#### SCHEDULE 1

Regulation 2(1)

## Doses of Ionising Radiation within the meaning of "Radiation Emergency"

- 1. An effective dose of 5 mSv in the period of one year immediately following the radiation emergency.
  - 2. Without prejudice to paragraph 1—
    - (a) an equivalent dose for the lens of the eye of 15 mSv in the period of one year immediately following the radiation emergency; and
    - (b) an equivalent dose for the skin of 50 mSv in the period of one year immediately following the radiation emergency over 1cm<sup>2</sup> area of skin, regardless of the area exposed.
  - 3. In this Schedule—
    - (a) any reference to an effective dose means the sum of the effective dose to the whole body from external radiation and the committed effective dose from internal radiation;
    - (b) any reference to equivalent dose to a human tissue or organ includes the committed equivalent dose to that tissue or organ from internal radiation;
    - (c) "external radiation" means, in relation to a person, ionising radiation coming from outside the body of that person; and
    - (d) "internal radiation" means, in relation to a person, ionising radiation coming from inside the body of that person.

## SCHEDULE 2

Regulation 3(1) and (2)

### **Specified Quantities of Radionuclides on Premises**

Part I
Table of Radionuclides

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Actinium                  |                   |                    |  |
| Ac-224                    |                   | 2 10 <sup>11</sup> |  |
| Ac-225                    |                   | 3 10 <sup>9</sup>  |  |
| Ac-226                    |                   | $2\ 10^{10}$       |  |
| Ac-227                    |                   | 4 10 <sup>7</sup>  |  |
| Ac-228                    |                   | 5 10 <sup>11</sup> |  |
| Aluminium                 |                   |                    |  |
| Al-26                     |                   | $7\ 10^{10}$       |  |
| Americium                 |                   |                    |  |
| Am-237                    |                   | 4 10 <sup>12</sup> |  |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Am-238                    |                       | 6 10 <sup>12</sup> |
| Am-239                    |                       | 2 10 <sup>12</sup> |
| Am-240                    |                       | 4 10 <sup>12</sup> |
| Am-241                    |                       | 3 10 <sup>8</sup>  |
| Am-242                    |                       | 1 10 <sup>12</sup> |
| Am-242m                   |                       | 3 10 <sup>8</sup>  |
| Am-243                    |                       | 3 10 <sup>8</sup>  |
| Am-244                    |                       | 2 10 <sup>12</sup> |
| Am-244m                   |                       | 2 10 <sup>14</sup> |
| Am-245                    |                       | $2\ 10^{12}$       |
| Am-246                    |                       | 1 10 <sup>12</sup> |
| Am-246m                   |                       | 2 10 <sup>12</sup> |
| Antimony                  |                       | 10                 |
| Sb-115                    |                       | $2 \cdot 10^{12}$  |
| Sb-116                    |                       | 2 10 <sup>12</sup> |
| Sb-116m                   |                       | 2 10 <sup>12</sup> |
| Sb-117                    |                       | $1\ 10^{13}$       |
| Sb-118m                   |                       | $7\ 10^{12}$       |
| Sb-119                    |                       | 1 10 <sup>13</sup> |
| Sb-120                    | (long lived isotope)  | $3\ 10^{12}$       |
| Sb-120                    | (short lived isotope) | $2\ 10^{12}$       |
| Sb-122                    |                       | 2 10 <sup>12</sup> |
| Sb-124                    |                       | 4 10 <sup>11</sup> |
| Sb-124m                   |                       | 4 10 <sup>12</sup> |
| Sb-125                    |                       | 4 10 <sup>11</sup> |
| Sb-126                    |                       | 1 10 <sup>12</sup> |
| Sb-126m                   |                       | $2\ 10^{12}$       |
| Sb-127                    |                       | $2\ 10^{12}$       |
| Sb-128                    | (long lived isotope)  | $2\ 10^{12}$       |
|                           |                       |                    |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Sb-128                    | (short lived isotope) | 1 10 <sup>12</sup> |
| Sb-129                    |                       | 2 10 <sup>12</sup> |
| Sb-130                    |                       | 1 10 <sup>12</sup> |
| Sb-131                    |                       | $2\ 10^{12}$       |
| Argon                     |                       |                    |
| Ar-37                     | (gas)                 | $4\ 10^{17}$       |
| Ar-39                     | (gas)                 | $2\ 10^{16}$       |
| Ar-41                     | (gas)                 | 4 10 <sup>13</sup> |
| Arsenic                   |                       |                    |
| As-69                     |                       | $7\ 10^{11}$       |
| As-70                     |                       | 1 10 <sup>12</sup> |
| As-71                     |                       | 3 10 <sup>12</sup> |
| As-72                     |                       | 9 10 <sup>11</sup> |
| As-73                     |                       | 8 10 <sup>12</sup> |
| As-74                     |                       | 2 10 <sup>12</sup> |
| As-76                     |                       | 9 10 <sup>11</sup> |
| As-77                     |                       | 2 10 <sup>12</sup> |
| As-78                     |                       | $7\ 10^{11}$       |
| Astatine                  |                       |                    |
| At-207                    |                       | $4\ 10^{12}$       |
| At-211                    |                       | 2 10 <sup>11</sup> |
| Barium                    |                       |                    |
| Ba-126                    |                       | $2\ 10^{13}$       |
| Ba-128                    |                       | 1 10 <sup>13</sup> |
| Ba-131                    |                       | 6 10 <sup>12</sup> |
| Ba-131m                   |                       | 3 10 <sup>12</sup> |
| Ba-133                    |                       | 4 10 <sup>11</sup> |
| Ba-133m                   |                       | $2\ 10^{12}$       |
| Ba-135m                   |                       | $2\ 10^{12}$       |
| Ba-139                    |                       | 1 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Ba-140                    |                   | 2 10 <sup>12</sup> |
| Ba-141                    |                   | $1\ 10^{12}$       |
| Ba-142                    |                   | $2\ 10^{12}$       |
| Berkelium                 |                   |                    |
| Bk-245                    |                   | 3 10 <sup>12</sup> |
| Bk-246                    |                   | $6\ 10^{12}$       |
| Bk-247                    |                   | 3 10 <sup>8</sup>  |
| Bk-249                    |                   | 2 10 <sup>11</sup> |
| Bk-250                    |                   | 2 10 <sup>12</sup> |
| Beryllium                 |                   | 12                 |
| Be-7                      |                   | 2 10 <sup>13</sup> |
| Be-10                     |                   | 6 10 <sup>11</sup> |
| Bismuth                   |                   | 12                 |
| Bi-200                    |                   | $2\ 10^{12}$       |
| Bi-201                    |                   | $2\ 10^{12}$       |
| Bi-202                    |                   | 3 10 <sup>12</sup> |
| Bi-203                    |                   | 4 10 <sup>12</sup> |
| Bi-205                    |                   | $2\ 10^{12}$       |
| Bi-206                    |                   | $2\ 10^{12}$       |
| Bi-207                    |                   | 1 10 <sup>11</sup> |
| Bi-210                    |                   | 2 10 <sup>11</sup> |
| Bi-210m                   |                   | 6 10 <sup>9</sup>  |
| Bi-212                    |                   | 7 10 <sup>11</sup> |
| Bi-213                    |                   | $7\ 10^{11}$       |
| Bi-214                    |                   | 1 10 <sup>12</sup> |
| Bromine                   |                   |                    |
| Br-74                     |                   | 8 10 <sup>11</sup> |
| Br-74m                    |                   | 6 10 <sup>11</sup> |
| Br-75                     |                   | $2\ 10^{12}$       |
| Br-76                     |                   | 1 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Br-77                     |                   | 4 10 <sup>13</sup> |  |
| Br-80                     |                   | 1 10 <sup>12</sup> |  |
| Br-80m                    |                   | 5 10 <sup>12</sup> |  |
| Br-82                     |                   | $3\ 10^{12}$       |  |
| Br-83                     |                   | 2 10 <sup>12</sup> |  |
| Br-84                     |                   | $7\ 10^{11}$       |  |
| Cadmium<br>Cd-104         |                   | 1 10 <sup>13</sup> |  |
| Cd-107                    |                   | 4 10 <sup>12</sup> |  |
| Cd-109                    |                   | $2 \cdot 10^{12}$  |  |
| Cd-113                    |                   | 2 10 <sup>11</sup> |  |
| Cd-113m                   |                   | 1 10 <sup>11</sup> |  |
| Cd-115                    |                   | $2 \cdot 10^{12}$  |  |
| Cd-115m                   |                   | $2 \cdot 10^{12}$  |  |
| Cd-117                    |                   | $2 \cdot 10^{12}$  |  |
| Cd-117m                   |                   | $2 \cdot 10^{12}$  |  |
| Caesium                   |                   | 210                |  |
| Cs-125                    |                   | $2\ 10^{12}$       |  |
| Cs-127                    |                   | 1 10 <sup>13</sup> |  |
| Cs-129                    |                   | $2\ 10^{13}$       |  |
| Cs-130                    |                   | 2 10 <sup>12</sup> |  |
| Cs-131                    |                   | 6 10 <sup>13</sup> |  |
| Cs-132                    |                   | 9 10 <sup>12</sup> |  |
| Cs-134                    |                   | $7\ 10^{10}$       |  |
| Cs-134m                   |                   | 4 10 <sup>12</sup> |  |
| Cs-135                    |                   | 9 10 <sup>11</sup> |  |
| Cs-135m                   |                   | 8 10 <sup>12</sup> |  |
| Cs-136                    |                   | $8\ 10^{11}$       |  |
| Cs-137                    |                   | 1 10 <sup>11</sup> |  |
| Cs-138                    |                   | 8 10 <sup>11</sup> |  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Calcium                   |                   | 12                 |
| Ca-41                     |                   | 3 10 <sup>13</sup> |
| Ca-45                     |                   | 3 10 <sup>12</sup> |
| Ca-47                     |                   | $2\ 10^{12}$       |
| Californium<br>Cf-244     |                   | 2.1012             |
| Cf-246                    |                   | $2 \cdot 10^{12}$  |
|                           |                   | 5 10 <sup>10</sup> |
| Cf-248                    |                   | 2 109              |
| Cf-249                    |                   | 3 108              |
| Cf-250                    |                   | 7 108              |
| Cf-251                    |                   | 3 10 <sup>8</sup>  |
| Cf-252                    |                   | 1 109              |
| Cf-253                    |                   | $2 \ 10^{10}$      |
| Cf-254                    |                   | 4 108              |
| Carbon                    |                   | 10                 |
| C-11                      |                   | $2\ 10^{12}$       |
| C-11                      | (vapour)          | $1\ 10^{14}$       |
| C-11                      | (dioxide gas)     | $1\ 10^{14}$       |
| C-11                      | (monoxide gas)    | 1 10 <sup>14</sup> |
| C-14                      |                   | $3\ 10^{12}$       |
| C-14                      | (vapour)          | $4\ 10^{13}$       |
| C-14                      | (dioxide gas)     | 3 10 <sup>15</sup> |
| C-14                      | (monoxide gas)    | $1\ 10^{16}$       |
| Cerium                    |                   |                    |
| Ce-134                    |                   | $1\ 10^{13}$       |
| Ce-135                    |                   | $2\ 10^{12}$       |
| Ce-137                    |                   | 2 10 <sup>13</sup> |
| Ce-137m                   |                   | $2\ 10^{12}$       |
| Ce-139                    |                   | 2 10 <sup>12</sup> |
| Ce-141                    |                   | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Ce-143                    |                   | $2\ 10^{12}$       |
| Ce-144                    |                   | 3 10 <sup>11</sup> |
| Chlorine                  |                   |                    |
| Cl-36                     |                   | $2 \ 10^{12}$      |
| C1-38                     |                   | 6 10 <sup>11</sup> |
| Cl-39                     |                   | $1\ 10^{12}$       |
| Chromium                  |                   |                    |
| Cr-48                     |                   | 4 10 <sup>13</sup> |
| Cr-49                     |                   | $2\ 10^{12}$       |
| Cr-51                     |                   | $3\ 10^{13}$       |
| Cobalt                    |                   | 12                 |
| Co-55                     |                   | 2 10 <sup>12</sup> |
| Co-56                     |                   | 2 10 <sup>11</sup> |
| Co-57                     |                   | $1\ 10^{12}$       |
| Co-58                     |                   | $6\ 10^{11}$       |
| Co-58m                    |                   | $2\ 10^{13}$       |
| Co-60                     |                   | $6\ 10^{10}$       |
| Co-60m                    |                   | $7 \ 10^{12}$      |
| Co-61                     |                   | $2\ 10^{12}$       |
| Co-62m                    |                   | 9 10 <sup>11</sup> |
| Copper                    |                   |                    |
| Cu-60                     |                   | $1\ 10^{12}$       |
| Cu-61                     |                   | $2\ 10^{12}$       |
| Cu-64                     |                   | $4\ 10^{12}$       |
| Cu-67                     |                   | 3 10 <sup>12</sup> |
| Curium                    |                   |                    |
| Cm-238                    |                   | 5 10 <sup>12</sup> |
| Cm-240                    |                   | 7 10 <sup>9</sup>  |
| Cm-241                    |                   | 5 10 <sup>11</sup> |
| Cm-242                    |                   | 4 109              |
| Cm-243                    |                   | 4 108              |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)          |
|---------------------------|-------------------|------------------------|
| Cm-244                    |                   | 4 10 <sup>8</sup>      |
| Cm-245                    |                   | $2\ 10^8$              |
| Cm-246                    |                   | 2 108                  |
| Cm-247                    |                   | $3\ 10^8$              |
| Cm-248                    |                   | 7 10 <sup>7</sup>      |
| Cm-249                    |                   | $2\ 10^{12}$           |
| Cm-250                    |                   | 1 10 <sup>7</sup>      |
| Dysprosium                |                   |                        |
| Dy-155                    |                   | 1 10 <sup>13</sup>     |
| Dy-157                    |                   | 1 10 <sup>14</sup>     |
| Dy-159                    |                   | 8 10 <sup>12</sup>     |
| Dy-165                    |                   | 2 10 <sup>12</sup>     |
| Dy-166                    |                   | 3 10 <sup>12</sup>     |
| Einsteinium               |                   | 12                     |
| Es-250                    |                   | 1 10 <sup>13</sup>     |
| Es-251                    |                   | 6 10 <sup>12</sup>     |
| Es-253                    |                   | 8 109                  |
| Es-254                    |                   | 2 109                  |
| Es-254m                   |                   | 5 10 <sup>10</sup>     |
| <b>Erbium</b><br>Er-161   |                   | 6 10 <sup>12</sup>     |
| Er-165                    |                   | 2 10 <sup>14</sup>     |
| Er-169                    |                   | $3 \cdot 10^{12}$      |
| Er-171                    |                   | $\frac{310}{210^{12}}$ |
| Er-172                    |                   |                        |
| Europium                  |                   | 3 10 <sup>12</sup>     |
| Eu-145                    |                   | 4 10 <sup>12</sup>     |
| Eu-146                    |                   | 3 10 <sup>12</sup>     |
| Eu-147                    |                   | 4 10 <sup>12</sup>     |
| Eu-148                    |                   | 4 10 <sup>11</sup>     |

