STATUTORY INSTRUMENTS

2018 No. 42

NUCLEAR ENERGY

The Nuclear Installations (Prescribed Sites and Transport) Regulations 2018

Made - - - -	*16th January 2018*
Laid before Parliament	*16th January 2018*
Coming into force in accordance with regulation 1(2)	

The Secretary of State, in exercise of the powers conferred by section 16(1)(**1**) of the Nuclear Installations Act 1965(**2**), makes the following Regulations. In accordance with section 16(6)(**3**) of that Act the Secretary of State consulted the Scottish Ministers before making these Regulations.

Citation and commencement

1.—(1) These Regulations may be cited as the Nuclear Installations (Prescribed Sites and Transport) Regulations 2018.

(2) These Regulations come into force on the main commencement day(**4**).

(3) In this regulation—

"the main commencement day" means the day on which the Protocols come into force in respect of the United Kingdom(**5**);

"the Protocols" means—

(a) the Protocol of 12th February 2004 to amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29thJuly 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982(**6**), and

(**1**) Section 16 is prospectively amended by the Nuclear Installations (Liability for Damage) Order 2016 (S.I. 2016/562). The amendments come into force on the main commencement day but were commenced on 25 May 2016 for the purpose of exercising the power to make regulations under section 16(1) (see article 1(5) of S.I. 2016/562).

(**2**) 1965 c.57.

(**3**) Section 16(6) is prospectively inserted by S.I. 2016/562.

(**4**) The Secretary of State must publish a notice of the date of the main commencement day pursuant to article 1(3) of S.I. 2016/562.

(**5**) It will be possible to find out the date on which the Protocols come into force in respect of the United Kingdom by referring to the relevant page on UK Treaties Online (http://treaties.fco.gov.uk/treaties/treaty.htm).

(**6**) The Protocol of 12th February 2004 has been published in the Miscellaneous Series No. 6 (2015) Cm. 9135; the Convention of 29th July 1960, as amended by the Additional Protocol of 28th January 1964, was published in the Treaty Series No. 69 (1968), Cmnd. 3755; the Protocol of 16th November 1982 was published in the Treaty Series No. 6 (1989), Cm. 659. The Protocols and Conventions are also available via UK Treaties Online (http://treaties.fco.gov.uk/treaties/treaty.htm). A hardcopy may be obtained, on request, from the Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London, SW1H 0ET.

(b) the Protocol of 12th February 2004 to amend the Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960 on Third Party Liability in the Field of Nuclear Energy, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982(**7**).

Interpretation

2. In these Regulations—

"the Act" means the Nuclear Installations Act 1965;

"low level waste" means waste having a radioactive content not exceeding 4 gigabecquerels per tonne (GBq/te) of alpha activity or 12 GBq/te of beta or gamma activity

Sites prescribed for the purposes of section 16(1)(a) of the Act (low risk nuclear sites)

3.—(1) There is prescribed for the purposes of section 16(1)(a) of the Act any licensed site—

(a) which is used for one or both of the purposes set out in paragraphs (2) and (4), but not for any other purpose which would require a nuclear site licence by virtue of section 1(1) of the Act; and

(b) where the mass of any fissile material present on site at any time, other than material comprised in associated nuclear fuel, does not exceed the limit specified in the appropriate entry in the table in Schedule 1.

(2) The purpose in this paragraph is installing or operating an installation designed or adapted for storage of radioactive material, other than fuel elements or irradiated nuclear fuel, which has been produced or irradiated in the course of the production or use of nuclear fuel, where the radioactive material stored at any time meets the condition in paragraph (3).

(3) The condition in this paragraph is that the quantity of any radionuclide listed or described in Schedule 2 which is present in the radioactive material does not exceed the limit specified for that radionuclide in that Schedule.

(4) The purpose in this paragraph is installing or operating a small nuclear reactor where the radioactive material present outside the reactor at any time, other than associated nuclear fuel, meets the condition in paragraph (5).

(5) The condition in this paragraph is that the quantity of any radionuclide listed or described in Schedule 2 which is present in the radioactive material does not exceed half the limit specified for that radionuclide in that Schedule.

(6) For the purpose of paragraphs (3) and (5), a limit specified in Schedule 2 is exceeded if—

(a) where the radioactive material contains only one radionuclide, the quantity of that radionuclide exceeds the limit specified in the appropriate entry in the table in Part 1 of that Schedule, or in the case of paragraph (5), half that limit; or

(b) where the radioactive material contains more than one radionuclide, the quantity ratio calculated in accordance with Part 2 of that Schedule exceeds one.

(7) In this regulation—

"associated nuclear fuel" means a quantity of nuclear fuel intended and ready for use or in use or which has been used in a nuclear reactor and which is held in, or on the same site as,

(**7**) The Protocol of 12th February 2004 has been published in the Miscellaneous Series No. 7 (2015) Cm. 9136; the Convention of 31st January 1963 Supplementary to the Paris Convention, as amended by the Additional Protocol of 28th January 1964 was published in the Treaty Series No. 44 (1975), Cmnd. 5948; the Protocol of 16th November 1982 was published in the Treaty Series No. 17 (1992), Cm. 1832. The Protocols and Conventions are also available via UK Treaties Online (http://treaties.fco.gov.uk/treaties/treaty.htm). A hardcopy may be obtained, on request, from the Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London, SW1H 0ET.

that nuclear reactor which does not exceed the quantity of nuclear fuel specified in the nuclear site licence relating to that nuclear reactor or any consent or approval granted under that site licence;

"fissile material" means plutonium 239, plutonium 241, uranium 233, uranium 235 (where the mass of the isotope uranium 235 exceeds 1% of the total mass of all the uranium isotopes present), or any material containing any of them;

"small nuclear reactor" means a thermal neutron nuclear reactor designed to operate at a thermal power output not exceeding 600 kilowatts.

Sites prescribed for the purposes of section 16(1)(b) of the Act (low risk disposal sites)

4. There is prescribed for the purposes of section 16(1)(b) of the Act any relevant disposal site which is used for the disposal of low level waste, and which is not used for the disposal of any nuclear matter that is not low level waste.

Sites prescribed for the purposes of section 16(1)(c) of the Act (intermediate risk nuclear sites)

5.—(1) There is prescribed for the purposes of section 16(1)(c) of the Act any licensed site which —

(a) has been, but is no longer being used for the generation of electricity, and from which the nuclear fuel has been removed permanently from the reactor and stored safely in accordance with relevant good practices;

(b) is used for one or more of the purposes set out in paragraphs (2) to (5);

(c) has been, but is no longer being used for one or more of the purposes set out in paragraphs (2) to (5), and which is being decommissioned; or

(d) would be a site prescribed by regulation 3 but for the limit on the mass of fissile material specified in regulation 3(1)(b), or the limit on quantity specified in regulation 3(3) or 3(5), being exceeded.

(2) The purpose in this paragraph is installing or operating an installation designed or adapted for the carrying out of any process involved in the manufacture of fuel elements to be used for the production of atomic energy from—

(a) enriched uranium; or

(b) any alloy, chemical compound, mixture or combination, containing enriched uranium.

