

Federal Register

Tuesday
September 26, 1989

Part II

Department of Transportation

Research and Special Programs

Administration

49 CFR Parts 171, 172, and 173

Hazardous Substances; Final Rule

HM-145H

DEPARTMENT OF TRANSPORTATION

Research and Special Programs
Administration

49 CFR Parts 171, 172 and 173

[Docket No HM-145H; Amdt Nos. 171-105,
172-119, 173-217]

RIN 2137-AA68

Hazardous Substances

AGENCY: Research and Special Programs
Administration (RSPA), Department of
Transportation (DOT).

ACTION: Final rule.

SUMMARY: In this final rule, RSPA is amending the Hazardous Materials Regulations (HMR) by revising the "List of Hazardous Substances and Reportable Quantities" which appears in the appendix to 49 CFR 172.101. This action is necessary to comply with a 1986 amendment (Pub. L. 99-499) to section 306(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (Pub. L. 96-510). The intended effect of this action is to enable carriers of hazardous materials to specifically identify CERCLA hazardous substances and to make the required notification if a discharge of a reportable quantity occurs.

EFFECTIVE DATE: These amendments are effective October 31, 1989. However, immediate compliance with the regulations as amended herein is authorized. The provisions of 49 CFR 172.101(j), which allow up to one year after a change to the HMT to use up stocks of preprinted shipping papers and to ship packages that were marked prior to the change, do not apply to these amendments.

FOR FURTHER INFORMATION CONTACT: John A. Gale (202) 366-4488, Standards Division, Office of Hazardous Materials Transportation, RSPA, 400 7th Street, SW., Washington, DC 20590. Questions about hazardous substance designations or reportable quantities should be directed to the Environmental Protection Agency (EPA). Call the RCRA/Superfund hotline at (800) 424-9346 or in Washington, DC (202) 382-3000.

SUPPLEMENTARY INFORMATION:

1. Background

Section 202 of the Superfund Amendments and Reauthorization Act (SARA; Pub. L. 99-499) of 1986 amended section 306(a) of CERCLA by requiring the Secretary of Transportation to list and regulate hazardous substances, listed or designated under section 101(14) of CERCLA, as hazardous

materials under the Hazardous Materials Transportation Act (HMTA; 49 App. U.S.C. 1801 et seq.). RSPA carries out the rulemaking responsibilities of the Secretary of Transportation under the HMTA. This final rule is necessary to comply with section 306(a) of CERCLA as it is amended by section 202 of SARA.

RSPA's role in regulating hazardous substances is directly tied to EPA's ongoing hazardous substances responsibility. RSPA has no role in determining what is or is not a hazardous substance or the appropriate reportable quantity (RQ) for materials designated as hazardous substances. This authority is vested in EPA. Therefore, under the CERCLA scheme EPA must issue final rules amending the list of CERCLA hazardous substances, including adjusting RQs, before RSPA can amend its list of hazardous substances. In the preamble to the final rule on this subject issued under Docket HM-145F (51 FR 42174, November 21, 1986), RSPA included the following statement:

It is RSPA's intention to make changes from time to time to the list of hazardous substances or their RQs in the Appendix as adjustments are made by EPA.

On May 24, 1989, EPA published a final rule (54 FR 22524) which changed the RQs for radionuclides from the all-inclusive one pound RQ to RQs of varying values, based upon activity, for specific radionuclides. In order to facilitate use of the listing of hazardous substances, RSPA has decided to create two separate tables, one for radionuclides and their RQs and the other for all other hazardous substances. The current list of hazardous substances and reportable quantities is titled "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" while the new table of hazardous substances, which contains the listing of radionuclides and their RQs, bears the heading of "TABLE 2—RADIONUCLIDES". Both of these tables are located in the appendix to § 172.101 which continues to be entitled "LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES".

The entry for "RADIONUCLIDES" in the RQ column in the current list of hazardous substances and reportable quantities is revised to read "See TABLE 2". In addition, the note preceding the list of hazardous substances is revised to reflect the creation of two separate tables of hazardous substances and RQs and to provide guidance on how to determine the RQs for mixtures of radionuclides. The definition of "Hazardous substance" in § 171.8 is amended to

point out that requirements on determining the RQ for a mixture of radionuclides is located in paragraph 6 of the note in the appendix to § 172.101.

RSPA is excepting radioactive material, which meets the definition of a hazardous substance, from the additional shipping paper and marking requirements of §§ 172.203(c)(1) and 172.324(a) when such packages are described on shipping papers in accordance with § 172.203(d) and labeled in accordance with § 172.403. RSPA believes that the communication requirements already required for radioactive material packages provide sufficient information for determining if a hazardous substance spill has occurred. However, packages of radioactive materials that contain a hazardous substance are not excepted from the requirements in §§ 172.203(c)(2) and 172.324(b) regarding the letters "RQ" on shipping papers and package markings.

In certain cases, however, RSPA notes that compliance with § 172.203(d) and § 172.403 will not specifically identify the hazardous substance(s) in question. Sections 172.203(d) and 172.403 state that the name of each radionuclide as listed in § 173.435 (i.e., Table of A₁ and A₂ values for radionuclides) must be placed on the shipping paper or label, respectively. Some of the nuclide entries in § 173.435 are not specifically listed in the new table of reportable quantities for radionuclides. These entries are as follows: natural uranium, depleted uranium (DU), irradiated uranium, uranium enriched less than 20%, uranium enriched 20% or greater, natural thorium and irradiated thorium. RSPA believes that, along with the letters "RQ", the placing of entries such as depleted uranium or irradiated thorium on shipping papers and on labels provides enough information to help in the determination if a spill of hazardous substance has occurred. Therefore, RSPA is adding these entries to "TABLE 2—RADIONUCLIDES" of the List of Hazardous Substances and Reportable Quantities and, with the exception of natural thorium and natural uranium, will be prefaced with the footnote "*****". The footnote "*****" will signify that the entry was added by RSPA because it appears as a listed radionuclide in § 173.435 and that its reportable quantity shall be determined in accordance with the procedures in paragraph 6 of the appendix to § 172.101. The following is the text for the footnote "*****" as it will appear in "TABLE 2—RADIONUCLIDES" of the appendix to § 172.101:

***—indicates that the name was added by RSPA because it appears in the list of radionuclides in § 173.435. The reportable quantity (RQ), if not specifically listed elsewhere in this Appendix, shall be determined in accordance with the procedures in paragraph 6 of this Appendix.