| Eu-149 Eu-150 (long lived isotope) 1 10 <sup>11</sup> Eu-150 (short lived isotope) 2 10 <sup>12</sup> Eu-152 110 <sup>11</sup> Eu-152 120 <sup>12</sup> Eu-152 110 <sup>11</sup> Eu-154 110 <sup>11</sup> Eu-155 1210 <sup>12</sup> Eu-156 1210 <sup>12</sup> Eu-157 1210 <sup>12</sup> Eu-158 110 <sup>12</sup> Fermium Fm-252 7 10 <sup>10</sup> Fm-253 6 10 <sup>10</sup> Fm-254 3 10 <sup>11</sup> Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>10</sup> Fm-257 3 10 <sup>10</sup> Fm-257 10 <sup>10</sup> Fm-257 10 <sup>10</sup> Fm-278 10 <sup>10</sup> Fm-279 10 <sup>10</sup> Fm-279 10 <sup>10</sup> Fm-270 10 <sup>10</sup> Fm-270 10 <sup>10</sup> Fm-270 10 <sup>10</sup> Fm-270 10 <sup>10</sup> Fm-271 10 <sup>10</sup> Fm-272 10 <sup>10</sup> Fm-272 10 <sup>10</sup> Fm-273 10 <sup>10</sup> Fm-274 10 <sup>10</sup> Fm-275 10 <sup>10</sup> Fm-276 10 <sup>10</sup> Fm-277 10 <sup>10</sup> Fm-278 10 <sup>10</sup> Fm-279 10 <sup>10</sup> Fm-279 10 <sup>10</sup> Fm-270 10 <sup>10</sup> F | Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|--|---------------------------|-----------------------|--------------------|
| Eu-150 (short lived isotope) 2 10 <sup>12</sup> Eu-152   | Eu-149                    |                       | 8 10 <sup>12</sup> |
| Eu-152 Eu-152m Eu-154 Eu-155 Eu-156 Eu-156 Eu-157 Eu-158 Eu-158 Eu-158 Fermium Fm-252 Fm-253 Fm-254 Fm-255 Fm-255 Fm-257 Fm-257 Fm-257 Fracium Fr-222 Fr-223 Gadolinium Gd-145 Gd-146 Gd-147 Gd-152 Gd-152 Gd-152 Gd-152 Eu-158  1 10 <sup>11</sup> Eu-152 Eu-158 1 10 <sup>12</sup> Eu-158 Eu-158 1 10 <sup>12</sup> Fm-255 Fm-251 Fm-255 Fm-257 Fm   | Eu-150                    | (long lived isotope)  | 1 10 <sup>11</sup> |
| Eu-152m Eu-154 Eu-155 Eu-156 Eu-157 Eu-157 Eu-158 Permium Fm-252 Fr-253 Fm-254 Fm-255 Fm-255 Fm-257 Fm-257 Fuorine Fr-18 Fr-28 Francium Fr-29 Fr-29 Francium Fr-20 Fr-20 Francium Fr-20 Fr-20 Gadolinium Gd-145 Gd-146 Gd-147 Gd-148 Gd-149 Gd-151 Gd-152 Fr 1012 Francium Gd-152 Francium Fr-20 Francium Fr-20 Fr   | Eu-150                    | (short lived isotope) | $2\ 10^{12}$       |
| Eu-154 Eu-155 Eu-156 Eu-157 Eu-158 Eu-158 Fermium Fm-252 Fm-253 Fm-254 Fm-255 Fm-255 Fm-257 Fuorine F-18 F-222 Francium Fr-222 Fr-223 Gadolinium Gd-145 Gd-146 Gd-147 Gd-148 Gd-149 Gd-152 Gd-152 Fuoil2 Eu-158 2 10 <sup>12</sup> Eu-158 F1 10 <sup>11</sup> Fm-257   | Eu-152                    |                       | 1 10 <sup>11</sup> |
| Eu-155 Eu-156 Eu-157 Eu-158 1 1 10 <sup>12</sup> Eu-158 Fermium Fm-252 Fm-253 Fm-254 Fm-255 Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 1 10 <sup>12</sup> Fr-223 Gadolinium Gd-145 Gd-146 Gd-146 Gd-147 Gd-148 Gd-149 Gd-151 Gd-152 I 10 <sup>9</sup>   | Eu-152m                   |                       | 2 10 <sup>12</sup> |
| Eu-156 Eu-157 Eu-158 Eu-158 I 10 <sup>12</sup> Eu-158 Fermium Fm-252 Fm-253 Fm-253 Fm-254 3 10 <sup>11</sup> Fm-255 Fm-255 9 10 <sup>10</sup> Fm-257 Fuorine F-18 2 10 <sup>12</sup> Francium Fr-222 I 10 <sup>12</sup> Fr-223 Gadolinium Gd-145 Gd-146 Gd-147 Gd-148 Gd-149 Gd-151 Gd-152 I 10 <sup>12</sup> Gd-152 Gd-151 Gd-152 I 10 <sup>12</sup> Gd-152 Gd-164 Gd-152 Gd-152 I 10 <sup>12</sup> Gd-164 Gd-151 Gd-152 I 10 <sup>12</sup> Gd-152 Gd-151 Gd-152 I 10 <sup>12</sup> Gd-152  | Eu-154                    |                       | 1 10 <sup>11</sup> |
| Eu-157 Eu-158 1 10 <sup>12</sup> Fermium Fm-252 Fm-253 6 10 <sup>10</sup> Fm-254 7 10 <sup>10</sup> Fm-255 Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 10 <sup>12</sup> Fr-223 2 10 <sup>12</sup> Gd-145 Gd-146 6 10 <sup>10</sup> Gd-147 Gd-148 Gd-149 Gd-151 Gd-152 1 10 <sup>9</sup>  | Eu-155                    |                       | 2 1012             |
| Eu-158   | Eu-156                    |                       | $2\ 10^{12}$       |
| Fermium Fm-252 7 10 <sup>10</sup> Fm-253 6 10 <sup>10</sup> Fm-254 3 10 <sup>11</sup> Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 110 <sup>12</sup> Fr-223 2 10 <sup>12</sup> Gd-145 2 10 <sup>12</sup> Gd-146 2 10 <sup>12</sup> Gd-148 9 10 <sup>8</sup> Gd-149 6 10 <sup>12</sup> Gd-152 1 10 <sup>9</sup>  | Eu-157                    |                       | 2 10 <sup>12</sup> |
| Fm-252       7 10 <sup>10</sup> Fm-253       6 10 <sup>10</sup> Fm-254       3 10 <sup>11</sup> Fm-255       9 10 <sup>10</sup> Fm-257       3 10 <sup>9</sup> Fluorine         F-18       2 10 <sup>12</sup> Francium         Fr-222       1 10 <sup>12</sup> Fr-223       2 10 <sup>12</sup> Gadolinium       2 10 <sup>12</sup> Gd-145       2 10 <sup>12</sup> Gd-146       2 10 <sup>12</sup> Gd-147       5 10 <sup>12</sup> Gd-148       9 10 <sup>8</sup> Gd-149       6 10 <sup>12</sup> Gd-151       5 10 <sup>12</sup> Gd-152       1 10 <sup>9</sup>   | Eu-158                    |                       | 1 10 <sup>12</sup> |
| Fm-253 6 10 <sup>10</sup> Fm-254 3 10 <sup>11</sup> Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 110 <sup>12</sup> Fr-223 2 10 <sup>12</sup> Gd-145 2 10 <sup>12</sup> Gd-146 2 10 <sup>12</sup> Gd-147 5 10 <sup>12</sup> Gd-148 9 10 <sup>8</sup> Gd-149 6 10 <sup>12</sup> Gd-151 5 10 <sup>12</sup> Gd-152 1 10 <sup>9</sup>  | Fermium                   |                       |                    |
| Fm-254 3 10 <sup>11</sup> Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 10 <sup>12</sup> Fr-223 2 10 <sup>12</sup> Gd-145 2 10 <sup>12</sup> Gd-146 2 10 <sup>12</sup> Gd-147 5 10 <sup>12</sup> Gd-148 9 10 <sup>8</sup> Gd-149 6 10 <sup>12</sup> Gd-151 5 10 <sup>12</sup> Gd-152 1 10 <sup>9</sup>   | Fm-252                    |                       | $7\ 10^{10}$       |
| Fm-255 9 10 <sup>10</sup> Fm-257 3 10 <sup>9</sup> Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 10 <sup>12</sup> Fr-223 2 10 <sup>12</sup> Gadolinium Gd-145 2 10 <sup>12</sup> Gd-146 2 10 <sup>12</sup> Gd-147 5 10 <sup>12</sup> Gd-148 9 10 <sup>8</sup> Gd-149 6 10 <sup>12</sup> Gd-151 5 10 <sup>12</sup> Gd-152 1 10 <sup>9</sup>  | Fm-253                    |                       | $6\ 10^{10}$       |
| Fm-257 3 10°  Fluorine F-18 2 10¹²  Francium Fr-222 1 1 10¹² Fr-223 2 10¹²  Gadolinium Gd-145 2 10¹² Gd-146 2 10¹² Gd-147 5 10¹² Gd-148 9 10 <sup>8</sup> Gd-149 6 10¹² Gd-151 5 10¹² Gd-152 1 10°   | Fm-254                    |                       | 3 10 <sup>11</sup> |
| Fluorine F-18 2 10 <sup>12</sup> Francium Fr-222 1 1 10 <sup>12</sup> Fr-223 2 2 10 <sup>12</sup> Gadolinium Gd-145 2 10 <sup>12</sup> Gd-146 2 10 <sup>12</sup> Gd-147 5 10 <sup>12</sup> Gd-148 9 10 <sup>8</sup> Gd-149 6 10 <sup>12</sup> Gd-151 5 10 <sup>12</sup> Gd-152 1 10 <sup>9</sup>   | Fm-255                    |                       | $9\ 10^{10}$       |
| F-18 $2 \cdot 10^{12}$ FranciumFr-222 $1 \cdot 10^{12}$ GadoliniumGd-145 $2 \cdot 10^{12}$ Gd-146 $2 \cdot 10^{12}$ Gd-147 $5 \cdot 10^{12}$ Gd-148 $9 \cdot 10^{8}$ Gd-149 $6 \cdot 10^{12}$ Gd-151 $5 \cdot 10^{12}$ Gd-152 $1 \cdot 10^{9}$   | Fm-257                    |                       | 3 10 <sup>9</sup>  |
| Francium Fr-222 Fr-223 Gadolinium Gd-145 Gd-146 Gd-147 Gd-148 Gd-149 Gd-151 Gd-152 Francium  1 10 <sup>12</sup> 1 20 <sup>12</sup> 2 10 <sup>12</sup> 5 10 <sup>12</sup> 6 10 <sup>12</sup>   |                           |                       |                    |
| Fr-222 $1\ 10^{12}$ Fr-223 $2\ 10^{12}$ Gadolinium $2\ 10^{12}$ Gd-145 $2\ 10^{12}$ Gd-146 $2\ 10^{12}$ Gd-147 $5\ 10^{12}$ Gd-148 $9\ 10^8$ Gd-149 $6\ 10^{12}$ Gd-151 $5\ 10^{12}$ Gd-152 $1\ 10^9$  |                           |                       | $2\ 10^{12}$       |
| Fr-223  Gadolinium  Gd-145  Gd-146  Gd-147  Gd-148  Gd-149  Gd-151  Gd-152  Gd-152  2 10 <sup>12</sup> 2 10 <sup>12</sup> 2 10 <sup>12</sup> 5 10 <sup>12</sup> 6 10 <sup>12</sup> 5 10 <sup>12</sup> 5 10 <sup>12</sup> 1 10 <sup>9</sup>   |                           |                       |                    |
| Gadolinium $Gd-145$ $2 \cdot 10^{12}$ $Gd-146$ $2 \cdot 10^{12}$ $Gd-147$ $5 \cdot 10^{12}$ $Gd-148$ $9 \cdot 10^8$ $Gd-149$ $6 \cdot 10^{12}$ $Gd-151$ $5 \cdot 10^{12}$ $Gd-152$ $1 \cdot 10^9$  |                           |                       |                    |
| $Gd-145$ $2 	ext{ } 10^{12}$ $Gd-146$ $2 	ext{ } 10^{12}$ $Gd-147$ $5 	ext{ } 10^{12}$ $Gd-148$ $9 	ext{ } 10^8$ $Gd-149$ $6 	ext{ } 10^{12}$ $Gd-151$ $5 	ext{ } 10^{12}$ $Gd-152$ $1 	ext{ } 10^9$   |                           |                       | $2 \cdot 10^{12}$  |
| Gd-146 $2 \cdot 10^{12}$ Gd-147 $5 \cdot 10^{12}$ Gd-148 $9 \cdot 10^{8}$ Gd-149 $6 \cdot 10^{12}$ Gd-151 $5 \cdot 10^{12}$ Gd-152 $1 \cdot 10^{9}$  |                           |                       | $2.10^{12}$        |
| Gd-147 $5 	ext{ } 10^{12}$ Gd-148 $9 	ext{ } 10^{8}$ Gd-149 $6 	ext{ } 10^{12}$ Gd-151 $5 	ext{ } 10^{12}$ Gd-152 $1 	ext{ } 10^{9}$   |                           |                       |                    |
| Gd-148 $910^8$ Gd-149 $610^{12}$ Gd-151 $510^{12}$ Gd-152 $110^9$  |                           |                       |                    |
| Gd-149 $6 	ext{ } 10^{12}$ Gd-151 $5 	ext{ } 10^{12}$ Gd-152 $1 	ext{ } 10^9$  |                           |                       |                    |
| Gd-151 $5 \cdot 10^{12}$ Gd-152 $1 \cdot 10^9$   |                           |                       |                    |
| Gd-152 1 10 <sup>9</sup>   |                           |                       |                    |
| 110  |                           |                       |                    |
| VM 13.7  | Gd-153                    |                       | $2 \cdot 10^{12}$  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Gd-159                    |                   | $2\ 10^{12}$       |  |
| Gallium                   |                   |                    |  |
| Ga-65                     |                   | 1 10 <sup>12</sup> |  |
| Ga-66                     |                   | 9 10 <sup>11</sup> |  |
| Ga-67                     |                   | 5 10 <sup>12</sup> |  |
| Ga-68                     |                   | $2\ 10^{12}$       |  |
| Ga-70                     |                   | 1 10 <sup>12</sup> |  |
| Ga-72                     |                   | 2 10 <sup>12</sup> |  |
| Ga-73                     |                   | 2 10 <sup>12</sup> |  |
| Germanium                 |                   |                    |  |
| Ge-66                     |                   | 3 10 <sup>12</sup> |  |
| Ge-67                     |                   | $7\ 10^{11}$       |  |
| Ge-68                     |                   | 1 10 <sup>12</sup> |  |
| Ge-69                     |                   | 2 10 <sup>12</sup> |  |
| Ge-71                     |                   | $7\ 10^{14}$       |  |
| Ge-75                     |                   | 2 10 <sup>12</sup> |  |
| Ge-77                     |                   | 1 10 <sup>12</sup> |  |
| Ge-78                     |                   | 2 10 <sup>12</sup> |  |
| Gold                      |                   |                    |  |
| Au-193                    |                   | $7 \ 10^{12}$      |  |
| Au-194                    |                   | $1\ 10^{13}$       |  |
| Au-195                    |                   | $3\ 10^{12}$       |  |
| Au-198                    |                   | $2\ 10^{12}$       |  |
| Au-198m                   |                   | $2\ 10^{12}$       |  |
| Au-199                    |                   | 3 10 <sup>12</sup> |  |
| Au-200                    |                   | 1 10 <sup>12</sup> |  |
| Au-200m                   |                   | 2 10 <sup>12</sup> |  |
| Au-201                    |                   | $2\ 10^{12}$       |  |
| Hafnium                   |                   |                    |  |
| Hf-170                    |                   | 4 10 <sup>12</sup> |  |