(3) The purpose in this paragraph is installing or operating an installation designed or adapted for the treatment of uranium, whether or not enriched, such as to increase the proportion of the isotope 235 the uranium contains.

(4) The purpose in this paragraph is installing or operating an installation designed or adapted for the carrying on of any process involved in the production from nuclear matter, not being excepted matter, of isotopes prepared for use for industrial, chemical, agricultural, medical or scientific purposes.

(5) The purpose in this paragraph is the operation of a national repository for low level waste.

(6) In this regulation "enriched uranium" means uranium enriched so as to contain more than 0.72% by mass of the isotope 235.

Conditions prescribed for the purposes of sections 16(1)(d) and (e) of the Act (low risk transport)

6.—(1) The conditions prescribed for the purposes of sections 16(1)(d) and (e) of the Act are that nuclear matter has been consigned from a relevant site in packages where each of the packages in the consignment has activity levels less than or equal to—

(a) in the case of packages containing nuclear matter in special form, and no other sort of nuclear matter, the lesser of—

(i) 3000 x A_1, and

(ii) 1000 terabecquerels (TBq);

(b) in the case of other packages, the lesser of—

(i) 3000 x A_2, and

(ii) 1000 TBq.

(2) The activity value for packages containing a mixture of radionuclides is determined in accordance with paragraph 405 of the IAEA Regulations.

(3) In this regulation—

"A_1" means the activity value for each radionuclide specified in Table 2 of Section IV of the IAEA Regulations for nuclear matter in special form contained in the package;

"A_2" means the activity value for each radionuclide specified in Table 2 of Section IV of the IAEA Regulations for nuclear matter other than in special form contained in the package;

"IAEA Regulations" means the Regulations for the Safe Transport of Radioactive Materials 2012 Edition published by the International Atomic Energy Agency in 2012(**8**);

"nuclear matter in special form" means nuclear matter which takes the form of either an indispersible solid radioactive material or a sealed capsule containing radioactive material.

Review

7.—(1) The Secretary of State must from time to time—

(a) carry out a review of the regulatory provision contained in regulations 3 to 6; and

(b) publish a report setting out the conclusions of the review.

(2) The first report must be published before the end of the period of five years beginning with the date on which these Regulations come into force for any purpose.

(3) Subsequent reports must be published at intervals not exceeding 5 years.

(4) Section 30(3) of the Small Business, Enterprise and Employment Act 2015(**9**) requires that a review carried out under this regulation must, so far as is reasonable, have regard to how the obligations under Articles 7(2)(b) and 7(2)(c) to the Convention on Third Party Liability in the Field of Nuclear Energy of 29thJuly 1960, as amended by the Additional Protocol of 28th January 1964, the Protocol of 16th November 1982 and the Protocol of 12th February 2004, are implemented in other countries which are subject to the obligations.

(5) Section 30(4) of the Small Business, Enterprise and Employment Act 2015 requires that a report published under this regulation must, in particular-

(a) set out the objectives intended to be achieved by the regulatory provision referred to in paragraph (1)(a)

(**8**) The Regulations have been published in the safety standards series by the International Atomic Energy Agency (SSR-6) and are also available via www.iaea.org. A hardcopy may be obtained, on request, from the Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London, SW1H 0ET.

(**9**) 2015 c.26. Section 30(3) was amended by the Enterprise Act (c.12), section 19.

(b) assess the extent to which those objectives are achieved;

(c) assess whether those objectives remain appropriate; and

(d) if those objectives remain appropriate, assess the extent to which they could be achieved in another way which involves less onerous regulatory provision.

(6) In this regulation, "regulatory provision" has the same meaning as in sections 28 to 32 of the Small Business, Enterprise and Employment Act 2015 (see section 32 of that Act).

Revocation of the Nuclear Installations (Prescribed Sites) Regulations 1983

8. The Nuclear Installations (Prescribed Sites) Regulations 1983(**10**) are revoked.

Richard Harrington
Parliamentary Under Secretary of State
Department for Business, Energy and Industrial Strategy

16th January 2018

(**10**) S.I. 1983/919.

SCHEDULE 1

Regulation 3

Limits on mass of fissile material

Fissile material	*Mass*
Plutonium as Pu 239 or Pu 241 or as a mixture of plutonium isotopes containing Pu 239 or Pu 241	150 grams
Uranium as U233	150 grams
Uranium enriched in U 235 to more than 1% but not more than 5%	500 grams
Uranium enriched in U 235 to more than 5%	250 grams