Natural uranium and natural thorium will be prefaced with the footnote "****" which will bring attention to the RQ determined for natural uranium, natural uranium in secular equilibrium and its daughters, and natural thorium in secular equilibrium with its daughters. Otherwise, the RQ for the material must be determined in accordance with paragraph 6 of the appendix to § 172.101.

In addition, LSA radioactive materials, which are shipped in accordance with § 173.425(b), are excepted from all marking, except for the statement "Radioactive—LSA", and labeling requirements of the HMR. For packages shipped in accordance with § 173.425(b) that contain a hazardous substance, RSPA believes that present regulatory requirements do not provide sufficient information to determine if a reportable quantity spill has occurred. Therefore, RSPA is revising § 173.425(b)(8) by requiring that the letters "RQ" appear, in association with the statement "Radioactive—LSA", on packages of 110 gallon capacity or less that contain a hazardous substance.

The regulatory action in this final rule is mandated by statute, and for this reason, RSPA is not affording persons affected by this rule the relief afforded by § 172.101(j) which allows up to one year after a change to the HMT to use up stocks of preprinted shipping papers and to ship packages that were marked prior to the change.

Administrative Notices

In accordance with the Administrative Procedure Act, 5 U.S.C. 553, RSPA has determined that a notice of proposed rulemaking and an opportunity for public comment and review are impracticable and unnecessary. SARA mandated that the Department of Transportation regulate, as hazardous materials under 49 CFR parts 171.179, those hazardous substances designated under CERCLA. EPA is the sole agency authorized to designate hazardous substances and their reportable quantities. Therefore, public comment and review are unnecessary because: (1) The public was afforded time to comment when EPA published its notice of proposed rulemaking concerning that agency's change in the subject RQs; and (2) RSPA does not have the authority to designate hazardous substances or determine their reportable quantities.

RSPA has determined that this rulemaking: (1) Is not a "major rule" under Executive Order 12291; (2) is not "significant" under DOT's regulatory policies and procedures (44 FR 11034); (3) will not affect not-for-profit enterprises or small governmental jurisdictions; (4) does not require an environmental impact statement under the National Environmental Policy Act, (42 U.S.C. 4321 *et seq.*); and (5) because of minimal economic impact, does not require the preparation of a regulatory evaluation.

Based on limited information concerning the size and nature of entities likely to be affected, I certify that this regulation will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12812, and it has been determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federal Assessment.

List of Subjects

49 CFR 171

Hazardous materials transportation, Definitions.

49 CFR 172

Hazardous materials transportation, Hazardous substances.

49 CFR 173

Hazardous materials transportation, Radioactive materials.

In consideration of the foregoing, parts 171, 172 and 173 of title 49, Code of Federal Regulations are amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. The authority citation for part 171 continues to read as follows:

Authority: 49 App. U.S.C. 1802, 1803, 1804, 1808; 49 CFR part 1, unless otherwise noted.

2. In § 171.8, for the definition of "Hazardous substance", the introductory text in paragraph (3) preceding the table is revised to read as follows:

§ 171.8 Definitions and abbreviations.

.....
 "Hazardous substance"

(3) When in a mixture or solution—
 (i) For radionuclides, conforms to paragraph 6 of the Appendix to § 172.101.

(ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

.....

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

3 The authority citation for part 172 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, and 1808; Pub. L. 99-499 and 49 CFR part 1, unless otherwise noted.

Appendix to § 172.101 [Amended]

4. In the appendix to § 172.101, entitled "LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES", the introductory text, which precedes the listing of hazardous substances in the appendix to § 172.101, is revised to read as follows:

Appendix to § 172.101—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

1. This appendix lists materials and their corresponding reportable quantities (RQs) which are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; Pub. L. 96-510). This Appendix is divided into 2 TABLES which are entitled "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" and "TABLE 2—RADIONUCLIDES". A material listed in this Appendix is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in § 171.8 of this subchapter.

2. The procedure for selecting a proper shipping name for a hazardous substance is set forth in § 172.101(c)(9).

3. Column 1 of TABLE 1, entitled "Hazardous substance", contains the names of those elements and compounds which are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "F" or "K" numbers. Column 2 of TABLE 1, entitled "Synonyms", contains the names of synonyms for certain elements and compounds listed in Column 1. No synonyms are listed for waste streams. Synonyms are useful in identifying hazardous substances and in identifying proper shipping names. Column 3 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

4. A series of notes are used throughout TABLE 1 and TABLE 2 to provide additional information concerning certain hazardous substances. These notes are explained at the end of each TABLE

5. TABLE 2 lists radionuclides which are hazardous substances and their corresponding RQs. The RQs in Table 2 for radionuclides are expressed in units of curies and terabecquerels, whereas those in Table 1 are expressed in units of pounds. If a material is listed in both Table 1 and Table 2, the lowest RQ shall apply. Radionuclides are listed in alphabetical order. The RQs for radionuclides are given in the radiological unit of measure of curie, abbreviated "Ci", followed, in parentheses, by an equivalent unit measured in terabecquerels, abbreviated "TBq".

6. For mixtures of radionuclides, the following determinations shall be used in determining if a package contains an RQ of a hazardous substance: (i) If the identity and quantity (in curies or terabecquerels) of each radionuclide in a mixture or solution is known, the ratio between the quantity per package (in curies or terabecquerels) and the RQ for the radionuclide must be determined for each radionuclide. A package contains an RQ of a hazardous substance when the sum of the ratios for the radionuclides in the mixture or solution is equal to or greater than one; (ii) if the identity of each radionuclide in a mixture or solution is known but the quantity per package (in curies or terabecquerels) of one or more of the radionuclides is unknown, an RQ of a hazardous substance is present in a package when the total quantity (in curies or terabecquerels) of the mixture or solution is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution; and (iii) if the identity of one or more radionuclides in a mixture or solution is unknown (or if the identity of a radionuclide by itself is unknown), an RQ of a hazardous substance is present when the total quantity (in curies or terabecquerels) in a package is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.