| Radionuclide name, symbol | Radionuclide form           | Quantity (Bq)      |
|---------------------------|-----------------------------|--------------------|
| Hf-172                    |                             | 5 10 <sup>11</sup> |
| Hf-173                    |                             | 6 10 <sup>12</sup> |
| Hf-175                    |                             | 2 10 <sup>12</sup> |
| Hf-177m                   |                             | $2\ 10^{12}$       |
| Hf-178m                   |                             | 4 10 <sup>10</sup> |
| Hf-179m                   |                             | $2\ 10^{12}$       |
| Hf-180m                   |                             | $2\ 10^{12}$       |
| Hf-181                    |                             | 1 10 <sup>12</sup> |
| Hf-182                    |                             | 7 10 <sup>10</sup> |
| Hf-182m                   |                             | $2\ 10^{12}$       |
| Hf-183                    |                             | $2\ 10^{12}$       |
| Hf-184                    |                             | 2 10 <sup>12</sup> |
| Holmium                   |                             |                    |
| Ho-155                    |                             | $2\ 10^{12}$       |
| Ho-157                    |                             | 4 10 <sup>12</sup> |
| Но-159                    |                             | 6 10 <sup>12</sup> |
| Ho-161                    |                             | 1 10 <sup>13</sup> |
| Ho-162                    |                             | 5 10 <sup>12</sup> |
| Ho-162m                   |                             | 4 10 <sup>12</sup> |
| Но-164                    |                             | $2\ 10^{12}$       |
| Ho-164m                   |                             | 4 10 <sup>12</sup> |
| Но-166                    |                             | 1 10 <sup>12</sup> |
| Ho-166m                   |                             | $8\ 10^{10}$       |
| Ho-167                    |                             | $2\ 10^{12}$       |
| Hydrogen                  | 6. *** . <b>1</b>           | 12                 |
| H-3                       | (tritiated water)           | $7 \cdot 10^{13}$  |
| H-3                       | (organically bound tritium) | 1 10 <sup>14</sup> |
| H-3                       | (tritiated water vapour)    | 1 10 <sup>15</sup> |
| H-3                       | (gas)                       | $1\ 10^{18}$       |
| H-3                       | (tritiated methane gas)     | 1 10 <sup>17</sup> |

| Radionuclide name, symbol | Radionuclide form                      | Quantity (Bq)      |
|---------------------------|--|--------------------|
| H-3                       | (organically bound tritium gas/vapour) | 6 10 <sup>14</sup> |
| Indium                    |  |                    |
| In-109                    |  | 7 10 <sup>12</sup> |
| In-110                    | (long lived isotope)                   | 2 10 <sup>13</sup> |
| In-110                    | (short lived isotope)                  | 1 10 <sup>12</sup> |
| In-111                    |  | 9 10 <sup>12</sup> |
| In-112                    |  | 2 10 <sup>12</sup> |
| In-113m                   |  | 5 10 <sup>12</sup> |
| In-114                    |  | 1 10 <sup>12</sup> |
| In-114m                   |  | 9 10 <sup>11</sup> |
| In-115                    |  | $6\ 10^{10}$       |
| In-115m                   |  | 3 10 <sup>12</sup> |
| In-116m                   |  | 2 10 <sup>12</sup> |
| In-117                    |  | $2\ 10^{12}$       |
| In-117m                   |  | 2 10 <sup>12</sup> |
| In-119m                   |  | 9 10 <sup>11</sup> |
| Iodine                    |  |                    |
| I-120                     |  | 6 10 <sup>11</sup> |
| I-120                     | (elemental vapour)                     | 2 10 <sup>13</sup> |
| I-120                     | (methyl iodide vapour)                 | 2 10 <sup>13</sup> |
| I-120m                    |  | 7 10 <sup>11</sup> |
| I-120m                    | (elemental vapour)                     | 2 10 <sup>13</sup> |
| I-120m                    | (methyl iodide vapour)                 | 2 10 <sup>13</sup> |
| I-121                     |  | 4 10 <sup>12</sup> |
| I-121                     | (elemental vapour)                     | 1 10 <sup>14</sup> |
| I-121                     | (methyl iodide vapour)                 | 1 10 <sup>14</sup> |
| I-123                     |  | 9 10 <sup>12</sup> |
| I-123                     | (elemental vapour)                     | 5 10 <sup>13</sup> |
| I-123                     | (methyl iodide vapour)                 | $6\ 10^{13}$       |