SCHEDULE 2

Regulation 3

Limits on quantities of radionuclides

PART 1

Quantities for individual radionuclides

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Actinium		
Ac-224		$2\ 10^{15}$
Ac-225		$3\ 10^{13}$
Ac-226		$2\ 10^{14}$
Ac-227		$4\ 10^{11}$
Ac-228		$5\ 10^{15}$
Aluminium		
Al-26		$7\ 10^{14}$
Americium		
Am-237		$4\ 10^{16}$
Am-238		$6\ 10^{16}$
Am-239		$2\ 10^{16}$
Am-240		$4\ 10^{16}$
Am-241		$3\ 10^{12}$
Am-242		$1\ 10^{16}$
Am-242m		$3\ 10^{12}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Am-243		$3\ 10^{12}$
Am-244		$2\ 10^{16}$
Am-244m		$2\ 10^{18}$
Am-245		$2\ 10^{16}$
Am-246		$1\ 10^{16}$
Am-246m		$2\ 10^{16}$
Antimony		
Sb-115		$2\ 10^{16}$
Sb-116		$2\ 10^{16}$
Sb-116m		$2\ 10^{16}$
Sb-117		$1\ 10^{17}$
Sb-118m		$7\ 10^{16}$
Sb-119		$1\ 10^{17}$
Sb-120	(long lived isotope)	$3\ 10^{16}$
Sb-120	(short lived isotope)	$2\ 10^{16}$
Sb-122		$2\ 10^{16}$
Sb-124		$4\ 10^{15}$
Sb-124m		$4\ 10^{16}$
Sb-125		$4\ 10^{15}$
Sb-126		$1\ 10^{16}$
Sb-126m		$2\ 10^{16}$
Sb-127		$2\ 10^{16}$
Sb-128	(long lived isotope)	$2\ 10^{16}$
Sb-128	(short lived isotope)	$1\ 10^{16}$
Sb-129		$2\ 10^{16}$
Sb-130		$1\ 10^{16}$
Sb-131		$2\ 10^{16}$
Argon		
Ar-37	(gas)	$4\ 10^{21}$
Ar-39	(gas)	$2\ 10^{20}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Ar-41	(gas)	$4\ 10^{17}$
Arsenic		
As-69		$7\ 10^{15}$
As-70		$1\ 10^{16}$
As-71		$3\ 10^{16}$
As-72		$9\ 10^{15}$
As-73		$8\ 10^{16}$
As-74		$2\ 10^{16}$
As-76		$9\ 10^{15}$
As-77		$2\ 10^{16}$
As-78		$7\ 10^{15}$
Astatine		
At-207		$4\ 10^{16}$
At-211		$2\ 10^{15}$
Barium		
Ba-126		$2\ 10^{17}$
Ba-128		$6\ 10^{17}$
Ba-131		$6\ 10^{16}$
Ba-131m		$3\ 10^{16}$
Ba-133		$4\ 10^{15}$
Ba-133m		$2\ 10^{16}$
Ba-135m		$2\ 10^{16}$
Ba-139		$1\ 10^{16}$
Ba-140		$2\ 10^{16}$
Ba-141		$1\ 10^{16}$
Ba-142		$2\ 10^{16}$
Berkelium		
Bk-245		$3\ 10^{16}$
Bk-246		$6\ 10^{16}$
Bk-247		$3\ 10^{12}$
Bk-249		$2\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Bk-250		$2\ 10^{16}$
Beryllium		
Be-7		$2\ 10^{17}$
Be-10		$6\ 10^{15}$
Bismuth		
Bi-200		$2\ 10^{16}$
Bi-201		$2\ 10^{16}$
Bi-202		$2\ 10^{16}$
Bi-203		$4\ 10^{16}$
Bi-205		$2\ 10^{16}$
Bi-206		$2\ 10^{16}$
Bi-207		$1\ 10^{15}$
Bi-210		$2\ 10^{15}$
Bi-210m		$6\ 10^{13}$
Bi-212		$7\ 10^{15}$
Bi-213		$7\ 10^{15}$
Bi-214		$1\ 10^{16}$
Bromine		
Br-74		$8\ 10^{15}$
Br-74m		$6\ 10^{15}$
Br-75		$2\ 10^{16}$
Br-76		$1\ 10^{12}$
Br-77		$4\ 10^{17}$
Br-80		$1\ 10^{16}$
Br-80m		$5\ 10^{16}$
Br-82		$3\ 10^{16}$
Br-83		$2\ 10^{16}$
Br-84		$7\ 10^{15}$
Cadmium		
Cd-104		$1\ 10^{17}$
Cd-107		$4\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Cd-109		$2\ 10^{16}$
Cd-113		$2\ 10^{15}$
Cd-113m		$1\ 10^{15}$
Cd-115		$1\ 10^{16}$
Cd-115m		$2\ 10^{16}$
Cd-117		$2\ 10^{16}$
Cd-117m		$2\ 10^{16}$
Caesium		
Cs-125		$2\ 10^{16}$
Cs-127		$1\ 10^{17}$
Cs-129		$2\ 10^{17}$
Cs-130		$2\ 10^{16}$
Cs-131		$6\ 10^{17}$
Cs-132		$9\ 10^{16}$
Cs-134		$7\ 10^{14}$
Cs-134m		$4\ 10^{16}$
Cs-135		$9\ 10^{15}$
Cs-135m		$8\ 10^{16}$
Cs-136		$8\ 10^{15}$
Cs-137		$1\ 10^{15}$
Cs-138		$8\ 10^{15}$
Calcium		
Ca-41		$3\ 10^{17}$
Ca-45		$3\ 10^{16}$
Ca-47		$2\ 10^{16}$
Californium		
Cf-244		$2\ 10^{16}$
Cf-246		$5\ 10^{14}$
Cf-248		$2\ 10^{13}$
Cf-249		$3\ 10^{12}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Cf-250		$7\ 10^{12}$
Cf-251		$3\ 10^{12}$
Cf-252		$1\ 10^{13}$
Cf-253		$2\ 10^{14}$
Cf-254		$4\ 10^{12}$
Carbon		
C-11		$2\ 10^{16}$
C-11	(vapour)	$1\ 10^{18}$
C-11	(dioxide gas)	$1\ 10^{18}$
C-11	(monoxide gas)	$1\ 10^{18}$
C-14		$3\ 10^{16}$
C-14	(vapour)	$4\ 10^{17}$
C-14	(dioxide gas)	$3\ 10^{19}$
C-14	(monoxide gas)	$1\ 10^{20}$
Cerium		
Ce-134		$1\ 10^{17}$
Ce-135		$2\ 10^{16}$
Ce-137		$2\ 10^{17}$
Ce-137m		$2\ 10^{16}$
Ce-139		$2\ 10^{16}$
Ce-141		$2\ 10^{16}$
Ce-143		$2\ 10^{16}$
Ce-144		$3\ 10^{15}$
Chlorine		
Cl-36		$2\ 10^{16}$
Cl-38		$6\ 10^{15}$
Cl-39		$1\ 10^{16}$
Chromium		
Cr-48		$4\ 10^{17}$
Cr-49		$2\ 10^{16}$
Cr-51		$3\ 10^{17}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Cobalt		
Co-55		$2\ 10^{16}$
Co-56		$2\ 10^{15}$
Co-57		$1\ 10^{16}$
Co-58		$6\ 10^{15}$
Co-58m		$2\ 10^{17}$
Co-60		$6\ 10^{14}$
Co-60m		$7\ 10^{16}$
Co-61		$2\ 10^{16}$
Co-62m		$9\ 10^{15}$
Copper		
Cu-60		$1\ 10^{16}$
Cu-61		$2\ 10^{16}$
Cu-64		$4\ 10^{16}$
Cu-67		$3\ 10^{16}$
Curium		
Cm-238		$5\ 10^{16}$
Cm-240		$7\ 10^{13}$
Cm-241		$5\ 10^{15}$
Cm-242		$4\ 10^{13}$
Cm-243		$4\ 10^{12}$
Cm-244		$4\ 10^{12}$
Cm-245		$2\ 10^{12}$
Cm-246		$2\ 10^{12}$
Cm-247		$3\ 10^{12}$
Cm-248		$7\ 10^{13}$
Cm-249		$2\ 10^{16}$
Cm-250		$1\ 10^{13}$
Dysprosium		
Dy-155		$1\ 10^{17}$
Dy-157		$1\ 10^{18}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Dy-159		$8\ 10^{16}$
Dy-165		$2\ 10^{16}$
Dy-166		$3\ 10^{16}$
Einsteinium		
Es-250		$1\ 10^{17}$
Es-251		$6\ 10^{16}$
Es-253		$8\ 10^{13}$
Es-254		$2\ 10^{13}$
Es-254m		$5\ 10^{14}$
Erbium		
Er-161		$6\ 10^{16}$
Er-165		$2\ 10^{18}$
Er-169		$3\ 10^{16}$
Er-171		$2\ 10^{16}$
Er-172		$3\ 10^{16}$
Europium		
Eu-145		$4\ 10^{16}$
Eu-146		$3\ 10^{16}$
Eu-147		$4\ 10^{16}$
Eu-148		$4\ 10^{15}$
Eu-149		$8\ 10^{16}$
Eu-150	(long lived isotope)	$1\ 10^{15}$
Eu-150	(short lived isotope)	$2\ 10^{16}$
Eu-152		$1\ 10^{15}$
Eu-152m		$2\ 10^{16}$
Eu-154		$1\ 10^{15}$
Eu-155		$2\ 10^{16}$
Eu-156		$2\ 10^{16}$
Eu-157		$2\ 10^{16}$
Eu-158		$1\ 10^{16}$
Fermium		

