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STATUTORY INSTRUMENTS

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**2002 No. 1093**

**The Radioactive Material (Road Transport) Regulations 2002**

**PART I**

**CITATION, COMMENCEMENT AND APPLICATION**

**Interpretation etc**

**2.—(1)** These Regulations give effect to an international agreement on the provision of an acceptable level of control of the radiation, criticality and thermal hazards to persons, property and the environment associated with the transport of radioactive material comprised in the Regulations for the Safe Transport of Radioactive Material (1996 Edition (Revised)) published by the International Atomic Energy Authority (“IAEA 1996”)(**1**) and as adapted by the European Agreement concerning the international carriage of dangerous goods by road (“ADR”)(**2**) with any amendments up to 1<sup>st</sup> July 2001, and by Council Directive 96/29/EURATOM(**3**) and Commission Directive [2001/7/EC](#)(**4**).

(2) In these Regulations—

“1996 Regulations” means the Radioactive Material (Road Transport) (Great Britain) Regulations 1996(**5**);

“A<sub>1</sub>” means the activity value of special form radioactive material specified in Table 1 in Schedule 1 or calculated in accordance with regulation 29;

“A<sub>2</sub>” means the activity value of radioactive material (other than special form radioactive material) specified in Table 1 in Schedule 1 or calculated in accordance with regulation 29;

“accident conditions of transport” means conditions of transport involving more than minor mishap;

“ADR journey” has the meaning given in regulation 4(3);

“the Act” means the Radioactive Material (Road Transport) Act 1991(**6**);

“carrier” means any person (including a government) undertaking the transport of radioactive material and includes carriers for hire or reward and on their own account whether under contract or not;

“competent authority” has the meaning given in regulation 14(2);

“compliance assurance” means a systematic programme of measures applied by the Secretary of State aimed at ensuring that the provisions of these Regulations are met in practice and which is more fully described in regulation 18;

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(1) No. TS-R-1 (ST-1, Revised) (ISBN 92-0-100500-8).

(2) 2001 (ISBN 92-1-139069-9).

(3) O.J. L159, 29.6.96, p.1.

(4) O.J. L30, 1.2.01, p.43.

(5) [S.I. 1996/1350](#).

(6) [1991 c. 27](#) as amended as respects section 1(1)(a) by the Radioactive Material (Road Transport) (Great Britain) (Definition of Radioactive Material) Order 2002 1092.

“confinement system” means the assembly of fissile material and packaging components specified by the designer and agreed by the competent authority as intended to preserve criticality safety;

“consignee” means any person (including a government) that receives a consignment;

“consignment” means any package, or load of radioactive material, presented by a consignor for transport;

“consignor” means any person (including a government) that prepares a consignment for transport and is named as consignor in the transport documents, or a freight forwarder acting as agent for such a person;

“containment system” means the assembly of components of the packaging specified by the designer as intended to retain the radioactive material during transport;

“contamination” means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters or in excess of 0.04 Bq/cm<sup>2</sup> for all other alpha emitters; “non-fixed contamination” means contamination that can be removed from a surface during routine conditions of transport and “fixed contamination” means contamination other than non-fixed contamination;

“contracting party country” has the meaning given in regulation 4(8);

“conveyance”, in relation to road transport, means any mechanically propelled vehicle (including an articulated vehicle) intended or adapted for use on roads and, for the purposes of these Regulations, each trailer or semi-trailer forming part of a larger vehicle shall be treated as a separate conveyance;

“Criticality Safety Index” (or “CSI”) assigned to a package, overpack or freight container containing fissile material, means a number that is used to provide control over the accumulation of packages, overpacks or freight containers containing fissile material and is determined in accordance with regulation 45;

“the Dangerous Goods Recommendations” means the eleventh revised edition of “The United Nations Recommendations on the Transport of Dangerous Goods” prepared by the United Nations Committee of Experts on the Transport of Dangerous Goods as published by HMSO;

“depleted uranium” means uranium containing a lesser mass percentage of uranium-235 than in natural uranium;

“design” means the description of special form radioactive material, low dispersible radioactive material, package or packaging which enables that item to be fully identified; the description may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements and other relevant documentation;

“driver” means the driver of any conveyance;

“enriched uranium” means uranium containing a greater mass percentage of uranium-235 than in natural uranium;

“excepted package” means a package meeting the requirements of Part V of Schedule 8 and to which the controls set out in regulations 41 and 42 apply;

“exclusive use” has the meaning given in regulation 20(2);

“fissile material” means uranium-233, uranium-235, plutonium-239, plutonium-241 (or any combination thereof) but does not include unirradiated natural uranium, unirradiated depleted uranium, or natural uranium or depleted uranium, either of which has been irradiated in thermal reactors only;

“fissile package” means a package meeting the requirements of paragraphs 4 to 10 of Part XIV of Schedule 8;