Appendix to § 172.101 [Amended]

5. In the appendix to § 172.101, the table heading "LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES" is revised to read "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES".

Appendix to § 172.101 [Amended]

6. In the appendix to § 172.101, in newly designated Table 1, the Reportable Quantity (RQ) entry for "RADIONUCLIDES" is revised to read "See TABLE 2".

Appendix to § 172.101 [Amended]

7. In the appendix to § 172.101, following the newly designated "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" a new table, entitled "TABLE 2—RADIONUCLIDES", is added to read as follows:

List of Hazardous Substances and Reportable Quantities

TABLE 2.—RADIONUCLIDES

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Actinium-224	89	100 (3.7)
Actinium-225	89	1 (.037)
Actinium-226	89	10 (.37)
Actinium-227	89	0.001 (.00037)
Actinium-228	89	10 (.37)
Aluminum-26	13	10 (.37)
Americium-237	95	1000 (37)
Americium-238	95	100 (3.7)
Americium-239	95	100 (3.7)
Americium-240	95	10 (.37)
Americium-241	95	0.01 (.0037)
Americium-242	95	100 (3.7)
Americium-242m	95	0.01 (.0037)
Americium-243	95	0.01 (.0037)
Americium-244	95	10 (.37)
Americium-244m	95	1000 (37)
Americium-245	95	1000 (37)
Americium-246	95	1000 (37)
Americium-246m	95	1000 (37)
Antimony-115	51	1000 (37)
Antimony-116	51	1000 (37)
Antimony-116m	51	100 (3.7)
Antimony-117	51	1000 (37)
Antimony-118m	51	10 (.37)
Antimony-119	51	1000 (37)
Antimony-120 (16 min)	51	1000 (37)
Antimony-120 (5.76 day)	51	10 (.37)
Antimony-122	51	10 (.37)
Antimony-124	51	10 (.37)
Antimony-124m	51	1000 (37)
Antimony-125	51	10 (.37)
Antimony-126	51	10 (.37)
Antimony-126m	51	1000 (37)
Antimony-127	51	10 (.37)
Antimony-128 (10.4 min)	51	1000 (37)
Antimony-128 (9.01 hr)	51	10 (.37)
Antimony-129	51	100 (3.7)
Antimony-130	51	100 (3.7)
Antimony-131	51	1000 (37)
Argon-39	18	1000 (37)
Argon-41	18	10 (.37)
Arsenic-69	33	1000 (37)
Arsenic-70	33	100 (3.7)
Arsenic-71	33	100 (3.7)
Arsenic-72	33	10 (.37)
Arsenic-73	33	100 (3.7)
Arsenic-74	33	10 (.37)
Arsenic-76	33	100 (3.7)
Arsenic-77	33	1000 (37)
Arsenic-78	33	100 (3.7)
Astatine-207	85	100 (3.7)
Astatine-211	85	100 (3.7)
Barium-126	56	1000 (37)
Barium-128	56	10 (.37)
Barium-131	56	10 (.37)
Barium-131m	56	1000 (37)
Barium-133	56	10 (.37)
Barium-133m	56	100 (3.7)
Barium-135m	56	1000 (37)
Barium-139	56	1000 (37)
Barium-140	56	10 (.37)
Barium-141	56	1000 (37)
Barium-142	56	1000 (37)
Berkelium-245	97	100 (3.7)
Berkelium-246	97	10 (.37)
Berkelium-247	97	0.01 (.0037)
Berkelium-249	97	1 (.037)
Berkelium-250	97	100 (3.7)
Beryllium-10	4	1 (.037)
Beryllium-7	4	100 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Bismuth-200	83	100 (3.7)
Bismuth-201	83	100 (3.7)
Bismuth-202	83	1000 (37)
Bismuth-203	83	10 (.37)
Bismuth-205	83	10 (.37)
Bismuth-206	83	10 (.37)
Bismuth-207	83	10 (.37)
Bismuth-210	83	10 (.37)
Bismuth-210m	83	0.1 (.0037)
Bismuth-212	83	100 (3.7)
Bismuth-213	83	100 (3.7)
Bismuth-214	83	100 (3.7)
Bromine-74	35	100 (3.7)
Bromine-74m	35	100 (3.7)
Bromine-75	35	100 (3.7)
Bromine-76	35	10 (.37)
Bromine-77	35	100 (3.7)
Bromine-80	35	1000 (37)
Bromine-80m	35	1000 (37)
Bromine-82	35	10 (.37)
Bromine-83	35	1000 (37)
Bromine-84	35	100 (3.7)
Cadmium-104	48	1000 (37)
Cadmium-107	48	1000 (37)
Cadmium-109	48	1 (.037)
Cadmium-113	48	0.1 (.0037)
Cadmium-113m	48	0.1 (.0037)
Cadmium-115	48	100 (3.7)
Cadmium-115m	48	10 (.37)
Cadmium-117	48	100 (3.7)
Cadmium-117m	48	10 (.37)
Calcium-41	20	10 (.37)
Calcium-45	20	10 (.37)
Calcium-47	20	10 (.37)
Californium-244	98	1000 (37)
Californium-246	98	10 (.37)
Californium-248	98	0.1 (.0037)
Californium-249	98	0.01 (.0037)
Californium-250	98	0.01 (.0037)
Californium-251	98	0.01 (.0037)
Californium-252	98	0.1 (.0037)
Californium-253	98	10 (.37)
Californium-254	98	0.1 (.0037)
Carbon-11	6	1000 (37)
Carbon-14	6	10 (.37)
Cerium-134	58	10 (.37)
Cerium-135	58	10 (.37)
Cerium-137	58	1000 (37)
Cerium-137m	58	100 (3.7)
Cerium-139	58	100 (3.7)
Cerium-141	58	10 (.37)
Cerium-143	58	100 (3.7)
Cerium-144	58	1 (.037)
Cesium-125	55	1000 (37)
Cesium-127	55	100 (3.7)
Cesium-129	55	100 (3.7)
Cesium-130	55	1000 (37)
Cesium-131	55	1000 (37)