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Fm-252		$7\ 10^{14}$
Fm-253		$6\ 10^{14}$
Fm-254		$3\ 10^{15}$
Fm-255		$9\ 10^{14}$
Fm-257		$3\ 10^{13}$
Fluorine		
F-18		$2\ 10^{16}$
Francium		
Fr-222		$1\ 10^{16}$
Fr-223		$2\ 10^{16}$
Gadolinium		
Gd-145		$2\ 10^{16}$
Gd-146		$2\ 10^{16}$
Gd-147		$5\ 10^{16}$
Gd-148		$9\ 10^{12}$
Gd-149		$6\ 10^{16}$
Gd-151		$5\ 10^{16}$
Gd-152		$1\ 10^{13}$
Gd-153		$2\ 10^{16}$
Gd-159		$2\ 10^{16}$
Gallium		
Ga-65		$1\ 10^{16}$
Ga-66		$9\ 10^{15}$
Ga-67		$5\ 10^{16}$
Ga-68		$2\ 10^{16}$
Ga-70		$1\ 10^{16}$
Ga-72		$2\ 10^{16}$
Ga-73		$2\ 10^{16}$
Germanium		
Ge-66		$3\ 10^{16}$
Ge-67		$7\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Ge-68		$1\ 10^{16}$
Ge-69		$2\ 10^{16}$
Ge-71		$7\ 10^{18}$
Ge-75		$2\ 10^{16}$
Ge-77		$1\ 10^{16}$
Ge-78		$2\ 10^{16}$
Gold		
Au-193		$7\ 10^{16}$
Au-194		$1\ 10^{17}$
Au-195		$3\ 10^{16}$
Au-198		$2\ 10^{16}$
Au-198m		$2\ 10^{16}$
Au-199		$3\ 10^{16}$
Au-200		$1\ 10^{16}$
Au-200m		$2\ 10^{16}$
Au-201		$2\ 10^{16}$
Hafnium		
Hf-170		$4\ 10^{16}$
Hf-172		$5\ 10^{15}$
Hf-173		$6\ 10^{16}$
Hf-175		$2\ 10^{16}$
Hf-177m		$2\ 10^{16}$
Hf-178m		$4\ 10^{14}$
Hf-179m		$2\ 10^{16}$
Hf-180m		$2\ 10^{16}$
Hf-181		$1\ 10^{16}$
Hf-182		$7\ 10^{14}$
Hf-182m		$2\ 10^{16}$
Hf-183		$2\ 10^{16}$
Hf-184		$2\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Holmium		
Ho-155		$2\ 10^{16}$
Ho-157		$4\ 10^{16}$
Ho-159		$6\ 10^{16}$
Ho-161		$1\ 10^{17}$
Ho-162		$5\ 10^{16}$
Ho-162m		$4\ 10^{16}$
Ho-164		$2\ 10^{16}$
Ho-164m		$4\ 10^{16}$
Ho-166		$1\ 10^{16}$
Ho-166m		$8\ 10^{14}$
Ho-167		$2\ 10^{16}$
Hydrogen		
H-3	(tritiated water)	$7\ 10^{17}$
H-3	(organically bound tritium)	$1\ 10^{18}$
H-3	(tritiated water vapour)	$1\ 10^{19}$
H-3	(gas)	$1\ 10^{22}$
H-3	(tritiated methane gas)	$1\ 10^{21}$
H-3	(organically bound tritium gas/vapour)	$6\ 10^{18}$
Indium		
In-109		$7\ 10^{16}$
In-110	(long lived isotope)	$2\ 10^{17}$
In-110	(short lived isotope)	$1\ 10^{16}$
In-111		$9\ 10^{16}$
In-112		$2\ 10^{16}$
In-113m		$5\ 10^{16}$
In-114		$1\ 10^{16}$
In-114m		$9\ 10^{15}$
In-115		$6\ 10^{14}$
In-115m		$3\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
In-116m		$2\ 10^{16}$
In-117		$2\ 10^{16}$
In-117m		$2\ 10^{16}$
In-119m		$9\ 10^{15}$
Iodine		
I-120		$6\ 10^{15}$
I-120		$2\ 10^{17}$
I-120		$2\ 10^{17}$
I-120m		$7\ 10^{15}$
I-120m		$2\ 10^{17}$
I-120m		$2\ 10^{17}$
I-121		$4\ 10^{16}$
I-121		$1\ 10^{18}$
I-121		$1\ 10^{18}$
I-123		$9\ 10^{16}$
I-123		$5\ 10^{17}$
I-123		$6\ 10^{17}$
I-124		$2\ 10^{16}$
I-124		$9\ 10^{15}$
I-124		$1\ 10^{16}$
I-125		$1\ 10^{15}$
I-125		$1\ 10^{16}$
I-125		$1\ 10^{16}$
I-126		$8\ 10^{15}$
I-126		$5\ 10^{15}$
I-126		$6\ 10^{11}$
I-128		$1\ 10^{16}$
I-128		$2\ 10^{18}$
I-128		$5\ 10^{18}$
I-129		$1\ 10^{14}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
I-129		$2\ 10^{15}$
I-129		$2\ 10^{15}$
I-130		$3\ 10^{16}$
I-130		$5\ 10^{16}$
I-130		$6\ 10^{16}$
I-131		$9\ 10^{14}$
I-131		$6\ 10^{15}$
I-131		$7\ 10^{15}$
I-132		$2\ 10^{16}$
I-132		$2\ 10^{17}$
I-132		$3\ 10^{17}$
I-132m		$2\ 10^{16}$
I-132m		$4\ 10^{17}$
I-132m		$5\ 10^{17}$
I-133		$2\ 10^{16}$
I-133		$2\ 10^{16}$
I-133		$3\ 10^{16}$
I-134		$2\ 10^{16}$
I-134		$3\ 10^{17}$
I-134		$4\ 10^{17}$
I-135		$2\ 10^{16}$
I-135		$9\ 10^{16}$
I-135		$1\ 10^{17}$
Iridium		
Ir-182		$1\ 10^{16}$
Ir-184		$2\ 10^{16}$
Ir-185		$3\ 10^{16}$
Ir-186		$3\ 10^{16}$
Ir-186		$2\ 10^{16}$
Ir-187		$6\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Ir-188		$5\ 10^{16}$
Ir-189		$9\ 10^{16}$
Ir-190		$2\ 10^{16}$
Ir-190m		$3\ 10^{16}$
Ir-190m		$1\ 10^{17}$
Ir-192		$6\ 10^{15}$
Ir-192m		$4\ 10^{15}$
Ir-193m		$4\ 10^{16}$
Ir-194		$1\ 10^{16}$
Ir-194m		$1\ 10^{15}$
Ir-195		$2\ 10^{16}$
Ir-195m		$2\ 10^{16}$
Iron		
Fe-52		$2\ 10^{16}$
Fe-55		$8\ 10^{16}$
Fe-59		$8\ 10^{15}$
Fe-60		$4\ 10^{14}$
Krypton		
Kr-74	(gas)	$5\ 10^{17}$
Kr-76	(gas)	$1\ 10^{18}$
Kr-77	(gas)	$6\ 10^{17}$
Kr-79	(gas)	$2\ 10^{18}$
Kr-81	(gas)	$7\ 10^{15}$
Kr-81m	(gas)	$5\ 10^{18}$
Kr-83m	(gas)	$3\ 10^{20}$
Kr-85	(gas)	$1\ 10^{20}$
Kr-85m	(gas)	$4\ 10^{18}$
Kr-87	(gas)	$7\ 10^{17}$
Kr-88	(gas)	$3\ 10^{17}$
Lanthanum		