| Radionuclide name, symbol | Radionuclide form      | Quantity (Bq)      |
|---------------------------|------------------------|--------------------|
| I-124                     |                        | 2 10 <sup>12</sup> |
| I-124                     | (elemental vapour)     | 9 10 <sup>11</sup> |
| I-124                     | (methyl iodide vapour) | 1 10 <sup>12</sup> |
| I-125                     |                        | 1 10 <sup>11</sup> |
| I-125                     | (elemental vapour)     | 1 10 <sup>12</sup> |
| I-125                     | (methyl iodide vapour) | 1 10 <sup>12</sup> |
| I-126                     |                        | 8 10 <sup>11</sup> |
| I-126                     | (elemental vapour)     | 5 10 <sup>11</sup> |
| I-126                     | (methyl iodide vapour) | 6 10 <sup>11</sup> |
| I-128                     |                        | 1 10 <sup>12</sup> |
| I-128                     | (elemental vapour)     | $2\ 10^{14}$       |
| I-128                     | (methyl iodide vapour) | 5 10 <sup>14</sup> |
| I-129                     |                        | $1\ 10^{10}$       |
| I-129                     | (elemental vapour)     | $2\ 10^{11}$       |
| I-129                     | (methyl iodide vapour) | 2 10 <sup>11</sup> |
| I-130                     |                        | $3\ 10^{12}$       |
| I-130                     | (elemental vapour)     | 5 10 <sup>12</sup> |
| I-130                     | (methyl iodide vapour) | $6\ 10^{12}$       |
| I-131                     |                        | $9\ 10^{10}$       |
| I-131                     | (elemental vapour)     | $6\ 10^{11}$       |
| I-131                     | (methyl iodide vapour) | $7\ 10^{11}$       |
| I-132                     |                        | $2\ 10^{12}$       |
| I-132                     | (elemental vapour)     | $2\ 10^{13}$       |
| I-132                     | (methyl iodide vapour) | $3\ 10^{13}$       |
| I-132m                    |                        | $2\ 10^{12}$       |
| I-132m                    | (elemental vapour)     | 4 10 <sup>13</sup> |
| I-132m                    | (methyl iodide vapour) | $5\ 10^{13}$       |
| I-133                     |                        | 2 10 <sup>12</sup> |
| I-133                     | (elemental vapour)     | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form      | Quantity (Bq)      |
|---------------------------|------------------------|--------------------|
| I-133                     | (methyl iodide vapour) | 3 10 <sup>12</sup> |
| I-134                     |                        | $2\ 10^{12}$       |
| I-134                     | (elemental vapour)     | $3\ 10^{13}$       |
| I-134                     | (methyl iodide vapour) | 4 10 <sup>13</sup> |
| I-135                     |                        | $2\ 10^{12}$       |
| I-135                     | (elemental vapour)     | 9 10 <sup>12</sup> |
| I-135                     | (methyl iodide vapour) | 1 10 <sup>13</sup> |
| Iridium                   |                        |                    |
| Ir-182                    |                        | $1\ 10^{12}$       |
| Ir-184                    |                        | $2\ 10^{12}$       |
| Ir-185                    |                        | 3 10 <sup>12</sup> |
| Ir-186                    | (long lived isotope)   | 3 10 <sup>12</sup> |
| Ir-186                    | (short lived isotope)  | $2\ 10^{12}$       |
| Ir-187                    |                        | $6\ 10^{12}$       |
| Ir-188                    |                        | 5 10 <sup>12</sup> |
| Ir-189                    |                        | 9 10 <sup>12</sup> |
| Ir-190                    |                        | $2\ 10^{12}$       |
| Ir-190m                   | (long lived isotope)   | 3 10 <sup>12</sup> |
| Ir-190m                   | (short lived isotope)  | 1 10 <sup>13</sup> |
| Ir-192                    |                        | 6 1011             |
| Ir-192m                   |                        | 4 10 <sup>11</sup> |
| Ir-193m                   |                        | 4 10 <sup>12</sup> |
| Ir-194                    |                        | 1 10 <sup>12</sup> |
| Ir-194m                   |                        | 1 10 <sup>11</sup> |
| Ir-195                    |                        | 2 10 <sup>12</sup> |
| Ir-195m                   |                        | 2 10 <sup>12</sup> |
| Iron                      |                        |                    |
| Fe-52                     |                        | $2\ 10^{12}$       |
| Fe-55                     |                        | 8 10 <sup>12</sup> |
| Fe-59                     |                        | 8 10 <sup>11</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Fe-60                     |                   | $4\ 10^{10}$       |
| Krypton                   |                   |                    |
| Kr-74                     | (gas)             | $5\ 10^{13}$       |
| Kr-76                     | (gas)             | $1\ 10^{14}$       |
| Kr-77                     | (gas)             | $6\ 10^{13}$       |
| Kr-79                     | (gas)             | $2\ 10^{14}$       |
| Kr-81                     | (gas)             | $7\ 10^{15}$       |
| Kr-81m                    | (gas)             | 5 10 <sup>14</sup> |
| Kr-83m                    | (gas)             | $3\ 10^{16}$       |
| Kr-85                     | (gas)             | $1\ 10^{16}$       |
| Kr-85m                    | (gas)             | $4\ 10^{14}$       |
| Kr-87                     | (gas)             | $7\ 10^{13}$       |
| Kr-88                     | (gas)             | 3 10 <sup>13</sup> |
| Lanthanum                 |                   |                    |
| La-131                    |                   | $2\ 10^{12}$       |
| La-132                    |                   | $2\ 10^{12}$       |
| La-135                    |                   | $2\ 10^{14}$       |
| La-137                    |                   | $2\ 10^{12}$       |
| La-138                    |                   | 2 10 <sup>11</sup> |
| La-140                    |                   | $2\ 10^{12}$       |
| La-141                    |                   | 1 10 <sup>12</sup> |
| La-142                    |                   | 1 10 <sup>12</sup> |
| La-143                    |                   | $7\ 10^{11}$       |
| Lead                      |                   |                    |
| Pb-195m                   |                   | $2\ 10^{12}$       |
| Pb-198                    |                   | 4 10 <sup>12</sup> |
| Pb-199                    |                   | $6\ 10^{12}$       |
| Pb-200                    |                   | 3 10 <sup>12</sup> |
| Pb-201                    |                   | 8 10 <sup>12</sup> |
| Pb-202                    |                   | 6 10 <sup>11</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Pb-202m                   |                   | 4 10 <sup>12</sup> |  |
| Pb-203                    |                   | 9 10 <sup>12</sup> |  |
| Pb-205                    |                   | $1\ 10^{13}$       |  |
| Pb-209                    |                   | $2\ 10^{12}$       |  |
| Pb-210                    |                   | 3 10 <sup>9</sup>  |  |
| Pb-211                    |                   | $2\ 10^{12}$       |  |
| Pb-212                    |                   | 1 10 <sup>11</sup> |  |
| Pb-214                    |                   | 1 10 <sup>12</sup> |  |
| Lutetium                  |                   |                    |  |
| Lu-169                    |                   | $6\ 10^{12}$       |  |
| Lu-170                    |                   | 3 10 <sup>12</sup> |  |
| Lu-171                    |                   | 4 10 <sup>12</sup> |  |
| Lu-172                    |                   | $3\ 10^{12}$       |  |
| Lu-173                    |                   | $2\ 10^{12}$       |  |
| Lu-174                    |                   | 1 10 <sup>12</sup> |  |
| Lu-174m                   |                   | 3 10 <sup>12</sup> |  |
| Lu-176                    |                   | 3 10 <sup>11</sup> |  |
| Lu-176m                   |                   | $2\ 10^{12}$       |  |
| Lu-177                    |                   | $3\ 10^{12}$       |  |
| Lu-177m                   |                   | 3 10 <sup>11</sup> |  |
| Lu-178                    |                   | $1\ 10^{12}$       |  |
| Lu-178m                   |                   | 1 10 <sup>12</sup> |  |
| Lu-179                    |                   | 2 10 <sup>12</sup> |  |
| Magnesium                 |                   |                    |  |
| Mg-28                     |                   | 5 10 <sup>12</sup> |  |
| Manganese<br>Mn-51        |                   | 1.1012             |  |
| Mn-52                     |                   | $1\ 10^{12}$       |  |
|                           |                   | 2 10 <sup>12</sup> |  |
| Mn-52m                    |                   | 8 10 <sup>11</sup> |  |
| Mn-53                     |                   | 1 10 <sup>14</sup> |  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Mn-54                     |                   | 3 10 <sup>11</sup> |
| Mn-56                     |                   | 1 10 <sup>12</sup> |
| Mendelevium               |                   | 11                 |
| Md-257                    |                   | 9 10 <sup>11</sup> |
| Md-258                    |                   | 4 109              |
| Mercury<br>Hg-193         | (organic)         | 3 10 <sup>12</sup> |
| Hg-193                    | (inorganic)       | 3 10 <sup>12</sup> |
| Hg-193                    | (vapour)          | 2 10 <sup>13</sup> |
| Hg-193m                   | (organic)         | 2 10 <sup>12</sup> |
| Hg-193m                   | (inorganic)       | 2 10 <sup>12</sup> |
| Hg-193m                   | (vapour)          | 6 10 <sup>12</sup> |
| Hg-194                    | (organic)         | 3 10 <sup>11</sup> |
| Hg-194                    | (inorganic)       | 1 10 <sup>12</sup> |
| Hg-194                    | (vapour)          | 6 10 <sup>11</sup> |
| Hg-195                    | (organic)         | 5 10 <sup>12</sup> |
| Hg-195                    | (inorganic)       | 5 10 <sup>12</sup> |
| Hg-195                    | (vapour)          | 1 10 <sup>13</sup> |
| Hg-195m                   | (organic)         | 3 10 <sup>12</sup> |
| Hg-195m                   | (inorganic)       | 3 10 <sup>12</sup> |
| Hg-195m                   | (vapour)          | 3 10 <sup>12</sup> |
| Hg-197                    | (organic)         | 7 10 <sup>12</sup> |
| Hg-197                    | (inorganic)       | 7 10 <sup>12</sup> |
| Hg-197                    | (vapour)          | 5 10 <sup>12</sup> |
| Hg-197m                   | (organic)         | 2 10 <sup>12</sup> |
| Hg-197m                   | (inorganic)       | 2 10 <sup>12</sup> |
| Hg-197m                   | (vapour)          | 4 10 <sup>12</sup> |
| Hg-199m                   | (organic)         | 2 10 <sup>12</sup> |
| Hg-199m                   | (inorganic)       | 2 10 <sup>12</sup> |
| Hg-199m                   | (vapour)          | 1 10 <sup>14</sup> |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Hg-203                    | (organic)             | 3 10 <sup>12</sup> |
| Hg-203                    | (inorganic)           | 3 10 <sup>12</sup> |
| Hg-203                    | (vapour)              | $3\ 10^{12}$       |
| Molybdenum                |                       |                    |
| Mo-90                     |                       | $2\ 10^{12}$       |
| Mo-93                     |                       | $2\ 10^{12}$       |
| Mo-93m                    |                       | 4 10 <sup>12</sup> |
| Mo-99                     |                       | $2\ 10^{12}$       |
| Mo-101                    |                       | $2\ 10^{12}$       |
| Neodymium                 |                       | 12                 |
| Nd-136                    |                       | 4 10 <sup>12</sup> |
| Nd-138                    |                       | 5 10 <sup>13</sup> |
| Nd-139                    |                       | $2\ 10^{12}$       |
| Nd-139m                   |                       | $3\ 10^{12}$       |
| Nd-141                    |                       | $2\ 10^{13}$       |
| Nd-147                    |                       | $2\ 10^{12}$       |
| Nd-149                    |                       | $2\ 10^{12}$       |
| Nd-151                    |                       | 1 10 <sup>12</sup> |
| Neon<br>Ne-19             | (gas)                 | 6 10 <sup>13</sup> |
| Neptunium<br>Np-232       |                       | 3 10 <sup>12</sup> |
| Np-233                    |                       | $2\ 10^{14}$       |
| Np-234                    |                       | 5 10 <sup>12</sup> |
| Np-235                    |                       | 2 10 <sup>13</sup> |
| Np-236                    | (long lived isotope)  | 3 10 <sup>9</sup>  |
| Np-236                    | (short lived isotope) | $3\ 10^{12}$       |
| Np-237                    |                       | 5 10 <sup>8</sup>  |
| Np-238                    |                       | 2 10 <sup>12</sup> |
| Np-239                    |                       | 1 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Np-240                    |                       | 7 10 <sup>11</sup> |
| Nickel                    |                       |                    |
| Ni-56                     |                       | $4\ 10^{12}$       |
| Ni-56                     | (carbonyl vapour)     | $1\ 10^{13}$       |
| Ni-57                     |                       | $2\ 10^{12}$       |
| Ni-57                     | (carbonyl vapour)     | $2\ 10^{13}$       |
| Ni-59                     |                       | $4\ 10^{13}$       |
| Ni-59                     | (carbonyl vapour)     | $2\ 10^{13}$       |
| Ni-63                     |                       | 1 10 <sup>13</sup> |
| Ni-63                     | (carbonyl vapour)     | 1 10 <sup>13</sup> |
| Ni-65                     |                       | 1 10 <sup>12</sup> |
| Ni-65                     | (carbonyl vapour)     | 4 10 <sup>13</sup> |
| Ni-66                     |                       | 5 10 <sup>12</sup> |
| Ni-66                     | (carbonyl vapour)     | 1 10 <sup>13</sup> |
| Niobium                   |                       |                    |
| Nb-88                     |                       | $7\ 10^{11}$       |
| Nb-89                     | (long lived isotope)  | 1 10 <sup>12</sup> |
| Nb-89                     | (short lived isotope) | 8 10 <sup>11</sup> |
| Nb-90                     |                       | $2\ 10^{12}$       |
| Nb-93m                    |                       | $1\ 10^{13}$       |
| Nb-94                     |                       | 1 10 <sup>11</sup> |
| Nb-95                     |                       | 2 10 <sup>12</sup> |
| Nb-95m                    |                       | 2 10 <sup>12</sup> |
| Nb-96                     |                       | 2 10 <sup>12</sup> |
| Nb-97                     |                       | 2 10 <sup>12</sup> |
| Nb-98                     |                       | 1 10 <sup>12</sup> |
| Nitrogen                  |                       |                    |
| N-13                      | (gas)                 | $6\ 10^{13}$       |
| Osmium<br>Os-180          |                       | 1 10 <sup>13</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Os-181                    |                   | 3 10 <sup>12</sup> |  |
| Os-182                    |                   | 6 10 <sup>12</sup> |  |
| Os-185                    |                   | $7\ 10^{11}$       |  |
| Os-189m                   |                   | 1 10 <sup>13</sup> |  |
| Os-191                    |                   | 4 10 <sup>12</sup> |  |
| Os-191m                   |                   | 7 10 <sup>12</sup> |  |
| Os-193                    |                   | 2 10 <sup>12</sup> |  |
| Os-194                    |                   | $2\ 10^{11}$       |  |
| Palladium                 |                   |                    |  |
| Pd-100                    |                   | 7 10 <sup>12</sup> |  |
| Pd-101                    |                   | 8 10 <sup>12</sup> |  |
| Pd-103                    |                   | 4 10 <sup>13</sup> |  |
| Pd-107                    |                   | $3\ 10^{13}$       |  |
| Pd-109                    |                   | $2\ 10^{12}$       |  |
| Phosphorus                |                   |                    |  |
| P-32                      |                   | 1 10 <sup>11</sup> |  |
| P-33                      |                   | 3 10 <sup>12</sup> |  |
| Platinum                  |                   |                    |  |
| Pt-186                    |                   | 9 10 <sup>13</sup> |  |
| Pt-188                    |                   | 6 10 <sup>12</sup> |  |
| Pt-189                    |                   | 6 10 <sup>12</sup> |  |
| Pt-191                    |                   | 7 10 <sup>12</sup> |  |
| Pt-193                    |                   | 1 10 <sup>14</sup> |  |
| Pt-193m                   |                   | $3\ 10^{12}$       |  |
| Pt-195m                   |                   | 3 10 <sup>12</sup> |  |
| Pt-197                    |                   | 2 10 <sup>12</sup> |  |
| Pt-197m                   |                   | $2\ 10^{12}$       |  |
| Pt-199                    |                   | 2 10 <sup>12</sup> |  |
| Pt-200                    |                   | 2 10 <sup>12</sup> |  |
| Plutonium                 |                   |                    |  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Pu-234                    |                   | 1 10 <sup>12</sup> |  |
| Pu-235                    |                   | $2\ 10^{13}$       |  |
| Pu-236                    |                   | 6 10 <sup>8</sup>  |  |
| Pu-237                    |                   | 1 10 <sup>13</sup> |  |
| Pu-238                    |                   | $2 \ 10^8$         |  |
| Pu-239                    |                   | $2 \ 10^8$         |  |
| Pu-240                    |                   | $2 \ 10^8$         |  |
| Pu-241                    |                   | 1 10 <sup>10</sup> |  |
| Pu-242                    |                   | $2 \ 10^8$         |  |
| Pu-243                    |                   | $2\ 10^{12}$       |  |
| Pu-244                    |                   | $2 \ 10^8$         |  |
| Pu-245                    |                   | $2\ 10^{12}$       |  |
| Pu-246                    |                   | $2\ 10^{12}$       |  |
| Polonium                  |                   |                    |  |
| Po-203                    |                   | 3 10 <sup>12</sup> |  |
| Po-205                    |                   | 7 10 <sup>12</sup> |  |
| Po-206                    |                   | 1 10 <sup>11</sup> |  |
| Po-207                    |                   | 8 10 <sup>12</sup> |  |
| Po-208                    |                   | 2 10 <sup>9</sup>  |  |
| Po-209                    |                   | 2 10 <sup>9</sup>  |  |
| Po-210                    |                   | 4 10 <sup>9</sup>  |  |
| Potassium<br>K-40         |                   | 2 1012             |  |
| K-42                      |                   | 2 10 <sup>12</sup> |  |
| K-43                      |                   | $7 \cdot 10^{11}$  |  |
|                           |                   | $2 \cdot 10^{12}$  |  |
| K-44                      |                   | 6 10 <sup>11</sup> |  |
| K-45<br>Praseodymium      |                   | 9 10 <sup>11</sup> |  |
| Pr-136                    |                   | 1 10 <sup>12</sup> |  |
| Pr-137                    |                   | $2 \cdot 10^{12}$  |  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Pr-138m                   |                   | 2 10 <sup>12</sup> |
| Pr-139                    |                   | $7\ 10^{12}$       |
| Pr-142                    |                   | 1 10 <sup>12</sup> |
| Pr-142m                   |                   | $2\ 10^{15}$       |
| Pr-143                    |                   | $2\ 10^{12}$       |
| Pr-144                    |                   | $2\ 10^{12}$       |
| Pr-145                    |                   | 1 10 <sup>12</sup> |
| Pr-147                    |                   | 1 10 <sup>12</sup> |
| Promethium                |                   |                    |
| Pm-141                    |                   | $1\ 10^{12}$       |
| Pm-143                    |                   | 9 10 <sup>11</sup> |
| Pm-144                    |                   | 2 10 <sup>11</sup> |
| Pm-145                    |                   | $3\ 10^{12}$       |
| Pm-146                    |                   | $2\ 10^{11}$       |
| Pm-147                    |                   | 4 10 <sup>12</sup> |
| Pm-148                    |                   | 1 10 <sup>12</sup> |
| Pm-148m                   |                   | 5 10 <sup>11</sup> |
| Pm-149                    |                   | 2 10 <sup>12</sup> |
| Pm-150                    |                   | 1 10 <sup>12</sup> |
| Pm-151                    |                   | $2\ 10^{12}$       |
| Protactinium              |                   |                    |
| Pa-227                    |                   | 3 10 <sup>11</sup> |
| Pa-228                    |                   | 3 10 <sup>11</sup> |
| Pa-230                    |                   | $3\ 10^{10}$       |
| Pa-231                    |                   | 2 108              |
| Pa-232                    |                   | 2 10 <sup>12</sup> |
| Pa-233                    |                   | 2 10 <sup>12</sup> |
| Pa-234                    |                   | 5 10 <sup>11</sup> |
| Radium                    |                   |                    |
| Ra-223                    |                   | 3 109              |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Ra-224                    |                       | 7 10 <sup>9</sup>  |
| Ra-225                    |                       | 3 10 <sup>9</sup>  |
| Ra-226                    |                       | 2 10 <sup>9</sup>  |
| Ra-227                    |                       | 2 10 <sup>12</sup> |
| Ra-228                    |                       | 1 109              |
| Rhenium                   |                       |                    |
| Re-177                    |                       | $2\ 10^{12}$       |
| Re-178                    |                       | $2\ 10^{12}$       |
| Re-181                    |                       | 3 10 <sup>12</sup> |
| Re-182                    | (long lived isotope)  | $2\ 10^{12}$       |
| Re-182                    | (short lived isotope) | 4 10 <sup>12</sup> |
| Re-184                    |                       | 1 10 <sup>12</sup> |
| Re-184m                   |                       | $7\ 10^{11}$       |
| Re-186                    |                       | 2 10 <sup>12</sup> |
| Re-186m                   |                       | 1 10 <sup>12</sup> |
| Re-187                    |                       | 5 10 <sup>14</sup> |
| Re-188                    |                       | 1 10 <sup>12</sup> |
| Re-188m                   |                       | 3 10 <sup>12</sup> |
| Re-189                    |                       | 2 10 <sup>12</sup> |
| Rhodium                   |                       |                    |
| Rh-99                     |                       | 4 10 <sup>12</sup> |
| Rh-99m                    |                       | 9 10 <sup>12</sup> |
| Rh-100                    |                       | 4 10 <sup>12</sup> |
| Rh-101                    |                       | $7\ 10^{11}$       |
| Rh-101m                   |                       | 2 10 <sup>13</sup> |
| Rh-102                    |                       | 1 10 <sup>11</sup> |
| Rh-102m                   |                       | 6 10 <sup>11</sup> |
| Rh-103m                   |                       | 3 10 <sup>15</sup> |
| Rh-105                    |                       | 2 10 <sup>12</sup> |
| Rh-106m                   |                       | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form  | Quantity (Bq)      |
|---------------------------|--------------------|--------------------|
| Rh-107                    |                    | 2 10 <sup>12</sup> |
| Rubidium                  |                    |                    |
| Rb-79                     |                    | $1\ 10^{12}$       |
| Rb-81                     |                    | $2\ 10^{12}$       |
| Rb-81m                    |                    | 4 10 <sup>12</sup> |
| Rb-82m                    |                    | $3\ 10^{12}$       |
| Rb-83                     |                    | 1 10 <sup>12</sup> |
| Rb-84                     |                    | 1 10 <sup>12</sup> |
| Rb-86                     |                    | $2\ 10^{11}$       |
| Rb-87                     |                    | 4 10 <sup>12</sup> |
| Rb-88                     |                    | 5 10 <sup>11</sup> |
| Rb-89                     |                    | 9 10 <sup>11</sup> |
| Ruthenium                 |                    |                    |
| Ru-94                     |                    | $1\ 10^{14}$       |
| Ru-94                     | (tetroxide vapour) | 1 10 <sup>14</sup> |
| Ru-97                     |                    | $3\ 10^{13}$       |
| Ru-97                     | (tetroxide vapour) | $1\ 10^{14}$       |
| Ru-103                    |                    | $2\ 10^{12}$       |
| Ru-103                    | (tetroxide vapour) | $1\ 10^{13}$       |
| Ru-105                    |                    | $2\ 10^{12}$       |
| Ru-105                    | (tetroxide vapour) | $6\ 10^{13}$       |
| Ru-106                    |                    | 3 10 <sup>11</sup> |
| Ru-106                    | (tetroxide vapour) | 8 10 <sup>11</sup> |
| Samarium                  |                    |                    |
| Sm-141                    |                    | 1 10 <sup>12</sup> |
| Sm-141m                   |                    | $2\ 10^{12}$       |
| Sm-142                    |                    | 9 10 <sup>12</sup> |
| m-145                     |                    | $3\ 10^{12}$       |
| Sm-146                    |                    | 2 10 <sup>9</sup>  |
| Sm-147                    |                    | 3 109              |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Sm-151                    |                   | 6 10 <sup>12</sup> |
| Sm-153                    |                   | $2\ 10^{12}$       |
| Sm-155                    |                   | 2 1012             |
| Sm-156                    |                   | 2 1012             |
| Scandium                  |                   |                    |
| Sc-43                     |                   | $2\ 10^{12}$       |
| Sc-44                     |                   | 2 10 <sup>12</sup> |
| Sc-44m                    |                   | 9 10 <sup>12</sup> |
| Sc-46                     |                   | 3 10 <sup>11</sup> |
| Sc-47                     |                   | 3 10 <sup>12</sup> |
| Sc-48                     |                   | 2 10 <sup>12</sup> |
| Sc-49                     |                   | 1 10 <sup>12</sup> |
| Selenium                  |                   |                    |
| Se-70                     |                   | $2\ 10^{12}$       |
| Se-73                     |                   | 2 10 <sup>12</sup> |
| Se-73m                    |                   | 2 10 <sup>12</sup> |
| Se-75                     |                   | $2  10^{11}$       |
| Se-79                     |                   | 5 10 <sup>10</sup> |
| Se-81                     |                   | $2\ 10^{12}$       |
| Se-81m                    |                   | 4 10 <sup>12</sup> |
| Se-83                     |                   | 2 1012             |
| Silicon                   |                   |                    |
| Si-31                     |                   | 2 10 <sup>12</sup> |
| Si-32                     |                   | 2 1011             |
| Silver                    |                   |                    |
| Ag-102                    |                   | 1 10 <sup>12</sup> |
| Ag-103                    |                   | 2 10 <sup>12</sup> |
| Ag-104                    |                   | 3 10 <sup>12</sup> |
| Ag-104m                   |                   | 2 10 <sup>12</sup> |
| Ag-105                    |                   | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form          | Quantity (Bq)      |
|---------------------------|----------------------------|--------------------|
| Ag-106                    |                            | 2 10 <sup>12</sup> |
| Ag-106m                   |                            | 2 10 <sup>12</sup> |
| Ag-108m                   |                            | $1\ 10^{11}$       |
| Ag-110m                   |                            | $3\ 10^{10}$       |
| Ag-111                    |                            | 2 10 <sup>12</sup> |
| Ag-112                    |                            | $7\ 10^{11}$       |
| Ag-115                    |                            | 9 10 <sup>11</sup> |
| Sodium                    |                            |                    |
| Na-22                     |                            | 1 10 <sup>11</sup> |
| Na-24                     |                            | 2 10 <sup>12</sup> |
| Strontium                 |                            |                    |
| Sr-80                     |                            | 1 10 <sup>14</sup> |
| Sr-81                     |                            | 9 10 <sup>11</sup> |
| Sr-82                     |                            | $2 \cdot 10^{12}$  |
| Sr-83                     |                            | 3 10 <sup>12</sup> |
| Sr-85                     |                            | 1 10 <sup>12</sup> |
| Sr-85m                    |                            | 3 10 <sup>13</sup> |
| Sr-87m                    |                            | $7\ 10^{12}$       |
| Sr-89                     |                            | 1 10 <sup>12</sup> |
| Sr-90                     |                            | $8\ 10^{10}$       |
| Sr-91                     |                            | 2 10 <sup>12</sup> |
| Sr-92                     |                            | 2 10 <sup>12</sup> |
| Sulphur                   | ('                         | 12                 |
| S-35                      | (inorganic)                | 1 10 <sup>12</sup> |
| S-35                      | (organic)                  | 2 10 <sup>11</sup> |
| S-35                      | (carbon disulphide vapour) | 2 10 <sup>13</sup> |
| S-35                      | (vapour)                   | $2\ 10^{14}$       |
| S-35                      | (dioxide gas)              | 1 10 <sup>14</sup> |
| Tantalum Ta-172           |                            | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form    | Quantity (Bq)      |
|---------------------------|----------------------|--------------------|
| Ta-173                    |                      | 2 10 <sup>12</sup> |
| Ta-174                    |                      | $2\ 10^{12}$       |
| Ta-175                    |                      | $2\ 10^{12}$       |
| Ta-176                    |                      | 3 10 <sup>12</sup> |
| Ta-177                    |                      | 1 10 <sup>13</sup> |
| Ta-178                    | (long lived isotope) | 3 10 <sup>12</sup> |
| Ta-179                    |                      | $6\ 10^{12}$       |
| Ta-180                    |                      | 9 10 <sup>11</sup> |
| Ta-180m                   |                      | $6\ 10^{12}$       |
| Ta-182                    |                      | 3 10 <sup>11</sup> |
| Ta-182m                   |                      | 2 10 <sup>12</sup> |
| Ta-183                    |                      | $2\ 10^{12}$       |
| Ta-184                    |                      | $2\ 10^{12}$       |
| Ta-185                    |                      | 1 10 <sup>12</sup> |
| Ta-186                    |                      | 9 10 <sup>11</sup> |
| Technetium                |                      |                    |
| Tc-93                     |                      | 5 10 <sup>13</sup> |
| Tc-93m                    |                      | 4 10 <sup>12</sup> |
| Tc-94                     |                      | $6\ 10^{12}$       |
| Tc-94m                    |                      | 1 10 <sup>12</sup> |
| Tc-95                     |                      | 4 10 <sup>13</sup> |
| Tc-95m                    |                      | 1 10 <sup>12</sup> |
| Tc-96                     |                      | 4 10 <sup>12</sup> |
| Tc-96m                    |                      | $2\ 10^{13}$       |
| Tc-97                     |                      | 9 10 <sup>12</sup> |
| Tc-97m                    |                      | 5 10 <sup>12</sup> |
| Tc-98                     |                      | 1 10 <sup>11</sup> |
| Tc-99                     |                      | 5 10 <sup>10</sup> |
| Tc-99m                    |                      | 1 10 <sup>13</sup> |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Tc-101                    |                   | $2\ 10^{12}$       |
| Tc-104                    |                   | $610^{11}$         |
| Tellurium                 |                   | 12                 |
| Te-116                    |                   | 6 10 <sup>12</sup> |
| Te-116                    | (vapour)          | $2\ 10^{14}$       |
| Te-121                    |                   | 4 10 <sup>12</sup> |
| Te-121                    | (vapour)          | $3\ 10^{13}$       |
| Te-121m                   |                   | $1\ 10^{12}$       |
| Te-121m                   | (vapour)          | 3 10 <sup>12</sup> |
| Te-123                    |                   | $6\ 10^{12}$       |
| Te-123                    | (vapour)          | $2\ 10^{12}$       |
| Te-123m                   |                   | $2\ 10^{12}$       |
| Te-123m                   | (vapour)          | 5 10 <sup>12</sup> |
| Te-125m                   |                   | $2\ 10^{12}$       |
| Te-125m                   | (vapour)          | 8 10 <sup>12</sup> |
| Te-127                    |                   | 2 10 <sup>12</sup> |
| Te-127                    | (vapour)          | $2\ 10^{14}$       |
| Te-127m                   |                   | 1 10 <sup>12</sup> |
| Te-127m                   | (vapour)          | 2 10 <sup>12</sup> |
| Te-129                    |                   | 2 10 <sup>12</sup> |
| Te-129                    | (vapour)          | $4\ 10^{14}$       |
| Te-129m                   |                   | 1 10 <sup>12</sup> |
| Te-129m                   | (vapour)          | 3 10 <sup>12</sup> |
| Te-131                    |                   | $1\ 10^{12}$       |
| Te-131                    | (vapour)          | 1 10 <sup>14</sup> |
| Te-131m                   |                   | 2 10 <sup>12</sup> |
| Te-131m                   | (vapour)          | 5 10 <sup>12</sup> |
| Te-132                    |                   | 3 10 <sup>12</sup> |
| Te-132                    | (vapour)          | 2 10 <sup>12</sup> |