Cesium-132	55	10 (.37)
Cesium-134	55	1 (.037)
Cesium-134m	55	1000 (37)
Cesium-135	55	10 (.37)
Cesium-135m	55	100 (3.7)
Cesium-136	55	10 (.37)
Cesium-137	55	1 (.037)
Cesium-138	55	100 (3.7)
Chlorine-36	17	10 (.37)
Chlorine-38	17	100 (3.7)
Chlorine-39	17	100 (3.7)
Chromium-48	24	100 (3.7)
Chromium-49	24	1000 (37)
Chromium-51	24	1000 (37)
Cobalt-55	27	10 (.37)
Cobalt-56	27	10 (.37)
Cobalt-57	27	100 (3.7)
Cobalt-58	27	10 (.37)
Cobalt-58m	27	1000 (37)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Cobalt-60	27	10 (37)
Cobalt-60m	27	1000 (37)
Cobalt-61	27	1000 (37)
Cobalt-62m	27	1000 (37)
Copper-60	29	100 (3.7)
Copper-61	29	100 (3.7)
Copper-64	29	1000 (3.7)
Copper-67	29	100 (3.7)
Curium-238	96	1000 (3.7)
Curium-240	96	1 (0.37)
Curium-241	96	10 (3.7)
Curium-242	96	1 (0.37)
Curium-243	96	0.01 (0.0037)
Curium-244	96	0.01 (0.0037)
Curium-245	96	0.01 (0.0037)
Curium-246	96	0.01 (0.0037)
Curium-247	96	0.01 (0.0037)
Curium-248	96	0.001 (0.00037)
Curium-249	96	1000 (3.7)
Dysprosium-155	66	100 (3.7)
Dysprosium-157	66	100 (3.7)
Dysprosium-159	66	100 (3.7)
Dysprosium-165	66	1000 (3.7)
Dysprosium-166	66	10 (3.7)
Einsteinium-250	99	10 (3.7)
Einsteinium-251	99	1000 (3.7)
Einsteinium-253	99	10 (3.7)
Einsteinium-254	99	0.1 (0.037)
Einsteinium-254m	99	1 (0.37)
Erbium-181	68	100 (3.7)
Erbium-185	68	1000 (3.7)
Erbium-169	68	100 (3.7)
Erbium-171	68	100 (3.7)
Erbium-172	68	10 (3.7)
Europium-145	63	10 (3.7)
Europium-146	63	10 (3.7)
Europium-147	63	10 (3.7)
Europium-148	63	10 (3.7)
Europium-149	63	100 (3.7)
Europium-150 (12.6 hr)	63	1000 (3.7)
Europium-150 (34.2 yr)	63	10 (3.7)
Europium-152	63	10 (3.7)
Europium-152m	63	100 (3.7)
Europium-154	63	10 (3.7)
Europium-155	63	10 (3.7)
Europium-156	63	10 (3.7)
Europium-157	63	10 (3.7)
Europium-158	63	1000 (3.7)
Fermium-252	100	10 (3.7)
Fermium-253	100	10 (3.7)
Fermium-254	100	100 (3.7)
Fermium-255	100	100 (3.7)
Fermium-257	100	1 (0.37)
Fluorine-18	9	1000 (3.7)
Francium-222	87	100 (3.7)
Francium-223	87	100 (3.7)
Gadolinium-145	64	100 (3.7)
Gadolinium-146	64	10 (3.7)
Gadolinium-147	64	10 (3.7)
Gadolinium-148	64	0.001 (0.00037)
Gadolinium-149	64	100 (3.7)
Gadolinium-151	64	100 (3.7)
Gadolinium-152	64	0.001 (0.00037)
Gadolinium-153	64	10 (3.7)
Gadolinium-159	64	1000 (3.7)
Gallium-65	31	1000 (3.7)
Gallium-66	31	10 (3.7)
Gallium-67	31	100 (3.7)
Gallium-68	31	1000 (3.7)
Gallium-70	31	1000 (3.7)
Gallium-72	31	10 (3.7)
Gallium-73	31	100 (3.7)
Germanium-66	32	100 (3.7)
Germanium-67	32	1000 (3.7)
Germanium-68	32	10 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Germanium-69	32	10 (3.7)
Germanium-71	32	1000 (3.7)
Germanium-75	32	1000 (3.7)
Germanium-77	32	10 (3.7)
Germanium-78	32	1000 (3.7)
Gold-193	79	100 (3.7)
Gold-194	79	10 (3.7)
Gold-195	79	100 (3.7)
Gold-198	79	100 (3.7)
Gold-198m	79	10 (3.7)
Gold-199	79	100 (3.7)
Gold-200	79	1000 (3.7)
Gold-200m	79	10 (3.7)
Gold-201	79	1000 (3.7)
Hafnium-170	72	100 (3.7)
Hafnium-172	72	1 (0.37)
Hafnium-173	72	100 (3.7)
Hafnium-175	72	100 (3.7)
Hafnium-177m	72	1000 (3.7)
Hafnium-178m	72	0.1 (0.037)
Hafnium-179m	72	100 (3.7)
Hafnium-180m	72	100 (3.7)
Hafnium-181	72	10 (3.7)
Hafnium-182	72	0.1 (0.037)
Hafnium-182m	72	100 (3.7)
Hafnium-183	72	100 (3.7)
Hafnium-184	72	100 (3.7)
Holmium-155	67	1000 (3.7)
Holmium-157	67	1000 (3.7)
Holmium-159	67	1000 (3.7)
Holmium-161	67	1000 (3.7)
Holmium-162	67	1000 (3.7)
Holmium-162m	67	1000 (3.7)
Holmium-164	67	1000 (3.7)
Holmium-164m	67	1000 (3.7)
Holmium-166	67	100 (3.7)
Holmium-166m	67	1 (0.37)
Holmium-167	67	100 (3.7)
Hydrogen-3	1	100 (3.7)
Indium-109	49	100 (3.7)
Indium-110 (4.9 hr)	49	10 (3.7)
Indium-110 (69.1 min)	49	100 (3.7)
Indium-111	49	100 (3.7)
Indium-112	49	1000 (3.7)
Indium-113m	49	1000 (3.7)
Indium-114m	49	10 (3.7)
Indium-115	49	0.1 (0.037)
Indium-115m	49	100 (3.7)
Indium-118m	49	100 (3.7)
Indium-117	49	1000 (3.7)
Indium-117m	49	100 (3.7)
Indium-119m	49	1000 (3.7)
Iodine-120	53	10 (3.7)
Iodine-120m	53	100 (3.7)
Iodine-121	53	100 (3.7)
Iodine-123	53	10 (3.7)
Iodine-124	53	0.1 (0.037)
Iodine-125	53	0.01 (0.0037)
Iodine-126	53	0.01 (0.0037)
Iodine-129	53	1000 (3.7)
Iodine-129	53	0.001 (0.00037)
Iodine-130	53	1 (0.37)
Iodine-131	53	0.01 (0.0037)
