback system to maintain currency of both staff and training? Are training records available for all certifying staff? Are the records for certifying staff detailed as a procedure in the quality system? Are certifying staff records restricted to prevent unauthorised alteration? Are certifying staff provided with evidence of the scope of their authorisation? Are there adequate procedures for the issue of certification documentation? Is certification documentation only signed by certifying staff? Has an appropriate level of training been provided for non-certifying staff who may be involved in responding to transport emergencies?</p>
--------------------------------	---	---

<p>Emergency Planning and Testing</p>	<p>CDG Schedule 2 Reg 4(1) requires that before the carriage of a package begins the consignor and the carrier of that package must ensure that there is a plan in writing setting out such emergency arrangements as are appropriate for the carriage of that package.</p> <p>Consignor - must have a written plan setting out emergency arrangements appropriate for carriage of the consignment that considers the potential radiological risk, avoids risk of injury to responders and the public, and ensures compliance with legal dose limits. For repeat consignments, the plan must be reviewed, revised and tested. The consignor must provide relevant information to the carrier, including at least the information required on the Transport Document.</p> <p>Carrier – must have a written plan as well the consignor, which fulfils the same criteria. This can be a shared plan. The carrier must also ensure the vehicle is in good condition and equipped with safety equipment (see ADR § 8.1), and the driver is appropriately trained.</p> <p>CDG Schedule 2 Reg 4(3) requires the plan must be prepared having regard to the extent that the plan is used in relation to carriage on more than one occasion, the consignor and carrier must review and, whenever necessary, revise the emergency arrangements and must ensure that at suitable intervals they are tested.</p>	<p>ONR Guidance for Transport Emergency Arrangements: http://www.onr.org.uk/transport/emergency-arrangements-guidance.pdf</p> <p>IAEA Safety Standards Series – Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material – Safety Guide TS-G-1.2 (ST-3) https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1119_scr.pdf</p>
---------------------------------------	--	--

<p>Security</p>	<p>ADR/RID § 1.10.1.1 requires all persons engaged in the carriage of dangerous goods shall consider the security requirements commensurate with their responsibilities. Dangerous goods shall only be offered for carriage to carriers that have been appropriately identified. 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. Each member of a vehicle crew shall carry with them means of identification, which includes their photograph, during carriage of dangerous goods. 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 commensurate with the responsibilities and duties of individuals and their part in implementing security plans. Regulation 18 of CDG 2009 states that Part 2 does not apply in relation to the carriage of Category I/II nuclear material or Category III nuclear material to the extent that it requires compliance with the security provisions. Consequently for Category I/II or III nuclear material ADR/RID § 1.10 will not apply but the Nuclear Industries Security Regulations 2003 (NISR) will. NISR is enforced by Civil Nuclear Security and Safeguards (CNSS).</p>	<p>ONR security guidance on the carriage of class 7 radioactive material: http://www.onr.org.uk/transport/security-guidance-ipc-sector.pdf</p> <p>Statutory Instruments 2003 No 403 – Atomic Energy and Radioactive Substances – The Nuclear Industries Security Regulations 2003. http://www.legislation.gov.uk/uksi/2003/403/pdfs/uksi_20030403_en.pdf</p>
-----------------	--	---