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Te-133                    |                       | 1 10 <sup>12</sup> |
| Te-133                    | (vapour)              | $7\ 10^{13}$       |
| Te-133m                   |                       | 1 10 <sup>12</sup> |
| Te-133m                   | (vapour)              | $2\ 10^{13}$       |
| Te-134                    |                       | 3 10 <sup>12</sup> |
| Te-134                    | (vapour)              | $7\ 10^{13}$       |
| <b>Terbium</b><br>Tb-147  |                       | $2\ 10^{12}$       |
| Tb-149                    |                       | $2\ 10^{12}$       |
| Tb-150                    |                       | $2\ 10^{12}$       |
| Tb-151                    |                       | 4 10 <sup>12</sup> |
| Tb-153                    |                       | 7 10 <sup>12</sup> |
| Tb-154                    |                       | 4 10 <sup>12</sup> |
| Tb-155                    |                       | $1\ 10^{13}$       |
| Tb-156                    |                       | 3 10 <sup>12</sup> |
| Tb-156m                   | (long lived isotope)  | 1 10 <sup>13</sup> |
| Tb-156m                   | (short lived isotope) | 4 10 <sup>12</sup> |
| Tb-157                    |                       | 1 10 <sup>13</sup> |
| Tb-158                    |                       | 2 10 <sup>11</sup> |
| Tb-160                    |                       | 5 10 <sup>11</sup> |
| Tb-161                    |                       | $2\ 10^{12}$       |
| <b>Thallium</b><br>Tl-194 |                       | 1 10 <sup>13</sup> |
| Tl-194m                   |                       | 2 10 <sup>12</sup> |
| Tl-195                    |                       | 4 10 <sup>12</sup> |
| Tl-197                    |                       | 5 10 <sup>12</sup> |
| TI-198                    |                       | $7 \cdot 10^{12}$  |
| Tl-198m                   |                       | 2 10 <sup>12</sup> |
| Tl-199                    |                       | 6 10 <sup>12</sup> |
| Tl-200                    |                       | $1 \ 10^{13}$      |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| T1-201                    |                   | $7 \cdot 10^{12}$  |  |
| T1-202                    |                   | 7 10 <sup>12</sup> |  |
| T1-204                    |                   | $2\ 10^{12}$       |  |
| Thorium                   |                   |                    |  |
| Th-226                    |                   | $4\ 10^{11}$       |  |
| Th-227                    |                   | 2 10 <sup>9</sup>  |  |
| Th-228                    |                   | $6\ 10^8$          |  |
| Th-229                    |                   | 1 108              |  |
| Th-230                    |                   | $2 \ 10^8$         |  |
| Th-231                    |                   | $2\ 10^{12}$       |  |
| Th-232                    |                   | 2 108              |  |
| Th-234                    |                   | 3 10 <sup>12</sup> |  |
| Thulium                   |                   |                    |  |
| Tm-162                    |                   | $2 \ 10^{12}$      |  |
| Tm-166                    |                   | 3 10 <sup>12</sup> |  |
| Tm-167                    |                   | 4 10 <sup>12</sup> |  |
| Tm-170                    |                   | $2 \ 10^{12}$      |  |
| Tm-171                    |                   | 1 10 <sup>13</sup> |  |
| Tm-172                    |                   | 2 10 <sup>12</sup> |  |
| Tm-173                    |                   | $2\ 10^{12}$       |  |
| Tm-175                    |                   | $2\ 10^{12}$       |  |
| Tin                       |                   |                    |  |
| Sn-110                    |                   | $6\ 10^{13}$       |  |
| Sn-111                    |                   | $2\ 10^{12}$       |  |
| Sn-113                    |                   | 5 10 <sup>12</sup> |  |
| Sn-117m                   |                   | 3 10 <sup>12</sup> |  |
| Sn-119m                   |                   | 5 10 <sup>12</sup> |  |
| Sn-121                    |                   | 3 10 <sup>12</sup> |  |
| Sn-121m                   |                   | 4 10 <sup>12</sup> |  |
| Sn-123                    |                   | 2 10 <sup>12</sup> |  |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Sn-123m                   |                   | 2 10 <sup>12</sup> |
| Sn-125                    |                   | 1 10 <sup>12</sup> |
| Sn-126                    |                   | 5 10 <sup>11</sup> |
| Sn-127                    |                   | $2\ 10^{12}$       |
| Sn-128                    |                   | $2\ 10^{12}$       |
| Titanium                  |                   |                    |
| Ti-44                     |                   | 2 10 <sup>11</sup> |
| Ti-45                     |                   | 2 10 <sup>12</sup> |
| Tungsten                  |                   | 12                 |
| W-176                     |                   | 5 10 <sup>12</sup> |
| W-177                     |                   | 3 10 <sup>12</sup> |
| W-178                     |                   | 6 10 <sup>13</sup> |
| W-179                     |                   | 1 10 <sup>13</sup> |
| W-181                     |                   | 1 10 <sup>13</sup> |
| W-185                     |                   | 4 10 <sup>12</sup> |
| W-187                     |                   | 2 10 <sup>12</sup> |
| W-188                     |                   | 3 10 <sup>12</sup> |
| Uranium                   |                   |                    |
| U-230                     |                   | 2 10 <sup>9</sup>  |
| U-231                     |                   | $7\ 10^{12}$       |
| U-232                     |                   | 6 10 <sup>8</sup>  |
| U-233                     |                   | 3 10 <sup>9</sup>  |
| U-234                     |                   | 3 10 <sup>9</sup>  |
| U-235                     |                   | 3 10 <sup>9</sup>  |
| U-236                     |                   | 3 10 <sup>9</sup>  |
| U-237                     |                   | 2 10 <sup>12</sup> |
| U-238                     |                   | 3 10 <sup>9</sup>  |
| U-239                     |                   | $2\ 10^{12}$       |
| U-240                     |                   | $2\ 10^{12}$       |
| Vanadium                  |                   |                    |

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| V-47                      |                   | 1 10 <sup>12</sup> |
| V-48                      |                   | 1 10 <sup>12</sup> |
| V-49                      |                   | $2\ 10^{14}$       |
| Xenon                     |                   |                    |
| Xe-120                    | (gas)             | 1 10 <sup>14</sup> |
| Xe-121                    | (gas)             | 3 10 <sup>13</sup> |
| Xe-122                    | (gas)             | 1 10 <sup>15</sup> |
| Xe-123                    | (gas)             | 9 10 <sup>13</sup> |
| Xe-125                    | (gas)             | $2\ 10^{14}$       |
| Xe-127                    | (gas)             | $2\ 10^{14}$       |
| Xe-129m                   | (gas)             | 2 10 <sup>15</sup> |
| Xe-131                    | (gas)             | 4 10 <sup>15</sup> |
| Xe-133                    | (gas)             | 1 10 <sup>15</sup> |
| Xe-133m                   | (gas)             | $2\ 10^{15}$       |
| Xe-135                    | (gas)             | $2\ 10^{14}$       |
| Xe-135m                   | (gas)             | $1\ 10^{14}$       |
| Xe-138                    | (gas)             | 5 10 <sup>13</sup> |
| Ytterbium                 |                   |                    |
| Yb-162                    |                   | 1 10 <sup>13</sup> |
| Yb-166                    |                   | 8 10 <sup>12</sup> |
| Yb-167                    |                   | 4 10 <sup>12</sup> |
| Yb-169                    |                   | 3 10 <sup>12</sup> |
| Yb-175                    |                   | 4 10 <sup>12</sup> |
| Yb-177                    |                   | $2\ 10^{12}$       |
| Yb-178                    |                   | 2 10 <sup>12</sup> |
| Yttrium                   |                   |                    |
| Y-86                      |                   | $2\ 10^{12}$       |
| Y-86m                     |                   | 1 10 <sup>13</sup> |
| Y-87                      |                   | $2\ 10^{13}$       |
| Y-88                      |                   | $2\ 10^{11}$       |

| Radionuclide name, symbol                       | Radionuclide form | Quantity (Bq)      |  |
|---|-------------------|--------------------|--|
| Y-90  |                   | 2 10 <sup>12</sup> |  |
| Y-90m   |                   | 7 10 <sup>12</sup> |  |
| Y-91  |                   | 2 10 <sup>12</sup> |  |
| Y-91m   |                   | 2 10 <sup>13</sup> |  |
| Y-92  |                   | 6 10 <sup>11</sup> |  |
| Y-93  |                   | 8 10 <sup>11</sup> |  |
| Y-94  |                   | 6 10 <sup>11</sup> |  |
| Y-95  |                   | 6 10 <sup>11</sup> |  |
| Zinc  |                   |                    |  |
| Zn-62   |                   | 1 10 <sup>13</sup> |  |
| Zn-63   |                   | 1 10 <sup>12</sup> |  |
| Zn-65   |                   | 5 10 <sup>10</sup> |  |
| Zn-69   |                   | 2 10 <sup>12</sup> |  |
| Zn-69m  |                   | 2 10 <sup>13</sup> |  |
| Zn-71m  |                   | 2 10 <sup>12</sup> |  |
| Zn-72   |                   | 3 10 <sup>12</sup> |  |
| Zirconium                                       |                   |                    |  |
| Zr-86   |                   | $2 \ 10^{13}$      |  |
| Zr-88   |                   | 1 10 <sup>12</sup> |  |
| Zr-89   |                   | 4 10 <sup>12</sup> |  |
| Zr-93   |                   | 8 10 <sup>11</sup> |  |
| Zr-95   |                   | 8 10 <sup>11</sup> |  |
| Zr-97   |                   | 2 10 <sup>12</sup> |  |
| Other radionuclides not listed above (see note) |                   | 4 107              |  |

# Part II

# Quantity ratios for more than one radionuclide

1. For the purpose of regulation 3(2), the quantity ratio for more than one radionuclide is the sum of the quotients of the quantity of a radionuclide present  $Q_p$  divided by the quantity of that radionuclide specified in the appropriate column of Part I  $Q_{lim}$ , namely—

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

$$\Sigma = \frac{Q_{\rm F}}{Q_{\rm bm}}$$

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 shall be calculated by using the values specified in the appropriate column in Part I for 'other radionuclides not listed above' for any radionuclide that has not been identified or where the quantity of a radionuclide is uncertain, unless the employer can show that the use of some other value is appropriate in the circumstances of a particular case, when he may use that value.