Iodine-132	53	10 (3.7)
Iodine-132m	53	10 (3.7)
Iodine-133	53	0.1 (0.037)
Iodine-134	53	100 (3.7)
Iodine-135	53	10 (3.7)
Indium-182	77	1000 (3.7)
Indium-184	77	100 (3.7)
Indium-185	77	100 (3.7)
Indium-186	77	10 (3.7)
Indium-187	77	100 (3.7)
Indium-188	77	10 (3.7)
Indium-189	77	100 (3.7)
Indium-190	77	10 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Indium-190m	77	1000 (3.7)
Indium-192	77	10 (3.7)
Indium-192m	77	100 (3.7)
Indium-194	77	100 (3.7)
Indium-194m	77	10 (3.7)
Indium-195	77	1000 (3.7)
Indium-195m	77	100 (3.7)
Iron-52	26	100 (3.7)
Iron-55	26	100 (3.7)
Iron-56	26	10 (3.7)
Iron-60	26	0.1 (0.037)
Krypton-74	36	10 (3.7)
Krypton-78	36	10 (3.7)
Krypton-77	36	10 (3.7)
Krypton-79	36	100 (3.7)
Krypton-81	36	1000 (3.7)
Krypton-83m	36	1000 (3.7)
Krypton-86	36	1000 (3.7)
Krypton-85m	36	100 (3.7)
Krypton-87	36	10 (3.7)
Krypton-88	36	10 (3.7)
Lanthanum-131	57	1000 (3.7)
Lanthanum-132	57	100 (3.7)
Lanthanum-135	57	1000 (3.7)
Lanthanum-137	57	10 (3.7)
Lanthanum-138	57	1 (0.37)
Lanthanum-140	57	10 (3.7)
Lanthanum-141	57	1000 (3.7)
Lanthanum-142	57	100 (3.7)
Lanthanum-143	57	1000 (3.7)
Lead-195m	82	1000 (3.7)
Lead-198	82	100 (3.7)
Lead-199	82	100 (3.7)
Lead-200	82	100 (3.7)
Lead-201	82	100 (3.7)
Lead-202	82	1 (0.37)
Lead-202m	82	10 (3.7)
Lead-203	82	100 (3.7)
Lead-205	82	100 (3.7)
Lead-206	82	1000 (3.7)
Lead-210	82	0.01 (0.0037)
Lead-211	82	100 (3.7)
Lead-212	82	10 (3.7)
Lead-214	82	100 (3.7)
Lutetium-169	71	10 (3.7)
Lutetium-170	71	10 (3.7)
Lutetium-171	71	10 (3.7)
Lutetium-172	71	10 (3.7)
Lutetium-173	71	100 (3.7)
Lutetium-174	71	10 (3.7)
Lutetium-174m	71	10 (3.7)
Lutetium-176	71	1 (0.37)
Lutetium-176m	71	1000 (3.7)
Lutetium-177	71	100 (3.7)
Lutetium-177m	71	10 (3.7)
Lutetium-178	71	1000 (3.7)
Lutetium-178m	71	1000 (3.7)
Lutetium-179	71	1000 (3.7)
Magnesium-28	12	10 (3.7)
Manganese-51	25	1000 (3.7)
Manganese-52	25	10 (3.7)
Manganese-52m	25	1000 (3.7)
Manganese-53	25	1000 (3.7)
Manganese-54	25	10 (3.7)
Manganese-56	25	100 (3.7)
Mendelevium-257	101	100 (3.7)
Mendelevium-258	101	1 (0.37)
Mercury-193	80	100 (3.7)
Mercury-193m	80	10 (3.7)
Mercury-194	80	0.1 (0.037)
Mercury-195	80	100 (3.7)
Mercury-195m	80	100 (3.7)
Mercury-197	80	1000 (3.7)
Mercury-197m	80	1000 (3.7)
Mercury-199m	80	1000 (3.7)
Mercury-203	80	10 (3.7)
Molybdenum-101	42	1000 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Molybdenum-90	42	100 (3.7)
Molybdenum-93	42	100 (3.7)
Molybdenum-93m	42	10 (3.7)
Molybdenum-99	42	100 (3.7)
Neodymium-136	60	1000 (37)
Neodymium-138	60	1000 (37)
Neodymium-139	60	1000 (37)
Neodymium-139m	60	100 (3.7)
Neodymium-141	60	1000 (37)
Neodymium-147	60	10 (3.7)
Neodymium-149	60	100 (3.7)
Neodymium-151	60	1000 (37)
Neptunium-232	93	1000 (37)
Neptunium-233	93	1000 (37)
Neptunium-234	93	10 (3.7)
Neptunium-235	93	1000 (37)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (0.037)
Neptunium-236 (22.5 hr)	93	100 (3.7)
Neptunium-237	93	0.01 (0.0037)
Neptunium-238	93	10 (3.7)
Neptunium-239	93	100 (3.7)
Neptunium-240	93	100 (3.7)
Nickel-56	28	10 (3.7)
Nickel-57	28	10 (3.7)
Nickel-59	28	100 (3.7)
Nickel-63	28	100 (3.7)
Nickel-65	28	100 (3.7)
Nickel-66	28	10 (3.7)
Niobium-88	41	100 (3.7)
Niobium-89 (122 min)	41	100 (3.7)
Niobium-89 (66 min)	41	100 (3.7)
Niobium-90	41	10 (3.7)
Niobium-93m	41	100 (3.7)
Niobium-94	41	10 (3.7)
Niobium-95	41	10 (3.7)
Niobium-95m	41	100 (3.7)
Niobium-96	41	10 (3.7)
Niobium-97	41	100 (3.7)
Niobium-98	41	1000 (37)
Osmium-180	76	1000 (37)
Osmium-181	76	100 (3.7)
Osmium-182	76	100 (3.7)
Osmium-185	76	10 (3.7)
Osmium-189m	76	1000 (37)
Osmium-191	76	100 (3.7)
Osmium-191m	76	1000 (37)
Osmium-193	76	100 (3.7)
Osmium-194	76	1 (0.37)
Palladium-100	46	100 (3.7)
Palladium-101	46	100 (3.7)
Palladium-103	46	100 (3.7)
Palladium-107	46	100 (3.7)
Palladium-109	46	1000 (37)
Phosphorus-32	15	0.1 (0.037)
Phosphorus-33	15	1 (0.37)
Platinum-186	78	100 (3.7)
Platinum-188	78	100 (3.7)
Platinum-189	78	100 (3.7)
Platinum-191	78	100 (3.7)
Platinum-193	78	1000 (37)
Platinum-193m	78	100 (3.7)
Platinum-195m	78	100 (3.7)
Platinum-197	78	1000 (37)
Platinum-197m	78	1000 (37)
Platinum-199	78	1000 (37)
Platinum-200	78	100 (3.7)
Plutonium-234	94	1000 (37)