<p>Dangerous Goods Safety Advisor and other advice</p>	<p>ADR/RID § 1.8.3 requires each undertaking, the activities of which include the carriage, or the related packing, loading, filling or unloading, of dangerous goods by road shall appoint one or more safety advisers for the carriage of dangerous goods, responsible for helping to prevent the risks inherent in such activities with regard to persons, property and the environment.</p> <p>An Adviser must hold a certificate (ADR/RID § 1.8.3.7) gained by passing a written examination. In the UK, the examinations being set and administered by the Scottish Qualifications Authority (SQA) as the agent for the Department for Transport (DfT).</p>	<p>ONR guidance for DGSA Annual Report: http://www.onr.org.uk/transport/dgsa-template.docx</p> <p>With regard to the undertaking's activities, the adviser has the following duties (ADR § 1.8.3.3):</p> <ul style="list-style-type: none"> ➤ Monitoring compliance with the requirements governing the carriage of dangerous goods; ➤ Advising his undertaking on the carriage of dangerous goods; ➤ Preparing an annual report on his undertaking's carriage of dangerous goods activities. Such annual reports shall be preserved for five years and made available to the national authorities at their request.
<p>Incidents, Events and Compliance History</p>	<p>In the event of non-compliance with any limit in ADR applicable to radiation level or contamination, ADR/RID § 1.7.6.1 requires duty holders to inform the CA on the cause of the non-compliance and any corrective or preventative actions taken or to be taken.</p> <p>CDG 2009 Schedule 2 regulation 5 requires duty holders to provide the CA with details of incidents that result in radiological emergencies.</p> <p>ADR/RID § 1.8.5 requires duty holders to notify the Competent Authority if a serious accident or incident takes place during loading, filling, carriage or unloading of dangerous goods.</p> <p>The purpose of the INF 1 Guidance - Notifying and Reporting Incidents and Events to ONR - is to provide guidance to organisations whose facilities and activities are regulated by ONR or where it has a regulatory interest, on what, when and how to notify and report to ONR incidents or other events with the potential to affect nuclear safety, radiological safety, security, safeguards, and transport safety.</p> <p>The criteria for reporting transport safety related incidents are contained in table 5 of the INF 1 guidance.</p>	<p>ONR Guidance: Notifying and Reporting Incidents and Events to ONR (2017/113080). Licensees are required to make and implement adequate arrangements for the notification, recording, investigation and reporting of such incidents occurring on the site. See NS-INSP-GD-007 Revision 4 - LC7 Incidents on the site (2017/263712) for details. http://www.onr.org.uk/operational/tech_insp_guides/ns-insp-gd-007.pdf</p> <p>Note: ONR is drafting an Authorisation to give duty holders permission to report incidents using the ONR INF 1 system rather than conform with the reporting form format in ADR/RID § 1.8.5.</p>



6. DEROGATIONS AND AUTHORISATIONS TO CDG 2009

Derogations⁵

6.1 Under regulation 11(3) of CDG 2009 the Secretary of State for Transport has set out in a document titled Carriage of Dangerous Goods: Approved Derogations and Transitional Provisions, the circumstances under which particular types of carriage or carriage in particular circumstances are exempt from requirements and prohibitions arising under CDG 2009.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3275/approved-derogations-transitional-provisions.pdf

6.2 The following derogations applicable to class 7 dangerous goods are reproduced in full in Appendix 2:

- Road and Rail Derogation 1 (RO-a-UK-1/RA-a-UK-1) Smoke Detectors and Gaseous Tritium Light Devices.
- Road Derogation 3 (RO-a-UK-3) Fire Fighting Equipment.
- Road Derogation 9 (RO-a-UK-9) Orange Coloured Plates.
- Road Derogation 11 (RO-bi-UK-11) Crossing of Public Roads.

Authorisations⁶

6.3 Under regulation 12 of CDG 2009 ONR as a competent authority has issued a number of Authorisations that permit the carriage of dangerous goods in circumstances which are contrary to part 2 (Prohibitions and Requirements) of the regulations.

6.4 The following authorisations are expanded upon in Appendix 2:

- Authorisation Number 500 – Disposal of very low level radioactive wastes to public landfill.
- Authorisation Number 501 – Transport of certain types of Class 7 goods where asbestos forms a subsidiary hazard.
- Authorisation Number 502 - Repeated use of the same transport document for a specified period.

⁵ Derogation - The act of officially stating that a law or rule no longer needs to be obeyed.

⁶ Authorisation - An official document that shows someone has permission to do something.