#### SCHEDULE 3

Regulation 3(1)

#### **Masses of Fissile Material**

For the purpose of regulation 3(1), the specified mass of a fissile material shall be—

- (a) (a) plutonium as Pu 239 or Pu 241 150 grams; or as a mixture of plutonium isotopes containing Pu 239 or Pu 241 –
- (b) (b) uranium as U 233 150 grams;
- (c) (c) uranium enriched in U 235 to 500 grams; more than 1% but not more than 5 % –
- (d) (d) uranium enriched in U 235 to 250 grams. more than 5% –

#### **SCHEDULE 4**

Regulation 3(1) and (3)

## Specified Quantities for the Transport of Radionuclides

## Part I

# Table of Radionuclides

Radionuclide name, symbol Radionuclide form Quantity (Bq)

### **Actinium**

- Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.
- Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport
- Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.
- Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.
- Note 5: These values apply to unirradiated uranium only.
- Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Ac-225                    | (see note 1)      | 6 10 <sup>9</sup>  |  |
| Ac-227                    | (see note 1)      | 9 10 <sup>7</sup>  |  |
| Ac-228                    |                   | 5 10 <sup>11</sup> |  |
| Aluminium                 |                   |                    |  |
| Al-26                     |                   | 1 10 <sup>11</sup> |  |
| Americium                 |                   | 0                  |  |
| Am-241                    |                   | 1 109              |  |
| Am-242m                   | (see note 1)      | 1 109              |  |
| Am-243                    | (see note 1)      | 1 109              |  |
| Antimony                  |                   | 11                 |  |
| Sb-122                    |                   | 4 10 <sup>11</sup> |  |
| Sb-124                    |                   | $6\ 10^{11}$       |  |
| Sb-125                    |                   | 1 10 <sup>12</sup> |  |
| Sb-126                    |                   | $4\ 10^{11}$       |  |
| Argon                     |                   |                    |  |
| Ar-37                     |                   | 4 10 <sup>13</sup> |  |
| Ar-39                     |                   | $2\ 10^{13}$       |  |
| Ar-41                     |                   | $3\ 10^{11}$       |  |
| Arsenic                   |                   |                    |  |
| As-72                     |                   | 3 10 <sup>11</sup> |  |
| As-73                     |                   | 4 10 <sup>13</sup> |  |
| As-74                     |                   | 9 10 <sup>11</sup> |  |
| As-76                     |                   | 3 10 <sup>11</sup> |  |
| As-77                     |                   | $7\ 10^{11}$       |  |
| Astatine                  |                   |                    |  |
| At-211                    | (see note 1)      | 5 10 <sup>11</sup> |  |
| Barium                    |                   |                    |  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to  ${\it unirradiated\ uranium\ only}.$ 

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Ba-131                    | (see note 1)      | $2\ 10^{12}$       |
| Ba-133                    |                   | 3 10 <sup>12</sup> |
| Ba-133m                   |                   | $6\ 10^{11}$       |
| Ba-140                    | (see note 1)      | 3 10 <sup>11</sup> |
| Berkelium                 |                   |                    |
| Bk-247                    |                   | 8 108              |
| Bk-249                    | (see note 1)      | 3 10 <sup>11</sup> |
| Beryllium                 |                   |                    |
| Be-7                      |                   | $2\ 10^{13}$       |
| Be-10                     |                   | 6 10 <sup>11</sup> |
| Bismuth                   |                   | 11                 |
| Bi-205                    |                   | 7 10 <sup>11</sup> |
| Bi-206                    |                   | 3 10 <sup>11</sup> |
| Bi-207                    |                   | $7\ 10^{11}$       |
| Bi-210                    |                   | 6 10 <sup>11</sup> |
| Bi-210m                   | (see note 1)      | $2\ 10^{10}$       |
| Bi-212                    | (see note 1)      | 6 10 <sup>11</sup> |
| Bromine                   |                   |                    |
| Br-76                     |                   | 4 10 <sup>11</sup> |
| Br-77                     |                   | $3\ 10^{12}$       |
| Br-82                     |                   | $4\ 10^{11}$       |
| Cadmium                   |                   |                    |
| Cd-109                    |                   | $2\ 10^{12}$       |
| Cd-113m                   |                   | 5 10 <sup>11</sup> |
| Cd-115                    | (see note 1)      | 4 10 <sup>11</sup> |
| Cd-115m                   |                   | 5 10 <sup>11</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than  $10~\mathrm{days}$ .

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Caesium                   |                   |                    |
| Cs-129                    |                   | 4 10 <sup>12</sup> |
| Cs-131                    |                   | $3 \ 10^{13}$      |
| Cs-132                    |                   | 1 10 <sup>12</sup> |
| Cs-134                    |                   | $7\ 10^{11}$       |
| Cs-134m                   |                   | $6\ 10^{11}$       |
| Cs-135                    |                   | 1 10 <sup>12</sup> |
| Cs-136                    |                   | 5 10 <sup>11</sup> |
| Cs-137                    | (see note 1)      | $6\ 10^{11}$       |
| Calcium                   |                   |                    |
| Ca-41                     |                   | unlimited          |
| Ca-45                     |                   | 1 10 <sup>12</sup> |
| Ca-47                     | (see note 1)      | 3 10 <sup>11</sup> |
| Californium               |                   |                    |
| Cf-248                    |                   | 6 10 <sup>9</sup>  |
| Cf-249                    |                   | 8 10 <sup>8</sup>  |
| Cf-250                    |                   | 2 10 <sup>9</sup>  |
| Cf-251                    |                   | $7 \ 10^8$         |
| Cf-252                    |                   | 3 10 <sup>9</sup>  |
| Cf-253                    | (see note 1)      | $4\ 10^{10}$       |
| Cf-254                    |                   | 1 10 <sup>9</sup>  |
| Carbon                    |                   |                    |
| C-11                      |                   | 6 10 <sup>11</sup> |
| C-14                      |                   | $3\ 10^{12}$       |
| Cerium                    |                   |                    |
| Ce-139                    |                   | $2\ 10^{12}$       |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |  |
|---------------------------|-------------------|--------------------|--|
| Ce-141                    |                   | 6 10 <sup>11</sup> |  |
| Ce-143                    |                   | 6 10 <sup>11</sup> |  |
| Ce-144                    | (see note 1)      | $2\ 10^{11}$       |  |
| Chlorine                  |                   |                    |  |
| Cl-36                     |                   | 6 10 <sup>11</sup> |  |
| Cl-38                     |                   | $2\ 10^{11}$       |  |
| Chromium                  |                   |                    |  |
| Cr-51                     |                   | $3\ 10^{13}$       |  |
| Cobalt                    |                   |                    |  |
| Co-55                     |                   | 5 10 <sup>11</sup> |  |
| Co-56                     |                   | 3 10 <sup>11</sup> |  |
| Co-57                     |                   | 1 10 <sup>13</sup> |  |
| Co-58                     |                   | 1 10 <sup>12</sup> |  |
| Co-58m                    |                   | $4\ 10^{13}$       |  |
| Co-60                     |                   | $4\ 10^{11}$       |  |
| Copper                    |                   |                    |  |
| Cu-64                     |                   | 1 10 <sup>12</sup> |  |
| Cu-67                     |                   | $7\ 10^{11}$       |  |
| Curium                    |                   |                    |  |
| Cm-240                    |                   | $2\ 10^{10}$       |  |
| Cm-241                    |                   | 1 10 <sup>12</sup> |  |
| Cm-242                    |                   | 1 10 <sup>10</sup> |  |
| Cm-243                    |                   | 1 109              |  |
| Cm-244                    |                   | 2 10 <sup>9</sup>  |  |
| Cm-245                    |                   | 9 10 <sup>8</sup>  |  |
| Cm-246                    |                   | 9 108              |  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Cm-247                    | (see note 1)          | 1 109              |
| Cm-248                    |                       | 3 10 <sup>8</sup>  |
| Dysprosium                |                       |                    |
| Dy-159                    |                       | $2\ 10^{13}$       |
| Dy-165                    |                       | 6 10 <sup>11</sup> |
| Dy-166                    | (see note 1)          | $3\ 10^{11}$       |
| Erbium                    |                       |                    |
| Er-169                    |                       | 1 10 <sup>12</sup> |
| Er-171                    |                       | 5 10 <sup>11</sup> |
| Europium                  |                       |                    |
| Eu-147                    |                       | $2\ 10^{12}$       |
| Eu-148                    |                       | 5 10 <sup>11</sup> |
| Eu-149                    |                       | $2\ 10^{13}$       |
| Eu-150                    | (long lived isotope)  | $7\ 10^{11}$       |
| Eu-150                    | (short lived isotope) | $7\ 10^{11}$       |
| Eu-152                    |                       | 1 10 <sup>12</sup> |
| Eu-152m                   |                       | 8 10 <sup>11</sup> |
| Eu-154                    |                       | 6 10 <sup>11</sup> |
| Eu-155                    |                       | 3 10 <sup>12</sup> |
| Eu-156                    |                       | $7\ 10^{11}$       |
| Fluorine                  |                       |                    |
| F-18                      |                       | $6\ 10^{11}$       |
| Gadolinium                |                       |                    |
| Gd-146                    | (see note 1)          | 5 10 <sup>11</sup> |
| Gd-148                    |                       | 2 10 <sup>9</sup>  |
| Gd-153                    |                       | 9 10 <sup>12</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Gd-159                    |                   | 6 10 <sup>11</sup> |
| Gallium                   |                   |                    |
| Ga-67                     |                   | $3\ 10^{12}$       |
| Ga-68                     |                   | 5 10 <sup>11</sup> |
| Ga-72                     |                   | 4 10 <sup>11</sup> |
| Germanium                 | ( 1)              | 11                 |
| Ge-68                     | (see note 1)      | 5 10 <sup>11</sup> |
| Ge-71                     |                   | $4\ 10^{13}$       |
| Ge-77                     |                   | 3 10 <sup>11</sup> |
| Gold                      |                   | 12                 |
| Au-193                    |                   | 2 10 <sup>12</sup> |
| Au-194                    |                   | 1 10 <sup>12</sup> |
| Au-195                    |                   | 6 10 <sup>12</sup> |
| Au-198                    |                   | 6 10 <sup>11</sup> |
| Au-199                    |                   | 6 10 <sup>11</sup> |
| Hafnium                   |                   |                    |
| Hf-172                    | (see note 1)      | 6 10 <sup>11</sup> |
| Hf-175                    |                   | 3 10 <sup>12</sup> |
| Hf-181                    |                   | 5 10 <sup>11</sup> |
| Hf-182                    |                   | unlimited          |
| Holmium                   |                   |                    |
| Ho-166                    |                   | $4\ 10^{11}$       |
| Ho-166m                   |                   | 5 10 <sup>11</sup> |
| Hydrogen                  |                   | 12                 |
| H-3                       |                   | 4 10 <sup>13</sup> |
| Indium<br>In-111          |                   | 3 10 <sup>12</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than  $10\ days$ .