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
La-131		$2\ 10^{16}$
La-132		$2\ 10^{16}$
La-135		$2\ 10^{18}$
La-137		$2\ 10^{16}$
La-138		$2\ 10^{15}$
La-140		$2\ 10^{16}$
La-141		$1\ 10^{16}$
La-142		$1\ 10^{16}$
La-143		$7\ 10^{15}$
Lead		
Pb-195m		$2\ 10^{16}$
Pb-198		$4\ 10^{16}$
Pb-199		$6\ 10^{16}$
Pb-200		$3\ 10^{16}$
Pb-201		$8\ 10^{16}$
Pb-202		$6\ 10^{15}$
Pb-202m		$4\ 10^{16}$
Pb-203		$9\ 10^{16}$
Pb-205		$1\ 10^{17}$
Pb-209		$2\ 10^{16}$
Pb-210		$3\ 10^{13}$
Pb-211		$2\ 10^{16}$
Pb-212		$1\ 10^{15}$
Pb-214		$1\ 10^{16}$
Lutetium		
Lu-169		$6\ 10^{16}$
Lu-170		$3\ 10^{16}$
Lu-171		$4\ 10^{16}$
Lu-172		$3\ 10^{16}$
Lu-173		$2\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Lu-174		$1\ 10^{16}$
Lu-174m		$3\ 10^{16}$
Lu-176		$3\ 10^{15}$
Lu-176m		$2\ 10^{16}$
Lu-177		$3\ 10^{16}$
Lu-177m		$3\ 10^{15}$
Lu-178		$1\ 10^{16}$
Lu-178m		$1\ 10^{16}$
Lu-179		$2\ 10^{16}$
Magnesium		
Mg-28		$5\ 10^{16}$
Manganese		
Mn-51		$1\ 10^{16}$
Mn-52		$2\ 10^{16}$
Mn-52m		$8\ 10^{15}$
Mn-53		$1\ 10^{18}$
Mn-54		$3\ 10^{15}$
Mn-56		$1\ 10^{16}$
Mendelevium		
Md-257		$9\ 10^{15}$
Md-258		$4\ 10^{13}$
Mercury		
Hg-193	(organic)	$3\ 10^{16}$
Hg-193	(inorganic)	$3\ 10^{16}$
Hg-193	(vapour)	$2\ 10^{17}$
Hg-193m	(organic)	$2\ 10^{16}$
Hg-193m	(inorganic)	$2\ 10^{16}$
Hg-193m	(vapour)	$6\ 10^{16}$
Hg-194	(organic)	$3\ 10^{15}$
Hg-194	(inorganic)	$1\ 10^{16}$
Hg-194	(vapour)	$6\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Hg-195	(organic)	$5\ 10^{16}$
Hg-195	(inorganic)	$5\ 10^{16}$
Hg-195	(vapour)	$1\ 10^{17}$
Hg-195m	(organic)	$3\ 10^{16}$
Hg-195m	(inorganic)	$3\ 10^{16}$
Hg-195m	(vapour)	$3\ 10^{16}$
Hg-197	(organic)	$7\ 10^{16}$
Hg-197	(inorganic)	$7\ 10^{16}$
Hg-197	(vapour)	$5\ 10^{16}$
Hg-197m	(organic)	$2\ 10^{16}$
Hg-197m	(inorganic)	$2\ 10^{16}$
Hg-197m	(vapour)	$4\ 10^{16}$
Hg-199m	(organic)	$2\ 10^{16}$
Hg-199m	(inorganic)	$2\ 10^{16}$
Hg-199m	(vapour)	$1\ 10^{18}$
Hg-203	(organic)	$3\ 10^{16}$
Hg-203	(inorganic)	$3\ 10^{16}$
Hg-203	(vapour)	$3\ 10^{16}$
Molybdenum		
Mo-90		$2\ 10^{16}$
Mo-93		$2\ 10^{16}$
Mo-93m		$4\ 10^{16}$
Mo-99		$2\ 10^{16}$
Mo-101		$2\ 10^{16}$
Neodymium		
Nd-136		$4\ 10^{16}$
Nd-138		$5\ 10^{17}$
Nd-139		$2\ 10^{16}$
Nd-139m		$3\ 10^{16}$
Nd-141		$2\ 10^{17}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Nd-147		$2\ 10^{16}$
Nd-149		$2\ 10^{16}$
Nd-151		$1\ 10^{16}$
Neon		
Ne-19	(gas)	$6\ 10^{17}$
Neptunium		
Np-232		$3\ 10^{16}$
Np-233		$2\ 10^{18}$
Np-234		$5\ 10^{16}$
Np-235		$2\ 10^{17}$
Np-236	(long lived isotope)	$3\ 10^{13}$
Np-236	(short lived isotope)	$3\ 10^{16}$
Np-237		$5\ 10^{12}$
Np-238		$2\ 10^{16}$
Np-239		$1\ 10^{16}$
Np-240		$7\ 10^{15}$
Nickel		
Ni-56		$4\ 10^{12}$
Ni-56	(carbonyl vapour)	$1\ 10^{17}$
Ni-57		$2\ 10^{16}$
Ni-57	(carbonyl vapour)	$2\ 10^{17}$
Ni-59		$4\ 10^{17}$
Ni-59	(carbonyl vapour)	$2\ 10^{17}$
Ni-63		$1\ 10^{17}$
Ni-63	(carbonyl vapour)	$1\ 10^{17}$
Ni-65		$1\ 10^{16}$
Ni-65	(carbonyl vapour)	$4\ 10^{17}$
Ni-66		$5\ 10^{16}$
Ni-66	(carbonyl vapour)	$1\ 10^{17}$
Niobium		
Nb-88		$7\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Nb-89	(long lived isotope)	$1\ 10^{16}$
Nb-89	(short lived isotope)	$8\ 10^{15}$
Nb-90		$2\ 10^{16}$
Nb-93m		$1\ 10^{17}$
Nb-94		$1\ 10^{15}$
Nb-95		$2\ 10^{16}$
Nb-95m		$2\ 10^{16}$
Nb-96		$2\ 10^{16}$
Nb-97		$2\ 10^{16}$
Nb-98		$1\ 10^{16}$
Nitrogen		
N-13	(gas)	$6\ 10^{17}$
Osmium		
Os-180		$1\ 10^{17}$
Os-181		$3\ 10^{16}$
Os-182		$6\ 10^{16}$
Os-185		$7\ 10^{15}$
Os-189m		$1\ 10^{17}$
Os-191		$4\ 10^{16}$
Os-191m		$7\ 10^{16}$
Os-193		$2\ 10^{16}$
Os-194		$2\ 10^{15}$
Palladium		
Pd-100		$7\ 10^{16}$
Pd-101		$8\ 10^{16}$
Pd-103		$4\ 10^{17}$
Pd-107		$3\ 10^{17}$
Pd-109		$2\ 10^{16}$
Phosphorus		
P-32		$1\ 10^{15}$
P-33		$3\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Platinum		
Pt-186		$9\ 10^{17}$
Pt-188		$6\ 10^{16}$
Pt-189		$6\ 10^{16}$
Pt-191		$7\ 10^{16}$
Pt-193		$1\ 10^{18}$
Pt-193m		$3\ 10^{16}$
Pt-195m		$3\ 10^{16}$
Pt-197		$2\ 10^{16}$
Pt-197m		$2\ 10^{16}$
Pt-199		$2\ 10^{16}$
Pt-200		$2\ 10^{16}$
Plutonium		
Pu-234		$1\ 10^{16}$
Pu-235		$2\ 10^{17}$
Pu-236		$6\ 10^{12}$
Pu-237		$1\ 10^{17}$
Pu-238		$2\ 10^{12}$
Pu-239		$2\ 10^{12}$
Pu-240		$2\ 10^{12}$
Pu-241		$1\ 10^{14}$