Plutonium-235	94	1000 (37)
Plutonium-236	94	0.1 (0.037)
Plutonium-237	94	1000 (37)
Plutonium-238	94	0.01 (0.0037)
Plutonium-239	94	0.01 (0.0037)
Plutonium-240	94	0.01 (0.0037)
Plutonium-241	94	1 (0.37)
Plutonium-242	94	0.01 (0.0037)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Plutonium-243	94	1000 (37)
Plutonium-244	94	0.01 (0.0037)
Plutonium-245	94	100 (3.7)
Polonium-203	84	100 (3.7)
Polonium-205	84	100 (3.7)
Polonium-207	84	10 (3.7)
Polonium-210	84	0.01 (0.0037)
Potassium-40	19	1 (0.37)
Potassium-42	19	100 (3.7)
Potassium-43	19	10 (3.7)
Potassium-44	19	100 (3.7)
Potassium-45	19	1000 (37)
Praseodymium-136	59	1000 (37)
Praseodymium-137	59	1000 (37)
Praseodymium-138m	59	100 (3.7)
Praseodymium-139	59	1000 (37)
Praseodymium-142	59	100 (3.7)
Praseodymium-142m	59	1000 (37)
Praseodymium-143	59	10 (3.7)
Praseodymium-144	59	1000 (37)
Praseodymium-145	59	1000 (37)
Praseodymium-147	59	1000 (37)
Promethium-141	61	1000 (37)
Promethium-143	61	100 (3.7)
Promethium-144	61	10 (3.7)
Promethium-145	61	100 (3.7)
Promethium-146	61	10 (3.7)
Promethium-147	61	10 (3.7)
Promethium-148	61	10 (3.7)
Promethium-148m	61	10 (3.7)
Promethium-149	61	100 (3.7)
Promethium-150	61	100 (3.7)
Promethium-151	61	100 (3.7)
Protactinium-227	91	100 (3.7)
Protactinium-228	91	10 (3.7)
Protactinium-230	91	10 (3.7)
Protactinium-231	91	0.01 (0.0037)
Protactinium-232	91	10 (3.7)
Protactinium-233	91	100 (3.7)
Protactinium-234	91	10 (3.7)
RADIONUCLIDES §		
†		1 (0.37)
Radium-223	88	1 (0.37)
Radium-224	88	10 (3.7)
Radium-225	88	1 (0.37)
Radium-226 **	88	0.1 (0.037)
Radium-227	88	1000 (37)
Radium-228	88	0.1 (0.037)
Radon-220	86	0.1 (0.037)
Radon-222	86	0.1 (0.037)
Rhenium-177	75	1000 (37)
Rhenium-178	75	1000 (37)
Rhenium-181	75	100 (3.7)
Rhenium-182 (12.7 hr)	75	10 (3.7)
Rhenium-182 (64.0 hr)	75	10 (3.7)
Rhenium-184	75	10 (3.7)
Rhenium-184m	75	10 (3.7)
Rhenium-186	75	100 (3.7)
Rhenium-186m	75	10 (3.7)
Rhenium-187	75	1000 (37)
Rhenium-188	75	1000 (37)
Rhenium-188m	75	1000 (37)
Rhenium-189	75	1000 (37)
Rhodium-100	45	10 (3.7)
Rhodium-101	45	10 (3.7)
Rhodium-101m	45	100 (3.7)
Rhodium-102	45	10 (3.7)
Rhodium-102m	45	10 (3.7)
Rhodium-103m	45	1000 (37)
Rhodium-105	45	100 (3.7)
Rhodium-106m	45	10 (3.7)
Rhodium-107	45	1000 (37)
Rhodium-99	45	10 (3.7)
Rhodium-99m	45	100 (3.7)
Rubidium-79	37	1000 (37)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Rubidium-81	37	100 (3.7)
Rubidium-81m	37	1000 (37)
Rubidium-82m	37	10 (3.7)
Rubidium-83	37	10 (3.7)
Rubidium-84	37	10 (3.7)
Rubidium-86	37	10 (3.7)
Rubidium-87	37	10 (3.7)
Rubidium-88	37	1000 (37)
Rubidium-89	37	1000 (37)
Ruthenium-103	44	10 (3.7)
Ruthenium-105	44	100 (3.7)
Ruthenium-106	44	1 (0.37)
Ruthenium-94	44	1000 (37)
Ruthenium-97	44	100 (3.7)
Samarium-141	62	1000 (37)
Samarium-141m	62	1000 (37)
Samarium-142	62	1000 (37)
Samarium-145	62	100 (3.7)
Samarium-146	62	0.01 (0.0037)
Samarium-147	62	0.01 (0.0037)
Samarium-151	62	10 (3.7)
Samarium-153	62	100 (3.7)
Samarium-155	62	1000 (37)
Samarium-156	62	100 (3.7)
Scandium-43	21	1000 (37)
Scandium-44	21	100 (3.7)
Scandium-44m	21	10 (3.7)
Scandium-46	21	10 (3.7)
Scandium-47	21	100 (3.7)
Scandium-48	21	10 (3.7)
Scandium-49	21	1000 (37)
Selenium-70	34	1000 (37)
Selenium-73	34	10 (3.7)
Selenium-73m	34	100 (3.7)
Selenium-75	34	10 (3.7)
Selenium-79	34	10 (3.7)
Selenium-81	34	1000 (37)
Selenium-81m	34	1000 (37)
Selenium-83	34	1000 (37)
Silicon-31	14	1000 (37)
Silicon-32	14	1 (0.37)
Silver-102	47	100 (3.7)
Silver-103	47	1000 (37)
Silver-104	47	1000 (37)
Silver-104m	47	1000 (37)
Silver-105	47	10 (3.7)
Silver-106	47	1000 (37)
Silver-106m	47	10 (3.7)
Silver-108m	47	10 (3.7)
Silver-110m	47	10 (3.7)
Silver-111	47	10 (3.7)
Silver-112	47	100 (3.7)
Silver-115	47	1000 (37)
Sodium-22	11	10 (3.7)
Sodium-24	11	10 (3.7)
Strontium-80	38	100 (3.7)
Strontium-81	38	1000 (37)
Strontium-83	38	100 (3.7)
Strontium-85	38	10 (3.7)
Strontium-85m	38	1000 (37)
Strontium-87m	38	100 (3.7)
Strontium-89	38	10 (3.7)
Strontium-90	38	0.1 (0.037)
Strontium-91	38	10 (3.7)
Strontium-92	38	100 (3.7)
Sulfur-35	16	1 (0.37)
Tantalum-172	73	100 (3.7)
Tantalum-173	73	100 (3.7)
Tantalum-174	73	100 (3.7)
Tantalum-175	73	100 (3.7)
Tantalum-176	73	10 (3.7)