“freight container” means an article of transport equipment designed to facilitate the transport of goods (either packaged or unpackaged) by one or more modes of transport without intermediate reloading, which is of a permanent enclosed character, rigid and strong enough for repeated use, and fitted with devices facilitating its handling particularly in transfer between conveyances and from one mode of transport to another; and a “small freight container” is a freight container that has either an overall outer dimension of less than 1.5m or an internal volume of not more than 3m<sup>3</sup> and any other freight container is a “large freight container”;

“goods compartment” means a part of a conveyance intended or adapted for the transport of goods or burden;

“Great Britain journey” has the meaning given in regulation 4(2);

“industrial package” means a package, being either—

- (a) an industrial package of Type 1 (Type IP-1) meeting the requirements of Part VI of Schedule 8;
- (b) an industrial package of Type 2 (Type IP-2) meeting the requirements of Part VII of Schedule 8;
- (c) an industrial package of Type 3 (Type IP-3) meeting the requirements of Part VIII of Schedule 8.

“intermediate bulk container (IBC)” means a portable packaging that—

- (a) has a capacity of not more than 3m<sup>3</sup>;
- (b) is designed for mechanical handling;
- (c) is resistant to the stresses produced in handling and transport (as determined by performance tests); and
- (d) is designed to conform to the standards in the chapter on Recommendations on Intermediate Bulk Containers (IBCs) of the Dangerous Goods Recommendations;

“the ISO classification document” means the International Organization for Standardization document, “Sealed radioactive sources – Classification” published by the British Standards Institution (BSI) and HMSO (Reference No. ISO 2919: 1980 (E));

“the ISO freight containers document” means the International Organization for Standardization document, “Series 1 Freight Containers – Specifications and Testing – Part 1: General Cargo Containers” published by the BSI and HMSO (Reference No. ISO 1496:1-1990(E));

“the ISO leak test document” means the International Organization for Standardization document, “Radiation Protection – Sealed Radioactive Sources – Leak Test Methods” published by the BSI and HMSO (Reference No. ISO 9978:1992 (E));

“low dispersible radioactive material” means either a solid radioactive material or a solid radioactive material in a sealed capsule that has limited dispersibility and is not in powder form;

“low specific activity material” (or “LSA material”) means radioactive material that by its nature has a limited specific activity or for which limits of estimated average specific activity (disregarding external shielding materials surrounding the radioactive material) apply, and such material has the following categories—

- (a) “LSA-I” meaning LSA material comprising—
  - (i) ores containing uranium or thorium or mixtures of uranium and thorium (and concentrates of such ores) and other ores containing naturally occurring radionuclides that are intended to be processed for the use of these radionuclides;
  - (ii) solid unirradiated natural uranium or depleted uranium or natural thorium or their solid or liquid compounds or mixtures;

- (iii) radioactive material for which the  $A_2$  value is unlimited, excluding fissile material in quantities not excepted under paragraph 3 of Part XIV of Schedule 8; or
  - (iv) other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the values for activity concentration specified in regulation 28(c) and or calculated in accordance with regulation 29, excluding fissile material in quantities not excepted under paragraph 3 of Part XIV of Schedule 8;
- (b) “LSA-II” meaning LSA material comprising—
- (i) water with tritium concentration up to 0.8 TBq/L; or
  - (ii) other material in which the activity is distributed throughout and the estimated average specific activity does not exceed  $10^{-4} A_2/g$  for solids and gases, and  $10^{-5} A_2/g$  for liquids;
- (c) “LSA-III” meaning LSA material comprising solids (such as consolidated wastes and activated materials), excluding powders in which—
- (i) the radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen and ceramic.);
  - (ii) the radioactive material is relatively insoluble, or is intrinsically contained in a relatively insoluble matrix and which is of such a nature that if the entire contents of a package containing the material were subjected to the test specified in Part I of Schedule 8 the activity in the water used in the test would not, at the end of the test, exceed  $0.1 A_2$ ; and
  - (iii) the estimated average specific activity of the solid, excluding any shielding material, does not exceed  $2 \times 10^{-3} A_2/g$ ;

“low toxicity alpha emitter” means—

- (a) natural uranium;
- (b) depleted uranium;
- (c) natural thorium;
- (d) uranium-235;
- (e) uranium-238;
- (f) thorium-232;
- (g) thorium-228;
- (h) thorium-230;

when contained in ores or physical and chemical concentrates; or

- (i) alpha emitters with a half-life of less than 10 days;

“maximum normal operating pressure” means the maximum pressure above atmospheric pressure at mean sea level that would develop in the containment system in a period of one year under the conditions of temperature and solar radiation corresponding to environmental conditions during transport, in the absence of venting, external cooling by an ancillary system or operational controls;

“multilateral approval” has the meaning given in regulation 14(1)(a);

“natural uranium” means chemically separated uranium containing the naturally occurring distribution of uranium isotopes;

“naturally occurring distribution of uranium isotopes” means approximately 99.28% uranium-238 and 0.72% uranium-235 by mass, but including a very small mass percentage of uranium-234;

“non-ADR journey” has the meaning given in regulation 4(4);

“normal conditions of transport” means conditions of transport involving minor mishaps;

“the Northern Ireland Regulations” means regulations for the time being in force for Northern Ireland under an Order in Council under paragraph 1(1)(b) of Schedule 1 to the Northern Ireland Act 1974(7) that contains the statement specified in section 8 of the Act;

“overpack” means an enclosure (such as a box or bag) that is used by a single consignor to facilitate as a handling unit a consignment of one or more packages for convenience of handling, stowage and transport;

“package” means the packaging (together with its radioactive contents) as presented for transport and may be of the following types—

- (a) excepted package;
- (b) industrial package Type 1 (Type IP-1);
- (c) industrial package Type 2 (Type IP-2);
- (d) industrial package Type 3 (Type IP-3);
- (e) Type A package;
- (f) Type B(U) package;
- (g) Type B(M) package; or
- (h) Type C package.