Pu-242		$2\ 10^{12}$
Pu-243		$2\ 10^{16}$
Pu-244		$2\ 10^{12}$
Pu-245		$2\ 10^{16}$
Pu-246		$2\ 10^{16}$
Polonium		
Po-203		$3\ 10^{16}$
Po-205		$7\ 10^{16}$
Po-206		$1\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Po-207		$8\ 10^{16}$
Po-208		$2\ 10^{13}$
Po-209		$2\ 10^{13}$
Po-210		$4\ 10^{13}$
Potassium		
K-40		$2\ 10^{16}$
K-42		$7\ 10^{15}$
K-43		$2\ 10^{16}$
K-44		$6\ 10^{15}$
K-45		$9\ 10^{15}$
Praseodymium		
Pr-136		$1\ 10^{16}$
Pr-137		$2\ 10^{16}$
Pr-138m		$2\ 10^{16}$
Pr-139		$7\ 10^{16}$
Pr-142		$1\ 10^{12}$
Pr-142m		$2\ 10^{19}$
Pr-143		$2\ 10^{16}$
Pr-144		$2\ 10^{16}$
Pr-145		$1\ 10^{16}$
Pr-147		$1\ 10^{16}$
Promethium		
Pm-141		$1\ 10^{12}$
Pm-143		$9\ 10^{15}$
Pm-144		$2\ 10^{15}$
Pm-145		$3\ 10^{16}$
Pm-146		$2\ 10^{15}$
Pm-147		$4\ 10^{16}$
Pm-148		$1\ 10^{16}$
Pm-148m		$5\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Pm-149		$2\ 10^{16}$
Pm-150		$1\ 10^{12}$
Pm-151		$2\ 10^{16}$
Protactinium		
Pa-227		$3\ 10^{15}$
Pa-228		$3\ 10^{15}$
Pa-230		$3\ 10^{14}$
Pa-231		$2\ 10^{12}$
Pa-232		$2\ 10^{16}$
Pa-233		$2\ 10^{16}$
Pa-234		$5\ 10^{15}$
Radium		
Ra-223		$3\ 10^{13}$
Ra-224		$7\ 10^{13}$
Ra-225		$3\ 10^{13}$
Ra-226		$2\ 10^{13}$
Ra-227		$2\ 10^{16}$
Ra-228		$1\ 10^{13}$
Rhenium		
Re-177		$2\ 10^{16}$
Re-178		$2\ 10^{16}$
Re-181		$3\ 10^{16}$
Re-182	(long lived isotope)	$2\ 10^{16}$
Re-182	(short lived isotope)	$4\ 10^{16}$
Re-184		$1\ 10^{16}$
Re-184m		$7\ 10^{15}$
Re-186		$2\ 10^{16}$
Re-186m		$1\ 10^{16}$
Re-187		$5\ 10^{18}$
Re-188		$1\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Re-188m		$3\ 10^{16}$
Re-189		$2\ 10^{16}$
Rhodium		
Rh-99		$4\ 10^{16}$
Rh-99m		$9\ 10^{16}$
Rh-100		$4\ 10^{16}$
Rh-101		$7\ 10^{15}$
Rh-101m		$2\ 10^{17}$
Rh-102		$1\ 10^{15}$
Rh-102m		$6\ 10^{15}$
Rh-103m		$3\ 10^{19}$
Rh-105		$2\ 10^{16}$
Rh-106m		$2\ 10^{16}$
Rh-107		$2\ 10^{16}$
Rubidium		
Rb-79		$1\ 10^{16}$
Rb-81		$2\ 10^{16}$
Rb-81m		$4\ 10^{16}$
Rb-82m		$3\ 10^{16}$
Rb-83		$1\ 10^{16}$
Rb-84		$1\ 10^{16}$
Rb-86		$2\ 10^{15}$
Rb-87		$4\ 10^{16}$
Rb-88		$5\ 10^{15}$
Rb-89		$9\ 10^{15}$
Ruthenium		
Ru-94		$1\ 10^{18}$
Ru-94	(tetroxide vapour)	$1\ 10^{18}$
Ru-97		$3\ 10^{17}$
Ru-97	(tetroxide vapour)	$1\ 10^{18}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Ru-103		$2\ 10^{16}$
Ru-103	(tetroxide vapour)	$1\ 10^{17}$
Ru-105		$2\ 10^{16}$
Ru-105	(tetroxide vapour)	$6\ 10^{17}$
Ru-106		$3\ 10^{15}$
Ru-106	(tetroxide vapour)	$8\ 10^{15}$
Samarium		
Sm-141		$1\ 10^{16}$
Sm-141m		$2\ 10^{16}$
Sm-142		$9\ 10^{16}$
Sm-145		$3\ 10^{16}$
Sm-146		$2\ 10^{13}$
Sm-147		$3\ 10^{13}$
Sm-151		$6\ 10^{16}$
Sm-153		$2\ 10^{16}$
Sm-155		$2\ 10^{16}$
Sm-156		$2\ 10^{16}$
Scandium		
Sc-43		$2\ 10^{16}$
Sc-44		$2\ 10^{16}$
Sc-44m		$9\ 10^{16}$
Sc-46		$3\ 10^{15}$
Sc-47		$3\ 10^{16}$
Sc-48		$2\ 10^{16}$
Sc-49		$1\ 10^{16}$
Selenium		
Se-70		$2\ 10^{16}$
Se-73		$2\ 10^{16}$
Se-73m		$2\ 10^{16}$
Se-75		$2\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Se-79		$5\ 10^{14}$
Se-81		$2\ 10^{16}$
Se-81m		$4\ 10^{16}$
Se-83		$2\ 10^{16}$
Silicon		
Si-31		$2\ 10^{16}$
Si-32		$2\ 10^{15}$
Silver		
Ag-102		$1\ 10^{16}$
Ag-103		$2\ 10^{16}$
Ag-104		$3\ 10^{16}$
Ag-104m		$2\ 10^{16}$
Ag-105		$2\ 10^{16}$
Ag-106		$2\ 10^{16}$
Ag-106m		$2\ 10^{16}$
Ag-108m		$1\ 10^{15}$
Ag-110m		$3\ 10^{14}$
Ag-111		$2\ 10^{16}$
Ag-112		$7\ 10^{15}$
Ag-115		$9\ 10^{15}$
Sodium		
Na-22		$1\ 10^{15}$
Na-24		$2\ 10^{16}$
Strontium		
Sr-80		$1\ 10^{18}$
Sr-81		$9\ 10^{15}$
Sr-82		$2\ 10^{16}$
Sr-83		$3\ 10^{16}$
Sr-85		$1\ 10^{16}$
Sr-85m		$3\ 10^{17}$
Sr-87m		$7\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Sr-89		$1\ 10^{16}$
Sr-90		$8\ 10^{14}$
Sr-91		$2\ 10^{16}$
Sr-92		$2\ 10^{16}$
Sulphur		
S-35	(inorganic)	$1\ 10^{16}$
S-35	(organic)	$2\ 10^{15}$
S-35	(carbon disulphide vapour)	$2\ 10^{17}$
S-35	(vapour)	$2\ 10^{18}$
S-35	(dioxide gas)	$1\ 10^{18}$
Tantalum		
Ta-172		$2\ 10^{16}$
Ta-173		$2\ 10^{16}$
Ta-174		$2\ 10^{16}$
Ta-175		$2\ 10^{16}$
Ta-176		$3\ 10^{16}$
Ta-177		$1\ 10^{17}$
Ta-178	(long lived isotope)	$3\ 10^{16}$
Ta-179		$6\ 10^{16}$
Ta-180		$9\ 10^{15}$
Ta-180m		$6\ 10^{16}$
Ta-182		$3\ 10^{15}$
Ta-182m		$2\ 10^{16}$
Ta-183		$2\ 10^{16}$
Ta-184		$2\ 10^{16}$
Ta-185		$1\ 10^{16}$