7. DEFINITIONS

- 7.1 The following definitions for frequently used terms in transport operations have been taken from ADR/RID Chapter 1.2 – Definitions and Units of Measurement.
- 7.2 **Carriage** means the change of place of dangerous goods, 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.
- 7.3 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.
- 7.4 **Carrier** means the enterprise which carries out the transport operation with or without a transport contract.
- 7.5 **Competent Authority** means the authority or authorities or any other body or bodies designated as such in each State and in each specific case in accordance with domestic law. In GB ONR is the Competent Authority for road and rail (civil class 7).
- 7.6 **Consignee** means the consignee according to the contract for carriage. If the consignee designates a third party in accordance with the provisions applicable to the contract for carriage, this person shall be deemed to be the consignee within the meaning of ADR/RID. If the transport operation takes place without a contract for carriage, the enterprise which takes charge of the dangerous goods on arrival shall be deemed to be the consignee.
- 7.7 **Consignment** means any package or packages, or load of dangerous goods, presented by a consignor for carriage.
- 7.8 **Consignor** means the enterprise which consigns dangerous goods either on its own behalf or for a third party. If the transport operation is carried out under a contract for carriage, consignor means the consignor according to the contract for carriage.
- 7.9 **Conveyance** means, for carriage by road or by rail, a vehicle or a wagon respectively.
- 7.10 **Filler** means any enterprise which fills dangerous goods into a tank and/or into a vehicle for carriage in bulk.
- 7.11 **Loader** means any enterprise which loads packaged dangerous goods into or onto a vehicle.
- 7.12 **Overpack** means an enclosure used (by a single consignor in the case of radioactive material) to contain one or more packages, consolidated into a single unit easier to handle and stow during carriage.
- 7.13 **Package** means the complete product of the packing operation, consisting of the packaging or large packaging or intermediate bulk container (IBC) and its contents prepared for dispatch. The term includes receptacles for gases [as defined in ADR/RID Chapter 1.2] as well as articles which, because of their size, mass or configuration may be carried unpackaged or carried in cradles, crates or handling devices. Except for the carriage of radioactive material, the term does not apply to goods which are carried in bulk, nor to substances carried in tanks.

7.14 **Packer** means any enterprise which puts dangerous goods into packagings, including large packagings and intermediate bulk containers (IBCs) and, where necessary, prepares packages for carriage.

8. REFERENCE DOCUMENTS - TRANSPORT REGULATIONS FOR ROAD AND RAIL

- 8.1 The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009
http://www.legislation.gov.uk/ukxi/2009/1348/pdfs/ukxi_20091348_en.pdf
- 8.2 The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011
http://www.legislation.gov.uk/ukxi/2011/1885/pdfs/ukxi_20111885_en.pdf
- 8.3 The Carriage of Dangerous Goods (Amendment) Regulations 2019 **See note (a) below**
<http://www.legislation.gov.uk/ukxi/2019/598/made>
- 8.4 ADR 2019 – European Agreement Concerning the International Carriage of Dangerous Goods by Road **See note (b) below**
<https://www.unece.org/trans/danger/publi/adr/adr2019/19contentse.html>)
- 8.5 RID 2019 – Regulations concerning the International Carriage of Dangerous Goods by Rail **See note (b) below**
http://otif.org/en/?page_id=1105
- 8.6 Regulations for the Safe Transport of Radioactive Material - Specific Safety Requirements SSR-6 - 2012 Edition.
https://www-pub.iaea.org/MTCD/publications/PDF/Pub1570_web.pdf
- 8.7 Regulations for the Safe Transport of Radioactive Material - Specific Safety Requirements SSR-6 (Rev 1) - 2018 Edition **See Note (c) below**
https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1798_web.pdf
- 8.8 Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition) - Specific Safety Guide SSG-26
<https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1586web-99435183.pdf>
- 8.9 IAEA Safety Standards Series – Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material – Safety Guide TS-G-1.2 (ST-3)
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1119_scr.pdf
- 8.10 IAEA Safety Standards – Radiation Protection Programmes for the Transport of Radioactive Material – Safety Guide TS-G-1.3
https://www-pub.iaea.org/MTCD/Publications/PDF/pub1269_web.pdf
- 8.11 IAEA Safety Standards – Occupational Radiation Protection – General Safety Guide GSG-7
https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1785_web.pdf
- 8.12 IAEA Safety Standards – The Management System for the Safe Transport of Radioactive Material – Safety Guide – TS-G-1.4