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| In-113m                   |                   | 2 10 <sup>12</sup> |
| In-114m                   | (see note 1)      | 5 10 <sup>11</sup> |
| In-115m                   |                   | 1 10 <sup>12</sup> |
| Iodine                    |                   |                    |
| I-123                     |                   | $3\ 10^{12}$       |
| I-124                     |                   | 1 10 <sup>12</sup> |
| I-125                     |                   | $3\ 10^{12}$       |
| I-126                     |                   | 1 10 <sup>12</sup> |
| I-129                     |                   | unlimited          |
| I-131                     |                   | $7\ 10^{11}$       |
| I-132                     |                   | $4\ 10^{11}$       |
| I-133                     |                   | $6\ 10^{11}$       |
| I-134                     |                   | 3 10 <sup>11</sup> |
| I-135                     | (see note 1)      | 6 10 <sup>11</sup> |
| Iridium                   |                   |                    |
| Ir-189                    | (see note 1)      | $1\ 10^{13}$       |
| Ir-190                    |                   | 7 10 <sup>11</sup> |
| Ir-192                    |                   | $6\ 10^{11}$       |
| Ir-194                    |                   | 3 10 <sup>11</sup> |
| Iron                      |                   |                    |
| Fe-52                     | (see note 1)      | 3 10 <sup>11</sup> |
| Fe-55                     |                   | 4 10 <sup>13</sup> |
| Fe-59                     |                   | 9 10 <sup>11</sup> |
| Fe-60                     | (see note 1)      | 2 10 <sup>11</sup> |
| <b>Krypton</b><br>Kr-81   |                   | 4 10 <sup>13</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Kr-85                     |                   | 1 10 <sup>13</sup> |
| Kr-85m                    |                   | 3 10 <sup>12</sup> |
| Kr-87                     |                   | $2\ 10^{11}$       |
| Lanthanum                 |                   |                    |
| La-137                    |                   | $6\ 10^{12}$       |
| La-140                    |                   | $4\ 10^{11}$       |
| Lead                      |                   |                    |
| Pb-201                    |                   | 1 10 <sup>12</sup> |
| Pb-202                    |                   | $2\ 10^{13}$       |
| Pb-203                    |                   | $3\ 10^{12}$       |
| Pb-205                    |                   | unlimited          |
| Pb-210                    | (see note 1)      | 5 10 <sup>10</sup> |
| Pb-212                    | (see note 1)      | 2 10 <sup>11</sup> |
| Lutetium                  |                   |                    |
| Lu-172                    |                   | $6\ 10^{11}$       |
| Lu-173                    |                   | 8 10 <sup>12</sup> |
| Lu-174                    |                   | 9 10 <sup>12</sup> |
| Lu-174m                   |                   | $1\ 10^{13}$       |
| Lu-177                    |                   | $7\ 10^{11}$       |
| Magnesium                 |                   |                    |
| Mg-28                     | (see note 1)      | 3 10 <sup>11</sup> |
| Manganese                 |                   |                    |
| Mn-52                     |                   | 3 10 <sup>11</sup> |
| Mn-53                     |                   | unlimited          |
| Mn-54                     |                   | 1 10 <sup>12</sup> |
| Mn-56                     |                   | 3 10 <sup>11</sup> |
| Mercury                   |                   |                    |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form     | Quantity (Bq)      |
|---------------------------|-----------------------|--------------------|
| Hg-194                    | (see note 1)          | 1 10 <sup>12</sup> |
| Hg-195m                   | (see note 1)          | $7\ 10^{11}$       |
| Hg-197                    |                       | 1 10 <sup>13</sup> |
| Hg-197m                   |                       | 4 10 <sup>11</sup> |
| Hg-203                    |                       | 1 10 <sup>12</sup> |
| Molybdenum                |                       |                    |
| Mo-93                     |                       | $2\ 10^{13}$       |
| Mo-99                     | (see note 1)          | $610^{11}$         |
| Neodymium                 |                       |                    |
| Nd-147                    |                       | $6\ 10^{11}$       |
| Nd-149                    |                       | 5 10 <sup>11</sup> |
| Neptunium                 |                       |                    |
| Np-235                    |                       | 4 10 <sup>13</sup> |
| Np-236                    | (long lived isotope)  | $2\ 10^{10}$       |
| Np-236                    | (short lived isotope) | $2\ 10^{12}$       |
| Np-237                    |                       | 2 10 <sup>9</sup>  |
| Np-239                    |                       | 4 10 <sup>11</sup> |
| Nickel                    |                       |                    |
| Ni-59                     |                       | unlimited          |
| Ni-63                     |                       | 3 10 <sup>13</sup> |
| Ni-65                     |                       | 4 10 <sup>11</sup> |
| Niobium                   |                       |                    |
| Nb-93m                    |                       | 3 10 <sup>13</sup> |
| Nb-94                     |                       | $7\ 10^{11}$       |
| Nb-95                     |                       | 1 10 <sup>12</sup> |
| Nb-97                     |                       | 6 10 <sup>11</sup> |
| Nitrogen                  |                       |                    |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| N-13                      |                   | 6 10 <sup>11</sup> |
| Osmium                    |                   |                    |
| Os-185                    |                   | 1 10 <sup>12</sup> |
| Os-191                    |                   | $2\ 10^{12}$       |
| Os-191m                   |                   | 3 10 <sup>13</sup> |
| Os-193                    |                   | 6 10 <sup>11</sup> |
| Os-194                    | (see note 1)      | 3 10 <sup>11</sup> |
| Palladium                 |                   |                    |
| Pd-103                    | (see note 1)      | 4 10 <sup>13</sup> |
| Pd-107                    |                   | unlimited          |
| Pd-109                    |                   | 5 10 <sup>11</sup> |
| Phosphorus                |                   |                    |
| P-32                      |                   | 5 10 <sup>11</sup> |
| P-33                      |                   | 1 10 <sup>12</sup> |
| Platinum                  |                   |                    |
| Pt-188                    | (see note 1)      | 8 10 <sup>11</sup> |
| Pt-191                    |                   | 3 10 <sup>12</sup> |
| Pt-193                    |                   | 4 10 <sup>13</sup> |
| Pt-193m                   |                   | 5 10 <sup>11</sup> |
| Pt195m                    |                   | 5 10 <sup>11</sup> |
| Pt-197                    |                   | 6 10 <sup>11</sup> |
| Pt-197m                   |                   | 6 10 <sup>11</sup> |
| Plutonium                 |                   |                    |
| Pu-236                    |                   | 3 10 <sup>9</sup>  |
| Pu-237                    |                   | $2\ 10^{13}$       |
| Pu-238                    |                   | 1 10 <sup>9</sup>  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol     | Radionuclide form | Quantity (Bq)      |
|-------------------------------|-------------------|--------------------|
| Pu-239                        |                   | 1 10 <sup>9</sup>  |
| Pu-240                        |                   | 1 109              |
| Pu-241                        | (see note 1)      | $6\ 10^{10}$       |
| Pu-242                        |                   | 1 109              |
| Pu-244                        | (see note 1)      | 1 109              |
| Polonium<br>Po-210            |                   | $2\ 10^{10}$       |
| Potassium                     |                   |                    |
| K-40                          |                   | 9 10 <sup>11</sup> |
| K-42                          |                   | $2\ 10^{11}$       |
| K-43                          |                   | 6 10 <sup>11</sup> |
| <b>Praseodymium</b><br>Pr-142 |                   | 4 10 <sup>11</sup> |
| Pr-143                        |                   | 6 10 <sup>11</sup> |
| Promethium                    |                   |                    |
| Pm-143                        |                   | 3 10 <sup>12</sup> |
| Pm-144                        |                   | $7\ 10^{11}$       |
| Pm-145                        |                   | 1 10 <sup>13</sup> |
| Pm-147                        |                   | 2 10 <sup>12</sup> |
| Pm-148m                       | (see note 1)      | $7\ 10^{11}$       |
| Pm-149                        |                   | 6 10 <sup>11</sup> |
| Pm-151                        |                   | 6 10 <sup>11</sup> |
| Protactinium                  |                   |                    |
| Pa-230                        | (see note 1)      | $7\ 10^{10}$       |
| Pa-231                        |                   | $4\ 10^8$          |
| Pa-233                        |                   | 7 10 <sup>11</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Radium                    |                   |                    |
| Ra-223                    | (see note 1)      | 7 109              |
| Ra-224                    | (see note 1)      | $2\ 10^{10}$       |
| Ra-225                    | (see note 1)      | 4 109              |
| Ra-226                    | (see note 1)      | 3 10 <sup>9</sup>  |
| Ra-228                    | (see note 1)      | $2\ 10^{10}$       |
| Radon                     |                   |                    |
| Rn-222                    | (see note 1)      | 4 109              |
| Rhenium                   |                   |                    |
| Re-184                    |                   | 1 10 <sup>12</sup> |
| Re-184m                   |                   | 1 10 <sup>12</sup> |
| Re-186                    |                   | 6 10 <sup>11</sup> |
| Re-187                    |                   | unlimited          |
| Re-188                    |                   | 4 10 <sup>11</sup> |
| Re-189                    | (see note 1)      | 6 10 <sup>11</sup> |
| Re-natural                |                   | unlimited          |
| Rhodium                   |                   |                    |
| Rh-99                     |                   | 2 10 <sup>12</sup> |
| Rh-101                    |                   | 3 10 <sup>12</sup> |
| Rh-102                    |                   | 5 10 <sup>11</sup> |
| Rh-102m                   |                   | 2 10 <sup>12</sup> |
| Rh-103m                   |                   | 4 10 <sup>13</sup> |
| Rh-105                    |                   | 8 10 <sup>11</sup> |
| Rubidium<br>Rb-81         |                   | 8 10 <sup>11</sup> |
| Rb-83                     | (see note 1)      | 2 1012             |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Rb-84                     |                   | 1 10 <sup>12</sup> |
| Rb-86                     |                   | 5 10 <sup>11</sup> |
| Rb-87                     |                   | unlimited          |
| Rb-natural                |                   | unlimited          |
| Ruthenium                 |                   |                    |
| Ru-97                     |                   | 5 10 <sup>12</sup> |
| Ru-103                    | (see note 1)      | 2 10 <sup>12</sup> |
| Ru-105                    |                   | 6 10 <sup>11</sup> |
| Ru-106                    | (see note 1)      | 2 10 <sup>11</sup> |
| Samarium                  |                   |                    |
| Sm-145                    |                   | 1 10 <sup>13</sup> |
| Sm-147                    |                   | unlimited          |
| Sm-151                    |                   | $1\ 10^{13}$       |
| Sm-153                    |                   | 6 10 <sup>11</sup> |
| Scandium                  |                   |                    |
| Sc-44                     |                   | 5 10 <sup>11</sup> |
| Sc-46                     |                   | 5 10 <sup>11</sup> |
| Sc-47                     |                   | 7 10 <sup>11</sup> |
| Sc-48                     |                   | 3 10 <sup>11</sup> |
| Selenium                  |                   |                    |
| Se-75                     |                   | 3 10 <sup>12</sup> |
| Se-79                     |                   | 2 10 <sup>12</sup> |
| Silicon                   |                   |                    |
| Si-31                     |                   | 6 10 <sup>11</sup> |
| Si-32                     |                   | 5 10 <sup>11</sup> |
| Silver                    |                   |                    |
| Ag-105                    |                   | $2\ 10^{12}$       |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to  ${\it unirradiated\ uranium\ only}.$ 

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form    | Quantity (Bq)      |
|---------------------------|----------------------|--------------------|
| Ag-108m                   | (see note 1)         | 7 10 <sup>11</sup> |
| Ag-110m                   | (see note 1)         | $4\ 10^{11}$       |
| Ag-111                    |                      | 6 10 <sup>11</sup> |
| Sodium                    |                      |                    |
| Na-22                     |                      | 5 10 <sup>11</sup> |
| Na-24                     |                      | $2\ 10^{11}$       |
| Strontium                 |                      |                    |
| Sr-82                     | (see note 1)         | 2 10 <sup>11</sup> |
| Sr-85                     |                      | $2\ 10^{12}$       |
| Sr-85m                    |                      | 5 10 <sup>12</sup> |
| Sr-87m                    |                      | 3 10 <sup>12</sup> |
| Sr-89                     |                      | 6 10 <sup>11</sup> |
| Sr-90                     | (see note 1)         | 3 10 <sup>11</sup> |
| Sr-91                     | (see note 1)         | 3 10 <sup>11</sup> |
| Sr-92                     | (see note 1)         | 3 10 <sup>11</sup> |
| Sulphur                   |                      |                    |
| S-35                      |                      | $3 \ 10^{12}$      |
| Tantalum                  |                      | 11                 |
| Ta-178                    | (long lived isotope) | 8 10 <sup>11</sup> |
| Ta-179                    |                      | 3 10 <sup>13</sup> |
| Ta-182                    |                      | 5 10 <sup>11</sup> |
| Technetium                |                      |                    |
| Tc-95m                    | (see note 1)         | 2 10 <sup>12</sup> |
| Tc-96                     |                      | 4 10 <sup>11</sup> |
| Tc-96m                    | (see note 1)         | 4 10 <sup>11</sup> |
| Tc-97                     |                      | unlimited          |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Tc-97m                    |                   | 1 10 <sup>12</sup> |
| Tc-98                     |                   | 7 10 <sup>11</sup> |
| Tc-99                     |                   | 9 10 <sup>11</sup> |
| Tc-99m                    |                   | 4 10 <sup>12</sup> |
| Tellurium                 |                   |                    |
| Te-121                    |                   | $2\ 10^{12}$       |
| Te-121m                   |                   | 3 10 <sup>12</sup> |
| Te-123m                   |                   | 1 10 <sup>12</sup> |
| Te-125m                   |                   | 9 10 <sup>11</sup> |
| Te-127                    |                   | $7\ 10^{11}$       |
| Te-127m                   | (see note 1)      | 5 10 <sup>11</sup> |
| Te-129                    |                   | 6 10 <sup>11</sup> |
| Te-129m                   | (see note 1)      | 4 10 <sup>11</sup> |
| Te-131m                   | (see note 1)      | 5 10 <sup>11</sup> |
| Te-132                    | (see note 1)      | $4\ 10^{11}$       |
| Terbium                   |                   |                    |
| Tb-157                    |                   | $4\ 10^{13}$       |
| Tb-158                    |                   | 1 10 <sup>12</sup> |
| Tb-160                    |                   | 6 10 <sup>11</sup> |
| Thallium                  |                   |                    |
| Tl-200                    |                   | 9 10 <sup>11</sup> |
| TI-201                    |                   | 4 10 <sup>12</sup> |
| T1-202                    |                   | 2 10 <sup>12</sup> |
| T1-204                    |                   | $7\ 10^{11}$       |
| Thorium                   |                   |                    |
| Th-227                    |                   | 5 10 <sup>9</sup>  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form | Quantity (Bq)      |
|---------------------------|-------------------|--------------------|
| Th-228                    | (see note 1)      | 1 109              |
| Th-229                    |                   | 5 108              |
| Th-230                    |                   | 1 109              |
| Th-231                    |                   | $2\ 10^{10}$       |
| Th-232                    |                   | unlimited          |
| Th-234                    | (see note 1)      | 3 10 <sup>11</sup> |
| Th-natural                |                   | unlimited          |
| Thulium                   |                   | 11                 |
| Tm-167                    |                   | 8 10 <sup>11</sup> |
| Tm-170                    |                   | 6 10 <sup>11</sup> |
| Tm-171                    |                   | 4 10 <sup>13</sup> |
| Tin                       | (                 | 12                 |
| Sn-113                    | (see note 1)      | 2 10 <sup>12</sup> |
| Sn-117m                   |                   | 4 10 <sup>11</sup> |
| Sn-119m                   |                   | $3\ 10^{13}$       |
| Sn-121m                   | (see note 1)      | 9 10 <sup>11</sup> |
| Sn-123                    |                   | $610^{11}$         |
| Sn-125                    |                   | 4 10 <sup>11</sup> |
| Sn-126                    | (see note 1)      | 4 10 <sup>11</sup> |
| Titanium                  |                   |                    |
| Ti-44                     | (see note 1)      | 4 10 <sup>11</sup> |
| Tungsten                  | (                 | 12                 |
| W-178                     | (see note 1)      | 5 10 <sup>12</sup> |
| W-181                     |                   | 3 10 <sup>13</sup> |
| W-185                     |                   | 8 10 <sup>11</sup> |
| W-187                     |                   | 6 10 <sup>11</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of O<sub>3</sub>, UF<sub>4</sub>, UCL<sub>4</sub> and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol | Radionuclide form                                    | Quantity (Bq)      |
|---------------------------|--|--------------------|
| W-188                     | (see note 1)   | 3 10 <sup>11</sup> |
| Uranium                   |  |                    |
| U-230                     | (fast lung absorption, see notes 1 and 2)            | 1 10 <sup>11</sup> |
| U-230                     | (medium lung absorption, see notes 1 and 3)          | 4 10 <sup>9</sup>  |
| U-230                     | (slow lung absorption, see notes 1 and 4)            | 3 10 <sup>9</sup>  |
| U-232                     | (fast lung absorption, see note 2)                   | 1 10 <sup>10</sup> |
| U-232                     | (medium lung absorption, see note 3)                 | 7 109              |
| U-232                     | (slow lung absorption, see note 4)                   | 1 109              |
| U-233                     | (fast lung absorption, see note 2)                   | 9 10 <sup>10</sup> |
| U-233                     | (medium lung absorption, see note 3)                 | 2 10 <sup>10</sup> |
| U-233                     | (slow lung absorption, see note 4)                   | 6 10 <sup>9</sup>  |
| U-234                     | (fast lung absorption, see note 2)                   | 9 10 <sup>10</sup> |
| U-234                     |  | 2 10 <sup>10</sup> |
| U-234                     | (medium lung absorption, see note 3)                 | 6 10 <sup>9</sup>  |
| U-235                     | (slow lung absorption, see note 4)                   | unlimited          |
| U-236                     | (all lung absorption types, see notes 1, 2, 3 and 4) | unlimited          |
| U-236                     | (fast lung absorption, see note 2)                   | 2 10 <sup>10</sup> |
| U-236                     | (medium lung absorption, see note 3)                 | 6 10 <sup>9</sup>  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