“packaging” means the assembly of components necessary to enclose the radioactive contents completely and may be a box, a drum or similar receptacle, or a freight container, tank or intermediate bulk container; in particular, packaging may consist of one or more receptacles, absorbent materials, spacing structures, radiation shielding and service equipment for filling, emptying, venting and pressure relief, and devices for cooling, absorbing mechanical shocks, handling and tie-down and thermal insulation and service devices integral to the package;

“personnel compartment” means a driver’s compartment in a conveyance or a part of a conveyance intended or adapted for the carriage of persons in the conveyance;

“quality assurance programme” means a systematic programme of controls and inspections by any organisation or body involved in the transport of radioactive material that is aimed at providing adequate confidence that the standard of safety prescribed in these Regulations is achieved in practice and is more fully described in regulation 18;

“radiation level” means the corresponding dose rate expressed in mSv per hour;

“radiation protection programme” means the programme to provide adequate consideration of radiation protection measures more fully described in regulation 24;

“radioactive contents” means radioactive material together with any contaminated or activated solids, liquids and gases within the packaging;

“road” means a road within the meaning providing adequate confidence that the standard of safety prescribed in these regulations is achieved in practice and which of section 192(1) of the Road Traffic Act 1988(8);

“routine conditions of transport” means conditions of transport that are incident free;

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(7) 1974 c. 28.

(8) 1988 c. 52.

“shipment” means the specific movement of a consignment from origin to destination where that movement includes transport in Great Britain;

“special arrangement” means those provisions approved by the Secretary of State under which consignments that do not satisfy all the applicable requirements of these Regulations may be transported;

“special form radioactive material” means either an indispersible solid radioactive material or a sealed capsule containing radioactive material that meet the requirements set out in Part II of Schedule 8;

“specific activity” means, in relation to a radionuclide, the activity per unit mass of that nuclide and, in relation to a material, the activity per unit mass or volume of the material in which the radionuclides are essentially uniformly distributed;

“surface contaminated object” or “SCO” means a solid object that is not itself radioactive but which has radioactive material distributed on its surfaces and being one of the following—

- (a) SCO-I, a solid object on which—
- (i) the non-fixed contamination on the accessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $0.4 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (ii) the fixed contamination on the accessible surface, averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $4 \times 10^4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface, averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $4 \times 10^4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3 \text{ Bq/cm}^2$  for all other alpha emitters;
- (b) SCO-II, a solid object on which either the fixed or non-fixed contamination on the surface exceeds the applicable limits specified for SCO-I in (a) above and on which—
- (i) the non-fixed contamination on the accessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $400 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $40 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (ii) the fixed contamination on the accessible surface, averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters;

“tank” means a portable tank, a road tank vehicle or a receptacle and may also mean a tank container, each of which has a capacity of not less than 450 litres to contain liquids, powders, granules, slurries or solids which are loaded as gas or liquid and subsequently solidified, and not less than 1000 litres to contain gases; and a “tank container” means a vessel which is capable of being carried on land or on sea and of being loaded and discharged without the

need of removal of its structural equipment, possessing stabilising members and tie-down attachments external to the shell, and capable of being lifted when full;

“Transport Index (TI)” means a number that is used to provide control over radiation exposure and is determined in accordance with regulation 44 and assigned to a package, overpack, or freight container, or to unpackaged LSA-I or SCO-I;

“transport of a consignment” has the meaning given in regulation 4(5);

“unilateral approval” has the meaning given in regulation 14(1)(b);

“unirradiated thorium” means thorium containing not more than 10<sup>-7</sup> g of uranium-233 per gram of thorium-232;

“unirradiated uranium” means uranium containing not more than 2 kBq of plutonium per gram of uranium-235, not more than 9 MBq of fission products per gram of uranium-235 and not more than 5mg of uranium-236 per gram of uranium-235;

(3) Unless the context otherwise requires, any other expressions used in these Regulations that are also used in IAEA 1996 or ADR have the meaning given to them in those Regulations or in that Agreement.

(4) In these Regulations, unless the context otherwise requires, any reference to—

- (a) a numbered regulation or a numbered Schedule is a reference to the regulation or Schedule bearing that number in these Regulations;
- (b) a numbered paragraph is a reference to the paragraph bearing that number in the regulation or Schedule in which the reference appears; and
- (c) a Part is a reference to a Part in these Regulations.