https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1352_web.pdf

- 8.13 IAEA Safety Standards - Compliance Assurance for the Safe Transport of Radioactive Material - Safety Guide TS-G-1.5

https://www-pub.iaea.org/MTCD/publications/pdf/pub1361_web.pdf

- 8.14 Statutory Instruments 2003 No 403 – Atomic Energy and Radioactive Substances – The Nuclear Industries Security Regulations 2003.

http://www.legislation.gov.uk/uksi/2003/403/pdfs/uksi_20030403_en.pdf

Notes:

- (a) The Class 7 requirements of the 2019 amendment will come into effect on 21st April 2020. Until then Reg 24 & Schedule 2 (2011 amendment) will continue to apply.
- (b) Although ADR 2019 and RID 2019 were published on 1 January 2019, there is a transitional period of 6 months where compliance against ADR 2017 can be claimed by duty holders.
- (c) The 2019 editions of ADR and RID are based on the 2012 edition of SSR-6. The reason they are not based on the 2018 edition is because there is a time delay between IAEA publishing revisions to their SSR-6 publication and the ensuing amendment of European Agreements / Regulations.



APPENDIX 1 – RELATIONSHIP BETWEEN NATIONAL AND INTERNATIONAL TRANSPORT REGULATIONS

- A1-1. The transport of dangerous goods is regulated using International and National regulations. For the purposes of the transport regulations, transport means everything associated with and involved in the movement of radioactive material i.e.
- Design, Manufacture, Maintenance and Repair of Packaging,
 - Preparation, Consigning, Loading, Carriage (including in-transit Storage), Unloading and Receipt of Radioactive Material Packages.
- A1-2. The radioactive material elements of National, Modal and International Transport of Dangerous Goods Regulations are based on IAEA Regulations for the Safe Transport of Radioactive Material – Specific Safety Requirements (SSR-6).
- A1-3. Explanatory material supporting SSR-6 is contained in IAEA Safety Standard – Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material – Specific Safety Guide SSG-26.
- A1-4. The content of SSR-6 is used to inform the United Nations (UN) Dangerous Goods Model Regulations i.e. the Recommendations on the Transport of Dangerous Goods known as the ‘Orange Book’.
- A1-5. The UN ‘Orange Book’ is used to inform the European Agreement/Regulations for the transport of dangerous goods by Road and Rail.
- A1-6. Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the Inland Transport of Dangerous Goods requires:
- Member states to be parties to the ADR⁷, RID⁸ and ADN⁹ agreements,
 - EU countries to align domestic legislation with the requirements of ADR, RID and ADN.
- A1-7. The carriage of dangerous goods by road and rail in Great Britain, including radioactive materials, is regulated by CDG 2009. Insofar as they have effect in relation to the civil carriage of class 7 goods, CDG 2009 Regulations are treated as nuclear regulations under The Energy Act 2013 (Office for Nuclear Regulation) (Consequential Amendments, Transitional Provisions and Savings) Order 2014.
- A1-8. CDG 2009 Regulation 5 states:
- ‘no person is to carry dangerous goods, or cause or permit dangerous goods to be carried, where that carriage is prohibited by ADR or RID, including where that carriage does not comply with any applicable requirement of ADR or RID.’*
- A1-9. Although CDG 2009 applies to the carriage of dangerous goods by inland waterway and makes reference to ADN, it is limited to the training and examination system for safety advisers and the issuing and renewal of vocational training certificates (CDG 2009 Regulation 4(2) refers).