Tantalum-177	73	1000 (37)
Tantalum-178	73	1000 (37)
Tantalum-179	73	1000 (37)
Tantalum-180	73	100 (3.7)
Tantalum-180m	73	1000 (3.7)
Tantalum-182	73	10 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Tantalum-182m	73	1000 (37)
Tantalum-183	73	100 (3.7)
Tantalum-184	73	10 (3.7)
Tantalum-185	73	1000 (37)
Tantalum-186	73	1000 (37)
Technetium-101	43	1000 (37)
Technetium-104	43	1000 (37)
Technetium-93	43	100 (3.7)
Technetium-93m	43	1000 (37)
Technetium-94	43	10 (3.7)
Technetium-94m	43	100 (3.7)
Technetium-96	43	10 (3.7)
Technetium-96m	43	1000 (37)
Technetium-97	43	100 (3.7)
Technetium-97m	43	100 (3.7)
Technetium-98	43	10 (3.7)
Technetium-99	43	10 (3.7)
Technetium-99m	43	100 (3.7)
Tellurium-116	52	1000 (37)
Tellurium-121	52	10 (3.7)
Tellurium-121m	52	10 (3.7)
Tellurium-123	52	10 (3.7)
Tellurium-123m	52	10 (3.7)
Tellurium-125m	52	10 (3.7)
Tellurium-127	52	1000 (37)
Tellurium-127m	52	10 (3.7)
Tellurium-129	52	1000 (37)
Tellurium-129m	52	10 (3.7)
Tellurium-131	52	1000 (37)
Tellurium-131m	52	10 (3.7)
Tellurium-132	52	10 (3.7)
Tellurium-133	52	1000 (37)
Tellurium-133m	52	1000 (37)
Tellurium-134	52	1000 (37)
Terbium-147	65	100 (3.7)
Terbium-149	65	100 (3.7)
Terbium-150	65	100 (3.7)
Terbium-151	65	10 (3.7)
Terbium-153	65	100 (3.7)
Terbium-154	65	10 (3.7)
Terbium-155	65	100 (3.7)
Terbium-156	65	10 (3.7)
Terbium-156m (24.4 hr)	65	1000 (37)
Terbium-156m (5.0 hr)	65	1000 (37)
Terbium-157	65	100 (3.7)
Terbium-158	65	10 (3.7)
Terbium-160	65	10 (3.7)
Terbium-161	65	100 (3.7)
Thallium-194	81	1000 (37)
Thallium-194m	81	100 (3.7)
Thallium-195	81	100 (3.7)
Thallium-197	81	100 (3.7)
Thallium-198	81	10 (3.7)
Thallium-198m	81	100 (3.7)
Thallium-199	81	100 (3.7)
Thallium-200	81	10 (3.7)
Thallium-201	81	1000 (37)
Thallium-202	81	10 (3.7)
Thallium-204	81	10 (3.7)
Thorium (Irradiated)	90	***
Thorium (Natural)	90	**
Thorium-226	90	100 (3.7)
Thorium-227	90	1 (0.037)
Thorium-228	90	0.01 (0.00037)
Thorium-229	90	0.001 (0.000037)
Thorium-230	90	0.01 (0.00037)
Thorium-231	90	100 (3.7)
Thorium-232 **	90	0.001 (0.000037)
Thorium-234	90	100 (3.7)
Thulium-162	69	1000 (37)
Thulium-166	69	10 (3.7)
Thulium-167	69	100 (3.7)
Thulium-170	69	10 (3.7)
Thulium-171	69	100 (3.7)
Thulium-172	69	100 (3.7)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Thulium-173	69	100 (3.7)
Thulium-175	69	1000 (37)
Tin-110	50	100 (3.7)
Tin-111	50	1000 (37)
Tin-113	50	10 (3.7)
Tin-117m	50	100 (3.7)
Tin-119m	50	10 (3.7)
Tin-121	50	1000 (37)
Tin-121m	50	10 (3.7)
Tin-123	50	10 (3.7)
Tin-123m	50	1000 (37)
Tin-125	50	10 (3.7)
Tin-126	50	1 (0.037)
Tin-127	50	100 (3.7)
Tin-128	50	1000 (37)
Titanium-44	22	1 (0.037)
Titanium-45	22	1000 (37)
Tungsten-178	74	1000 (37)
Tungsten-177	74	100 (3.7)
Tungsten-178	74	100 (3.7)
Tungsten-179	74	1000 (37)
Tungsten-181	74	100 (3.7)
Tungsten-185	74	10 (3.7)
Tungsten-187	74	100 (3.7)
Tungsten-188	74	10 (3.7)
Uranium (Depleted)	92	***
Uranium (Irradiated)	92	***
Uranium (Natural)	92	**
Uranium Enriched 20% or greater	92	***
Uranium Enriched less than 20%	92	***
Uranium-230	92	1 (0.037)
Uranium-231	92	1000 (37)
Uranium-232	92	0.01 (0.00037)
Uranium-233	92	0.1 (0.0037)
Uranium-234 **	92	0.1 (0.0037)
Uranium-235 **	92	0.1 (0.0037)
Uranium-236	92	0.1 (0.0037)
Uranium-237	92	100 (3.7)
Uranium-238 **	92	0.1 (0.0037)
Uranium-239	92	1000 (37)
Uranium-240	92	1000 (37)
Vanadium-47	23	1000 (37)
Vanadium-48	23	10 (3.7)
Vanadium-49	23	1000 (37)
Xenon-120	54	100 (3.7)
Xenon-121	54	10 (3.7)
Xenon-122	54	100 (3.7)
Xenon-123	54	10 (3.7)
Xenon-125	54	100 (3.7)
Xenon-127	54	100 (3.7)
Xenon-129m	54	1000 (37)
Xenon-131m	54	1000 (37)
Xenon-133	54	1000 (37)
Xenon-133m	54	1000 (37)
Xenon-135	54	100 (3.7)
Xenon-135m	54	10 (3.7)
Xenon-138	54	10 (3.7)
Ytterbium-162	70	1000 (37)
Ytterbium-166	70	10 (3.7)
Ytterbium-167	70	1000 (37)
Ytterbium-169	70	10 (3.7)
Ytterbium-175	70	100 (3.7)
Ytterbium-177	70	1000 (37)
Ytterbium-178	70	1000 (37)
Yttrium-86	39	10 (3.7)
Yttrium-86m	39	1000 (37)
Yttrium-87	39	10 (3.7)
Yttrium-88	39	10 (3.7)
Yttrium-90	39	10 (3.7)
Yttrium-90m	39	100 (3.7)
Yttrium-91	39	10 (3.7)
Yttrium-91m	39	1000 (37)
Yttrium-92	39	100 (3.7)
Yttrium-93	39	100 (3.7)
Yttrium-94	39	1000 (37)