Ta-186		$9\ 10^{15}$
Technetium		
Tc-93		$5\ 10^{17}$
Tc-93m		$4\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Tc-94		$6\ 10^{16}$
Tc-94m		$1\ 10^{16}$
Tc-95		$4\ 10^{17}$
Tc-95m		$1\ 10^{16}$
Tc-96		$4\ 10^{16}$
Tc-96m		$2\ 10^{17}$
Tc-97		$9\ 10^{16}$
Tc-97m		$5\ 10^{16}$
Tc-98		$1\ 10^{15}$
Tc-99		$5\ 10^{14}$
Tc-99m		$1\ 10^{17}$
Tc-101		$2\ 10^{16}$
Tc-104		$6\ 10^{15}$
Tellurium		
Te-116		$6\ 10^{16}$
Te-116	(vapour)	$2\ 10^{18}$
Te-121		$4\ 10^{16}$
Te-121	(vapour)	$3\ 10^{17}$
Te-121m		$1\ 10^{16}$
Te-121m	(vapour)	$3\ 10^{16}$
Te-123		$6\ 10^{16}$
Te-123	(vapour)	$2\ 10^{16}$
Te-123m		$2\ 10^{16}$
Te-123m	(vapour)	$5\ 10^{16}$
Te-125m		$2\ 10^{16}$
Te-125m	(vapour)	$8\ 10^{16}$
Te-127		$2\ 10^{16}$
Te-127	(vapour)	$2\ 10^{18}$
Te-127m		$1\ 10^{16}$
Te-127m	(vapour)	$2\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Te-129		$2\ 10^{16}$
Te-129	(vapour)	$4\ 10^{18}$
Te-129m		$1\ 10^{16}$
Te-129m	(vapour)	$3\ 10^{16}$
Te-131		$1\ 10^{16}$
Te-131	(vapour)	$1\ 10^{18}$
Te-131m		$2\ 10^{16}$
Te-131m	(vapour)	$5\ 10^{16}$
Te-132		$3\ 10^{16}$
Te-132	(vapour)	$2\ 10^{16}$
Te-133		$1\ 10^{16}$
Te-133	(vapour)	$7\ 10^{17}$
Te-133m		$1\ 10^{16}$
Te-133m	(vapour)	$2\ 10^{17}$
Te-134		$3\ 10^{16}$
Te-134	(vapour)	$7\ 10^{17}$
Terbium		
Tb-147		$2\ 10^{16}$
Tb-149		$2\ 10^{16}$
Tb-150		$2\ 10^{16}$
Tb-151		$4\ 10^{16}$
Tb-153		$7\ 10^{16}$
Tb-154		$4\ 10^{16}$
Tb-155		$1\ 10^{17}$
Tb-156		$3\ 10^{16}$
Tb-156m	(long lived isotope)	$1\ 10^{17}$
Tb-156m	(short lived isotope)	$4\ 10^{16}$
Tb-157		$1\ 10^{17}$
Tb-158		$2\ 10^{15}$
Tb-160		$5\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Tb-161		$2\ 10^{16}$
Thallium		
Tl-194		$1\ 10^{17}$
Tl-194m		$2\ 10^{16}$
Tl-195		$4\ 10^{16}$
Tl-197		$5\ 10^{16}$
Tl-198		$7\ 10^{16}$
Tl-198m		$2\ 10^{16}$
Tl-199		$6\ 10^{16}$
Tl-200		$1\ 10^{17}$
Tl-201		$7\ 10^{16}$
Tl-202		$7\ 10^{16}$
Tl-204		$2\ 10^{16}$
Thorium		
Th-226		$4\ 10^{15}$
Th-227		$2\ 10^{13}$
Th-228		$6\ 10^{12}$
Th-229		$1\ 10^{12}$
Th-230		$2\ 10^{12}$
Th-231		$2\ 10^{16}$
Th-232		$2\ 10^{12}$
Th-234		$3\ 10^{16}$
Thulium		
Tm-162		$2\ 10^{16}$
Tm-166		$3\ 10^{16}$
Tm-167		$4\ 10^{16}$
Tm-170		$2\ 10^{16}$
Tm-171		$1\ 10^{17}$
Tm-172		$2\ 10^{16}$
Tm-173		$2\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Tm-175		$2\ 10^{16}$
Tin		
Sn-110		$6\ 10^{17}$
Sn-111		$2\ 10^{16}$
Sn-113		$5\ 10^{16}$
Sn-117m		$3\ 10^{16}$
Sn-119m		$5\ 10^{16}$
Sn-121		$3\ 10^{16}$
Sn-121m		$4\ 10^{16}$
Sn-123		$2\ 10^{16}$
Sn-123m		$2\ 10^{16}$
Sn-125		$1\ 10^{16}$
Sn-126		$5\ 10^{15}$
Sn-127		$2\ 10^{16}$
Sn-128		$2\ 10^{16}$
Titanium		
Ti-44		$2\ 10^{15}$
Ti-45		$2\ 10^{16}$
Tungsten		
W-176		$5\ 10^{16}$
W-177		$3\ 10^{16}$
W-178		$6\ 10^{17}$
W-179		$1\ 10^{17}$
W-181		$1\ 10^{17}$
W-185		$4\ 10^{16}$
W-187		$2\ 10^{16}$
W-188		$3\ 10^{16}$
Uranium		
U-230		$2\ 10^{13}$
U-231		$7\ 10^{16}$
U-232		$6\ 10^{12}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
U-233		$3\ 10^{13}$
U-234		$3\ 10^{13}$
U-235		$3\ 10^{13}$
U-236		$3\ 10^{13}$
U-237		$2\ 10^{16}$
U-238		$3\ 10^{13}$
U-239		$2\ 10^{16}$
U-240		$2\ 10^{16}$
Vanadium		
V-47		$1\ 10^{16}$
V-48		$1\ 10^{16}$
V-49		$2\ 10^{18}$
Xenon		
Xe-120	(gas)	$1\ 10^{18}$
Xe-121	(gas)	$3\ 10^{17}$
Xe-122	(gas)	$1\ 10^{19}$
Xe-123	(gas)	$9\ 10^{17}$
Xe-125	(gas)	$2\ 10^{18}$
Xe-127	(gas)	$2\ 10^{18}$
Xe-129m	(gas)	$2\ 10^{19}$
Xe-131m	(gas)	$4\ 10^{19}$
Xe-133	(gas)	$1\ 10^{19}$
Xe-133m	(gas)	$2\ 10^{19}$
Xe-135	(gas)	$2\ 10^{18}$
Xe-135m	(gas)	$1\ 10^{18}$
Xe-138	(gas)	$5\ 10^{17}$
Ytterbium		
Yb-162		$1\ 10^{17}$
Yb-166		$8\ 10^{16}$
Yb-167		$4\ 10^{16}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Yb-169		$3\ 10^{16}$
Yb-175		$4\ 10^{16}$
Yb-177		$2\ 10^{16}$
Yb-178		$2\ 10^{16}$
Yttrium		
Y-86		$2\ 10^{16}$
Y-86m		$1\ 10^{17}$
Y-87		$2\ 10^{17}$
Y-88		$2\ 10^{15}$
Y-90		$2\ 10^{16}$
Y-90m		$7\ 10^{16}$
Y-91		$2\ 10^{16}$
Y-91m		$2\ 10^{17}$
Y-92		$6\ 10^{15}$
Y-93		$8\ 10^{15}$
Y-94		$6\ 10^{15}$
Y-95		$6\ 10^{15}$
Zinc		
Zn-62		$1\ 10^{17}$
Zn-63		$1\ 10^{16}$
Zn-65		$5\ 10^{14}$
Zn-69		$2\ 10^{16}$
Zn-69m		$2\ 10^{17}$
Zn-71m		$2\ 10^{16}$
Zn-72		$3\ 10^{16}$
Zirconium		
Zr-86		$2\ 10^{17}$
Zr-88		$1\ 10^{16}$
Zr-89		$4\ 10^{16}$
Zr-93		$8\ 10^{15}$