⁷ European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

⁸ Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).

⁹ European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).

A1-10. There are similar international requirements based on SSR-6 applicable to sea and air transport namely:

- The International Maritime Dangerous Goods Code.
- The International Civil Aviation Organisation's Technical Instructions for the Safe Transport of Dangerous Goods by Air.

A1-11. These are implemented in the UK by:

- The Merchant Shipping Act¹⁰.
- The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations¹¹.
- The Air Navigation Order and the Air Navigation (Dangerous Goods) Regulations¹².

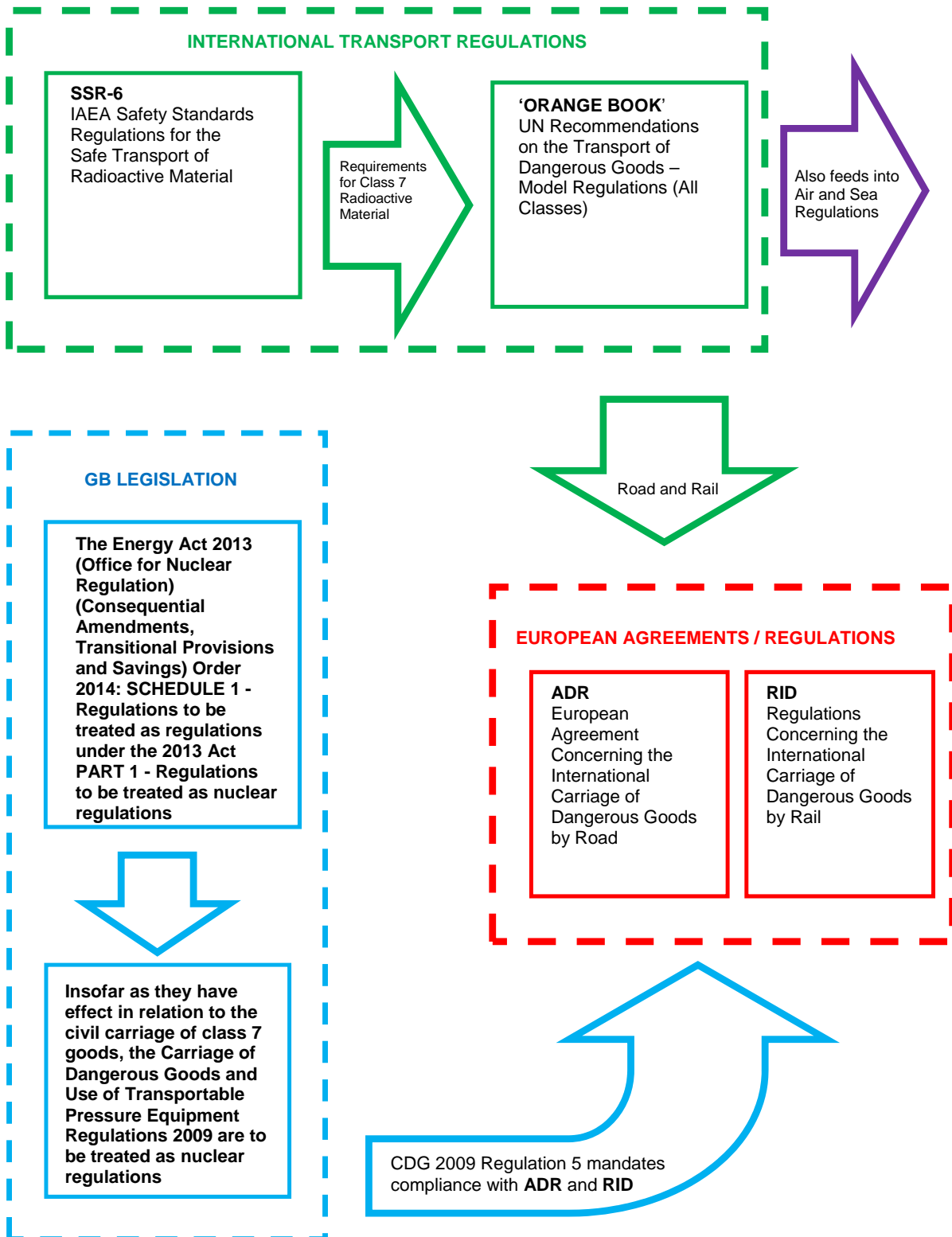
A1-12. See below for a pictorial representation of the relationship between International / European and National transport regulations.