TABLE 2.—RADIONUCLIDES—Continued

(1)—Radionuclide	(2)—Atomic number	(3)—Reportable quantity (RQ) Ci (TBq)
Yttrium-95	39	1000 (37)
Zinc-62	30	100 (3.7)
Zinc-63	30	1000 (37)
Zinc-65	30	10 (3.7)
Zinc-69	30	1000 (37)
Zinc-69m	30	100 (3.7)
Zinc-71m	30	100 (3.7)
Zinc-72	30	100 (3.7)
Zirconium-86	40	100 (3.7)
Zirconium-88	40	10 (3.7)
Zirconium-89	40	100 (3.7)
Zirconium-93	40	1 (0.037)
Zirconium-95	40	10 (3.7)
Zirconium-97	40	10 (3.7)

§ The RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

† The RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES and the table conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have RQs shown in TABLE 1 of 100 pounds, equivalent to about one-tenth the RQ level for uranium-238 in this table.

** The method to determine the RQs for mixtures or solutions of radionuclides can be found in paragraph 8 of the note preceding TABLE 1 of this Appendix. RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its' daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its' daughters (0.052 curie); and natural thorium in secular equilibrium with its' daughters (0.011 curie).

*** Indicates that the name was added by RSPA because it appears in the list of radionuclides in 49 CFR 173.435. The reportable quantity (RQ), if not specifically listed elsewhere in this Appendix, shall be determined in accordance with the procedures in Paragraph 6 of this Appendix.

8. In § 172.203, the introductory text of paragraph (c)(1) is revised to read as follows:

§ 172.203 Additional description requirements.

(c) * * * (1) Except for radioactive materials described in accordance with paragraph (d) of this section, if the proper shipping name for a material that is a hazardous substance does not identify the hazardous substance by name, one of the following descriptions shall be entered, in parentheses, in association with the basic description:

9. In § 172.324, the introductory text of paragraph (a) is revised to read as follows:

§ 172.324 Hazardous substances.

(a) Except for radioactive material in packages labeled in accordance with § 172.403 of this subchapter, if the proper shipping name does not identify the hazardous substance by name, one of the following descriptions shall be

marked on the package, in parentheses, in association with the proper shipping name:

* * * * *

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

10. The authority citation for part 173 continues to read as follows:

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR Part 1, unless otherwise noted.

11. In § 173.425, paragraph (b)(8) is revised to read as follows:

§ 173.425 Transport requirements for low specific activity material (LSA) radioactive material.

* * * * *

(b) * * *

(8) The exterior of each package must be stenciled or otherwise marked "Radioactive—LSA". Packages, with a capacity of 110 gallons or less, that contain a hazardous substance, must be stenciled or otherwise marked with the letters "RQ" in association with the above description.

Issued in Washington, DC, on September 15, 1989, under authority delegated in 49 CFR part 1.

Travis P. Dungan,

Administrator, Research and Special Programs Administration.

[FR Doc. 89-22381 Filed 9-25-89; 8:45am]

BILLING CODE 4910-60-M