Radionuclide	*Radionuclide form*	*Quantity in Becquerels*
Zr-95		$8\ 10^{15}$
Zr-97		$2\ 10^{16}$
Other radionuclides not listed above		$4\ 10^{11}$

PART 2

Quantity ratios for more than one radionuclide

1. For the purpose of regulation 3(6)(b), the quantity ratio for more than one radionuclide is the sum of the quotients, for each radionuclide present (i), of the quantity of that radionuclide Q_p divided by the quantity of that radionuclide specified in the appropriate column of Part 1 of this Schedule Q_{lim}, namely—

$$\sum_{i=1}^{n} \frac{Q_p(i)}{Q_{\text{lim}}(i)}$$

Where n equals the total number of radionuclides.

2. In any case where the isotopic composition of a radioactive substance is not known or is only partially known, the quantity ratio for that substance must be calculated by using the values specified in the appropriate column in Part 1 for "other radionuclides not listed above" for any radionuclide that has not been identified or where the quantity of a radionuclide is uncertain.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations prescribe the sites and transport for which lower liability limits apply under the Nuclear Installations Act 1965 ("the Act"). The liability regime imposed by the Act on operators of nuclear sites and disposal sites taking nuclear waste sets the standard liability limit at €1200 million, but allows a lower limit to be set for sites and transport prescribed under section 16(1) of the Act. These Regulations do not apply to excepted matter, which is the subject of separate regulation, the Nuclear Installations (Excepted Matter) Regulations 2017 (S.I. 2017/920).

All but one of the categories prescribed by these Regulations are new and result from the extension of the liability regime by prospective amendments to the Act made by the Nuclear Installations (Liability for Damage) Order 2016 (S.I. 2016/562).

Regulation 3 prescribes low risk nuclear sites, which are broadly the same sites as those prescribed by the Nuclear Installations (Prescribed Sites) Regulations 1983 (S.I. 1983/919) which these Regulations revoke. The liability limit for these sites is €70 million (see section 16(1)(a) of the Act). These are sites licensed under the Act which are used for (i) small nuclear reactors or (ii) storage of radioactive material (within the radioactivity limits set out in Schedule 1); and in both cases subject to restrictions (set out in Schedule 2) on the quantity of fissile material at the site.

Regulation 4 prescribes low risk disposal sites, for which the liability limit is €70 million (see section 16(1)(b) of the Act). These are disposal sites taking only low level waste as defined in regulation 2.

Regulation 5 prescribes intermediate risk nuclear sites, for which the liability limit is €160 million (see section 16(1)(c) of the Act). These are sites used for purposes for which the risk is higher than for low risk sites, but which do not justify the standard liability limit.

Regulation 6 prescribes low risk transport, for which the liability limit is €80 million (see section 16(1)(d) and (e) of the Act). These are situations where nuclear matter transported from a licensed site or a disposal site meets prescribed conditions, namely that the matter is in packages that do not exceed radioactivity levels set by reference to values used in the IAEA Regulations for the Safe Transport of Radioactive Materials 2012.

Regulation 7 requires the Secretary of State to review the operation and effect of these Regulations and publish a report within five years after they come into force and within every five years after that. Following a review it will fall to the Secretary of State to consider whether the Regulations should remain as they are, or be revoked or be amended. A further instrument would be needed to revoke the Regulations or to amend them.

These Regulations come into force when the prospective amendments to the Act come into force.

A full impact assessment of the effect that this instrument will have on the costs of business and the voluntary sector has been prepared in relation to low risk disposal sites and low risk transport, in conjunction with the Nuclear Installations (Liability for Damage) Order 2016. That assessment is available from the Department for Business, Energy and Industrial Strategy at 1 Victoria Street, London, SW1H 0ET and is published with the Explanatory Memorandum to these Regulations and to the Order respectively on www.legislation.gov.uk. A full impact assessment has not been produced for this instrument in relation to intermediate sites as no, or no significant, impact on the private, voluntary or public sectors is foreseen.