¹⁰ The Merchant Shipping Act 1995 (1995 c. 21).

¹¹ The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367); MSN 1893 (M) The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form: Amendment 39-18 to the International Maritime Dangerous Goods (IMDG) Code.

¹² The Air Navigation Order 2016 (SI 2016 No. 765); The Air Navigation (Dangerous Goods) Regulations 2002 (SI 2002 No.2786); The Air Navigation (Dangerous Goods) (Amendment) Regulations 2017 (SI 2017 No.28)

International texts are the basis of European texts which are mandated by GB legislation.





APPENDIX 2 - DEROGATIONS AND AUTHORISATIONS IN DETAIL

DEROGATIONS¹³

A2-1. Under regulation 11(3) of CDG 2009 the Secretary of State for Transport has set out in a document titled Carriage of Dangerous Goods: Approved Derogations and Transitional Provisions, the circumstances under which particular types of carriage or carriage in particular circumstances are exempt from requirements and prohibitions arising under CDG 2009

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3275/a_approved-derogations-transitional-provisions.pdf

For convenience the derogations applicable to class 7 dangerous goods are reproduced below:

A2-2. Road / Rail Derogation 1 - Certain commercial products containing radioactive material (RO-a-UK-1) and (RA-a-UK-1).

The requirements and prohibitions of Part 2 of CDG 2009, Part 2 of CDG 2010¹⁴ and Part 2 of CE 2010¹⁵ do not need to be complied with if no more than:

- a) 500 smoke detectors for domestic use with an individual activity not exceeding 40 kBq; or
 - b) five gaseous tritium light devices with an individual activity not exceeding 10GBq,
- are carried in a vehicle.

A2-3. Road Derogation 3 - Exemption from the requirements relating to fire-fighting equipment for the carriage of certain Class 7 goods by road - (RO-a-UK-3)

1) Radioactive materials UN 2908, UN 2909, UN 2910 or UN 2911 or any combination of these dangerous goods are exempt from the requirements of ADR 8.1.4 relating to fire fighting equipment.

2) Dangerous goods specified in paragraph 1 may be carried with dangerous goods of other classes, without fire-fighting equipment, provided they are:

- a) exempted from the provisions of ADR by application of special provisions; or
- b) packaged in limited quantities in accordance with ADR 3.4; or
- c) packaged in excepted quantities in accordance with ADR 3.5.

A2-4. Road Derogation 9 - Alternative to the requirement to comply with ADR 5.3.2. relating to orange – coloured plates etc when carrying Class 7 goods by road - (RO-a-UK-9)

¹³ Derogation - The act of officially stating that a law or rule no longer needs to be obeyed.

¹⁴ Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2010 as amended (CDG 2010).

¹⁵ Carriage of Explosives Regulations (Northern Ireland) 2010 (CE 2010).

1) In relation to the carriage of Class 7 goods, a notice complying with the conditions set out in paragraph 2 may be displayed instead of complying with the requirements of ADR 5.3.2. if:

- a) the transport unit used for carrying the goods has a maximum permissible mass which does not exceed 3.5 tonnes;
- b) the packages being carried contain only Class 7 goods that are fissile excepted, not fissile or a combination of these two;
- c) the number of packages does not exceed 10; and
- d) the sum of the transport indexes of the packages does not exceed 3.