| Radionuclide name, symbol   | Radionuclide form                                 | Quantity (Bq)      |
|-----------------------------|---|--------------------|
| U-238                       | (slow lung absorption, see note 4)                | unlimited          |
| U-natural                   | (all lung absorption types, see notes 2, 3 and 4) | unlimited          |
| U (enriched to 20% or less) |   | unlimited          |
| U-depleted                  | (see note 5)                                      | unlimited          |
| Vanadium                    |   |                    |
| V-48                        |   | 4 10 <sup>11</sup> |
| V-49                        |   | 4 10 <sup>13</sup> |
| Xenon<br>V- 122             | ( 1)  | 11                 |
| Xe-122                      | (see note 1)                                      | 4 10 <sup>11</sup> |
| Xe-123                      |   | 7 10 <sup>11</sup> |
| Xe-127                      |   | 2 10 <sup>12</sup> |
| Xe-131m                     |   | 4 10 <sup>13</sup> |
| Xe-133                      |   | 1 10 <sup>13</sup> |
| Xe-135                      |   | 2 10 <sup>12</sup> |
| Ytterbium                   |   |                    |
| Yb-169                      |   | 1 10 <sup>12</sup> |
| Yb-175                      |   | 9 10 <sup>11</sup> |
| Yttrium                     |   |                    |
| Y-87                        | (see note 1)                                      | 1 10 <sup>12</sup> |
| Y-88                        |   | 4 10 <sup>11</sup> |
| Y-90                        |   | 3 10 <sup>11</sup> |
| Y-91                        |   | 6 10 <sup>11</sup> |
| Y-91m                       |   | 2 10 <sup>12</sup> |
| Y-92                        |   | 2 10 <sup>11</sup> |
| Y-93                        |   | 3 10 <sup>11</sup> |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

| Radionuclide name, symbol  | Radionuclide form | Quantity (Bq)      |
|--|-------------------|--------------------|
| Zinc   |                   |                    |
| Zn-65  |                   | $2\ 10^{12}$       |
| Zn-69  |                   | 6 10 <sup>11</sup> |
| Zn-69m   | (see note 1)      | 6 10 <sup>11</sup> |
| Zirconium  |                   |                    |
| Zr-88  |                   | $3\ 10^{12}$       |
| Zr-93  |                   | unlimited          |
| Zr-95  | (see note 1)      | $8\ 10^{11}$       |
| Zr-97  | (see note 1)      | 4 10 <sup>11</sup> |
| Other radionuclides not listed<br>above where only beta or<br>gamma emitting nuclides are<br>known to be present                         | (see note 6)      | 2 10 <sup>10</sup> |
| Other radionuclides not listed<br>above where alpha emitting<br>nuclides are known to be<br>present or no relevant data are<br>available | (see note 6)      | 9 10 <sup>7</sup>  |

Note 1: Values include contributions from daughter nuclides with half-lives less than 10 days.

Note 2: These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of transport

Note 3: These values apply only to compounds of uranium that take the chemical form of  $O_3$ ,  $UF_4$ ,  $UCL_4$  and hexavalent compounds other than those specified in both normal and accident conditions of transport.

Note 4: These values apply to all compounds of uranium other than those specified in 2 and 3 above.

Note 5: These values apply to unirradiated uranium only.

Note 6: In the case of radionuclides not specified elsewhere in this Part, the quantity specified in this entry is to be used unless the Executive has approved some other quantity for that radionuclide.

# Part II

# Quantity ratios for more than one radionuclide

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

$$\sum \frac{Q_{\rm p}}{Q_{\rm lim}}$$

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 shall be calculated by using the values specified in the appropriate column in Part I for 'other radionuclides not listed above' for any radionuclide that has not been identified or where the quantity of a radionuclide is uncertain, unless the employer can show that the use of some other value is appropriate in the circumstances of a particular case, when he may use that value.

#### SCHEDULE 5

Regulation 6(4)

## Particulars to be Included in an Assessment Report

The following particulars are required to be included in an assessment report under regulation 6(4):—

- (a) the name and address of the operator or carrier;
- (b) the postal address of the premises where the radioactive substance will be processed, manufactured, used or stored, or where the facilities for processing, manufacture, use or storage exist or, in the case of transport, the postal address of the transport undertaking;
- (c) the date on which it is anticipated that the work with ionising radiation will commence or, if it has already commenced, a statement to that effect;
- (d) a general description of the premises or place including the geographical location, meteorological, geological, hydrographic conditions and, where material, the history of the premises, except that in the case of transport a general description shall be given of either—
  - (i) the starting and end points of the journeys and transhipment points, or
  - (ii) the criteria to be used for route selection;
- (e) in the case of an assessment by an operator, a description of any radioactive substance on the premises which is likely to exceed any quantity or mass specified in Schedule 2 or Schedule 3 as the case may be, which description shall where practicable include details of the radionuclides present and their likely maximum quantities;
- (f) in the case of an assessment by a carrier, a description of any radioactive substance which is likely to exceed any quantity or mass specified in Schedule 4 or Schedule 3 as the case may be, which description shall where practicable include details of the radionuclides present and their likely maximum quantities;
- (g) except in the case of an assessment relating to transport, a plan of the premises in question and a map of the environs to a scale large enough to enable the premises and any features which could affect the general risk in an emergency to be identified;
- (h) a diagram and description of any single plant or enclosed system containing more than the quantity or mass of any radioactive substance specified in Schedule 2 or Schedule 3, as the case may be, or, in the case of the transport of more than the quantity or mass of any radioactive substance specified in Schedule 4 or Schedule 3, as the case may be, the nature of the containment for the radioactive substance, the type of vehicle and the means of securing the load within or on the vehicle;
- (i) those factors which could precipitate a major release of any radioactive substance and the measures to be taken to prevent or control such release and information showing the maximum quantity of radioactive substance which, in the event of a major failure of containment, would be released to the atmosphere including, in respect of premises, the identification of plant and other activities anywhere on the premises which could precipitate such release;
- (j) those factors which could precipitate a smaller but continuing release of any radioactive substance and the measures to be taken to prevent or control such releases to atmosphere;
- (k) those factors which could give rise to an incident involving the initiation of an unintended self-sustaining nuclear chain reaction or the loss of control of an intended self-sustaining nuclear chain reaction and, in either case, the measures to be taken to prevent or control any such incident;
- (l) information concerning the management systems and staffing arrangements by which the radioactive substance is controlled and by which the procedures are controlled;

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- (m) except in the case of an assessment relating to transport, information about the size and distribution of the population in the vicinity of premises to which the report relates;
- (n) an assessment of the area which is likely to be affected by the dispersal of any radioactive substance as a result of any radiation emergency and the period of time over which such dispersal is likely to take place;
- (o) an assessment of the likely exposures to ionising radiation of any person or class of persons as a result of any radiation emergency; and
- (p) an assessment of the necessity for an emergency plan to be prepared by the operator or carrier.

### SCHEDULE 6

Regulation 6(5)

# Further Particulars that the Executive may require

A further assessment and report may be required under regulation 6(5) in respect of the following matters:—

- (a) the analysis carried out to establish the likely consequences of any hazard, including the likely doses of ionising radiation to which members of the public might be exposed, and the probability of the occurrence of such hazard;
- (b) the number of persons whose health or safety might be affected by the hazard;
- (c) the management systems and staffing arrangements by which any hazard is to be or is controlled;
- (d) the safety systems, procedures and monitoring systems by which any hazard is to be or is controlled;
- (e) the qualifications, experience and training of staff concerned;
- (f) the design, construction, operation or maintenance of any equipment (including the incorporation of adequate safety or reliability features of such equipment) which is used for the purposes of intervention or which is used to control any hazard;
- (g) the design and operating documentation;
- (h) the design and operation of containment and pressure systems;
- (i) the protection of persons from the effects of loss of containment; and
- (j) the procedures for the reporting of and learning from radiation emergencies.

### SCHEDULE 7

Regulations 7(2), 8(2) and 9(3)

# Information to be included in Emergency Plans

## Part I

Information to be included in an operator's emergency plan

The information referred to in regulation 7(2) is as follows:

(a) the names or positions of persons authorised to set emergency procedures in motion and the person in charge of and co-ordinating the on-site mitigatory action;

- (b) the name or position of the person with responsibility for liaison with the Executive in relation to the preparation of the off-site emergency plan;
- (c) for reasonably foreseeable conditions or events which could be significant in bringing about a radiation emergency, a description of the action which should be taken to control the conditions or events and to limit their consequences, including a description of the safety equipment and the resources available;
- (d) the arrangements for limiting the risks to persons on the premises including how warnings are to be given and the actions persons are expected to take on receipt of a warning;
- (e) the arrangements for providing early warning of the incident to the Executive in relation to setting the off-site emergency plan in motion, the type of information which should be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available;
- (f) the arrangements for providing assistance with off-site mitigatory action; and
- (g) the arrangements for emergency exposures including the dose levels which have been determined as appropriate for the purposes of putting into effect the emergency plan.

## Part II

# Information to be included in a carrier's emergency plan

The information referred to in regulation 8(2) is as follows:

- (a) the names or positions of persons authorised to set emergency procedures in motion and the person in charge of and co-ordinating the mitigatory action;
- (b) for reasonably foreseeable conditions or events which could be significant in bringing about a radiation emergency, a description of the action which should be taken to control the conditions or events and to limit their consequences, including a description of the safety equipment and the resources available;
- (c) the arrangements for providing early warning of the incident, the type of information which should be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available; and
- (d) the arrangements for emergency exposures including the dose levels which have been determined as appropriate for the purposes of putting into effect the emergency plan.

## Part III

# Information to be included in an off-site emergency plan

The information referred to in regulation 9(3) is as follows:—

- (a) the names or positions of persons authorised to set emergency procedures in motion and of persons authorised to take charge of and co-ordinate the off-site mitigatory action;
- (b) the arrangements for receiving early warning of incidents, and alert and call-out procedures;
- (c) the arrangements for co-ordinating resources necessary to implement the off-site emergency plan;
- (d) the arrangements for providing assistance with on-site mitigatory action;
- (e) the arrangements for off-site mitigatory action;

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

- (f) the arrangements for providing the public with specific information relating to the emergency and the behaviour which it should adopt; and
- (g) the arrangements for emergency exposures including the dose levels which have been determined as appropriate for the purposes of putting into effect the emergency plan.

SCHEDULE 8

Regulations 7(4) and (5); 8(5) and (6); and

9(11) and (12)

## Principles and purposes of intervention

## Part I

# Principles to which emergency plans shall have regard

An emergency plan drawn up pursuant to regulation 7, 8 or 9 respectively shall, in so far as it applies to any radiation emergency, be drawn up having regard to the following principles—

- (a) the intervention shall be undertaken only if the reduction in the detriment due to the radiation resulting from the radiation emergency is sufficient to justify the harm and costs, including the social costs, of the intervention; and
- (b) the form, scale and duration of the intervention shall be carried out in such a way as to ensure that exposures to radiation are kept as low as is reasonably practicable so that the benefit of the reduction in health detriment less the detriment associated with the intervention will be maximised.

# Part II

## Purposes of intervention

The purposes of intervention referred to in regulations 7(5), 8(6) and regulation 9(12) are—

- (a) reducing or stopping at source direct radiation and the emission of radionuclides;
- (b) reducing the transfer of radioactive substances to individuals from the environment; and
- (c) reducing the exposure and organising the treatment of persons who have been subject to exposure to radiation.

#### SCHEDULE 9

Regulation 16(1)

# Prior information to be supplied and made publicly available

- 1. Basic facts about radioactivity and its effects on persons and on the environment.
- 2. The various types of radiation emergency covered and their consequences for the general public and the environment.
- 3. Emergency measures envisaged to alert, protect and assist the general public in the event of a radiation emergency.
- 4. Appropriate information on action to be taken by the general public in the event of a radiation emergency.

5. The authority or authorities responsible for implementing the emergency measures and action referred to in paragraphs 3 and 4.

### SCHEDULE 10

Regulation 17(4)

### Information to be supplied in the event of a Radiation Emergency

- 1. Information on the type of emergency which has occurred, and, where possible, its characteristics, for example, its origin, extent and probable development.
- 2. Advice on health protection measures, which, depending on the type of emergency, might include—
  - (a) any restrictions on the consumption of certain foodstuffs and water supply likely to be contaminated;
  - (b) any basic rules on hygiene and decontamination;
  - (c) any recommendation to stay indoors;
  - (d) the distribution and use of protective substances;
  - (e) any evacuation arrangements;
  - (f) special warnings for certain population groups.
- 3. Any announcements recommending co-operation with instructions or requests by the competent authorities.
- 4. Where an occurrence which is likely to give rise to a release of radioactivity or ionising radiation has happened but no release has yet taken place, the information and advice should include the following—
  - (a) an invitation to tune in to radio or television;
  - (b) preparatory advice to establishments with particular collective responsibilities; and
  - (c) recommendations to occupational groups particularly affected.
- 5. If time permits, information setting out the basic facts about radioactivity and its effects on persons and on the environment.

# SCHEDULE 11

Regulation 21

### **Amendment of Regulations**

## Fire Certificates (Special Premises) Regulations (Northern Ireland) 1991

- 1. For paragraph 13 of Schedule 1 to the Fire Certificates (Special Premises) Regulations (Northern Ireland) 1991(1) there shall be substituted—
  - "13. Premises to which the Radiation (Emergency Preparedness and Public Information) Regulations (Northern Ireland) 2001 apply by virtue of regulation 3 of those Regulations.".

<sup>(1)</sup> S.R. 1991 No. 446

## Ionising Radiations Regulations (Northern Ireland) 2000

- 2. The 2000 Regulations shall be amended in accordance with paragraphs 3 to 7.
- 3. In regulation 35(1), after the words "these Regulations" there shall be inserted the words "or of the Radiation (Emergency Preparedness and Public Information) Regulations (Northern Ireland) 2001".
  - 4. After regulation 35, there shall be inserted the following regulation—

#### "Enforcement

- 35A. Insofar as any provision of regulation 21 is made under section 2(2) of the European Communities Act 1972, Articles—
  - (a) 18 to 23 (approval of codes of practice and enforcement);
  - (b) 25 (provisions supplementary to Articles 23 and 24) and 26 (appeal against improvement or prohibition notice), so far as they relate to an improvement notice;
  - (c) 28 (power to indemnify inspectors); and
  - (d) 31 to 39 (provisions as to offences), of the Health and Safety at Work (Northern Ireland) Order 1978 shall apply to that provision as if that provision had been made under Article 17 of that Order.".
- 5. After paragraph (6) of regulation 36 there shall be inserted the following paragraph—
  - "(7) Where a contravention of these Regulations by any person is due to the act or default of some other person, that other person shall be guilty of the offence which would, but for any defence under this regulation available to the first-mentioned person, be constituted by the act or default."
- 6. In paragraph 6 of Schedule 4, after "trainee" there shall be inserted the words "referred to in paragraphs 1 or 3".
- 7. In paragraph 19 of Schedule 4, in place of "pursuant to regulation 11(2)" there shall be substituted "in accordance with regulation 11(1)".

# Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997

- 8. In Schedule 7 of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997(2)—
  - (a) in Column 1 for the words "Ionising Radiations Regulations (Northern Ireland) 1985" there shall be substituted "Ionising Radiations Regulations (Northern Ireland) 2000";
  - (b) in Column 1 after the final entry there shall be added: "Radiation (Emergency Preparedness and Public Information) Regulations (Northern Ireland) 2001.";
  - (c) in Column 2 for the words "S.R. 1985 No. 273" there shall be substituted "S.R. 2000 No. 375"; and
  - (d) in Column 2 after the final entry there shall be added: "S.R. 2001 No. 436.".

<sup>(2)</sup> S.R. 1997 No. 455