2) The conditions are:

- a) the notice shall include the words (using capital letters as indicated) "This vehicle is carrying RADIOACTIVE MATERIAL" and "In case of accident get in touch at once with THE POLICE";
- b) the capital letters in the word "RADIOACTIVE" shall be a minimum of 12mm high and all other capital letters in the notice shall be a minimum of 5mm high;
- c) the notice shall state the name, address and telephone number of a person capable of providing advice that would be of assistance in an emergency;
- d) all lettering on the notice shall be embossed or stamped as well as being black, bold and legible; and
- e) the notice shall be not less than 12cm square, fireproof to the extent that the words on the notice shall remain legible after exposure to a fire involving the vehicle, securely posted in the vehicle in a position where it is plainly visible to the driver but does not obscure his view of the road and displayed only when the vehicle is carrying radioactive material.

3) The term "fissile-excepted" shall be construed in accordance with ADR 6.4.11.2.

A2-5. Road Derogation 11 - The crossing of public roads - (RO-bi-UK-1)

1) The prohibitions and requirements arising under Part 2 of CDG 2009, CDG 2010 and Part 2 of CE 2010 do not need to be complied with in relation to the carriage of Class 2 to 6, 8 or 9 goods in a vehicle which is used for:

- a) delivering goods between private premises and a vehicle in the immediate vicinity of those premises; or
- b) passing between one part of private premises and another part of those premises, situated in the immediate vicinity of the first part, where both parts are occupied by the same person even if the parts are separated by a road.

2) If Class 1 or 7 goods are being carried in a vehicle used for the same purposes as in paragraph 1, the following ADR provisions do not need to be complied with:

- a) ADR 1.8.3.1 and 1.8.3.3 to 1.8.3.9 relating to the appointment and duties of safety advisers;
- b) ADR 4.1.1 to 4.1.8 and 4.1.10 relating to the use of packaging and packages;
- c) ADR 5.3 relating to the requirement to display a hazard identification number;
- d) ADR 5.4 relating to the requirement for the consignment to be accompanied by documentation;
- e) ADR 8.1.2 and 8.1.3 in relation to the requirements relating to documents to be carried and placarding and marking; and
- f) ADR 8.2.1 in relation to training.

AUTHORISATIONS¹⁶

A2-6. Under regulation 12 of CDG 2009 ONR as a competent authority has issued a number of Authorisations that permit the carriage of dangerous goods in circumstances which are contrary to part 2 (Prohibitions and Requirements) of the regulations. These authorisations (with links) are listed below:

A2-7. Authorisation Number 500

- This Authorisation (No.500) will exclude from CDG 2009 the transport of certain very low level radioactive wastes that are permitted to be disposed of as normal waste to public landfill.

<http://www.onr.org.uk/transport/cdg09-auth-500.pdf>

A2-8. Authorisation Number 501

- This Authorisation (No.501) will permit the transport of certain types of Class 7 goods where asbestos forms a subsidiary hazard and the conditions of ADR or RID Special Provision 168 cannot be met. Essentially this means that some types of radioactive material comingled with asbestos may be transported in an IP-2 or Type A package after wrapping in polythene subject to conditions in the authorisation.

<http://www.onr.org.uk/transport/authorisation-501-cdg09.pdf>

A2-9. Authorisation Number 502

- This Authorisation permits the use of a Regular Transport Document within Great Britain, subject to certain conditions in the authorisation. Essentially this allows the same transport document to be used for a specified period of up to 3 months, where the same packaging with the same radioactive contents (and no sub-risk) is consigned on a regular basis in GB by the same consignor, who is also the carrier of that package.

<http://www.onr.org.uk/transport/authorisation-502-cdg09.pdf>

¹⁶ Authorisation - An official document that shows someone has permission to do something.