

1 **DRAFT C 05/13/2022**

2 **DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

3 **Hazardous Materials and Waste Management Division**

4 **RADIATION CONTROL - TRANSPORTATION OF RADIOACTIVE MATERIALS**

5 **6 CCR 1007-1 Part 17**

6 *[Editor's Notes follow the text of the rules at the end of this CCR Document.]*

8 **Adopted by the Board of Health August 19, 2020 October 19, 2022, effective October 15,**  
9 **2020 December 15, 2022.**

10 **PART 17: TRANSPORTATION OF RADIOACTIVE MATERIALS**

11 **GENERAL PROVISIONS**

12 **17.1 Purpose and Scope.**

13 17.1.1 Authority.

14 Rules and regulations set forth herein are adopted pursuant to the provisions of sections 25-1-  
15 108, 25-1.5-101(1)(l), and 25-11-104, CRS.

16 17.1.2 Basis and Purpose.

17 A statement of basis and purpose accompanies this part and changes to this part. A copy may be  
18 obtained from the Department.

19 17.1.3 Scope.

20 This part establishes requirements for packaging, preparation for shipment, and transportation of  
21 radioactive material.

22 17.1.4 Applicability.

23 17.1.4.1 This part applies to any person who transports radioactive material or delivers  
24 radioactive material to a carrier for transport.

25 (1) This part applies in particular to any licensee authorized by specific or general  
26 license to receive, possess, use, or transfer licensed material, if the licensee  
27 delivers that material to a carrier for transport, transports the material outside the  
28 site of usage as specified in the license, or transports that material on a public  
29 highway.

30 (2) The transport of licensed material or delivery of licensed material to a carrier for  
31 transport is subject to the:

32 (a) General provisions of 17.1 through 17.5, including referenced DOT  
33 regulations;

**Commented [JSJ1]:**

**Editorial note 1:** All comments (such as this one) shown in the right side margin of this draft document are for information purposes only to assist the reader in understanding the proposed rule change during the review and comment process.

These side margin notes are **not** part of the rule and all comments will be deleted prior to publication of the final rule by the Colorado Secretary of State.

**Editorial note 2:** Alignment and formatting corrections and minor typographical adjustments may be made in the rule and may not be specifically identified with a side margin comment.

**Editorial note 3:** The acronym "RATS 2020-3" shown in this draft refers to the U.S. Nuclear Regulatory Commission (NRC) regulatory action tracking system (RATS). This system is used to identify and summarize changes to federal regulations that may be required for adoption by an NRC agreement state. To maintain agreement state status, and consistent with statute, Colorado's radiation regulations must be compatible with federal regulations of the NRC.

Colorado statute also prescribes that the radiation control regulations must be consistent with the model regulations of the Conference of Radiation Control Program Directors, Inc. (CRCPD). The CRCPD model regulation equivalent to part 17 was last updated in 2014, and does not yet reflect federal rule changes since that time.

**Editorial note 4:** This is not a complete rule. Some unaffected sections or provisions have been removed from the rule and are not shown in this draft. Unaffected sections/provisions are denoted with a " \* \* \* ".

**Commented [JSJ2]:**

The stated adoption and effective dates are tentative and subject to change, pending Board of Health meeting schedule, final adoption of the rule by the Board, and the Colorado Register publication dates.

The anticipated dates are based on the annual rulemaking schedule (regulatory agenda) for the Department which may be found [online](#).

- 34 (b) Quality assurance requirements of 10 CFR Part 71; and
- 35 (c) Operating controls and procedures requirements of 17.11 through 17.17.
- 36 (3) No provision of this part authorizes possession of licensed material.
- 37 (4) Exemptions from the requirement in 17.3 for a license are specified in 17.4.
- 38 (5) The general license under 17.7 requires that a NRC Certificate of Compliance or  
39 other package approval be issued for the package to be used under the general  
40 license.
- 41 (6) General licenses for which no package approval is required are issued in 17.8  
42 and 17.9.
- 43 (7) These rules apply to any person required to obtain a Certificate of Compliance or  
44 an approved compliance plan from the NRC pursuant to 10 CFR Part 71 if the  
45 person delivers radioactive material to a common or contract carrier for transport  
46 or transports the material outside the confines of the person's plant or other  
47 authorized place of use.
- 48 17.1.4.2 The packaging and transport of radioactive material are also subject to other  
49 parts of these regulations and to the regulations of other agencies (such as the  
50 DOT, the United States Postal Service and the NRC) having jurisdiction over  
51 means of transport.
- 52 17.1.4.3 The requirements of this part are in addition to, and not in substitution for, other  
53 requirements.
- 54 17.1.5 Published Material Incorporated by Reference.
- 55 17.1.5.1 Throughout this Part 17, federal regulations, state regulations, and standards or  
56 guidelines of outside organizations have been adopted and incorporated by  
57 reference. Unless a prior version of the incorporated material is otherwise  
58 specifically indicated, the materials incorporated by reference cited herein include  
59 only those versions that were in effect as of the most recent effective date of this  
60 Part 17 (~~October 2020~~December 2022), and not later amendments or editions of  
61 the incorporated material.
- 62 17.1.5.2 Materials incorporated by reference are available for public inspection, and  
63 copies (including certified copies) can be obtained at reasonable cost, during  
64 normal business hours from the Colorado Department of Public Health and  
65 Environment, Hazardous Materials and Waste Management Division, 4300  
66 Cherry Creek Drive South, Denver, Colorado 80246. Additionally,  
67 <https://www.colorado.gov/cdphe/radregs> identifies where the incorporated  
68 material is available to the public on the internet at no cost. Due to copyright  
69 restrictions, certain materials incorporated in this Part are available for public  
70 inspection at the state publications depository and distribution center.
- 71 17.1.5.3 Availability from Source Agencies or Organizations.
- 72 (1) All federal agency regulations incorporated by reference herein are available at  
73 no cost in the online edition of the Code of Federal Regulations (CFR) hosted by  
74 the U.S. Government Printing Office, online at [www.govinfo.gov](http://www.govinfo.gov).

Commented [JSJ3]: Added "Part" for consistency with format of references to federal rule.

Commented [JSJ4]: Formatted for alignment of rule text.

Commented [JSJ5]: Updated for consistency with revised effective date.

Commented [JSJ6]: Formatted for alignment of rule text.

75 (2) All state regulations incorporated by reference herein are available at no cost in  
76 the online edition of the Code of Colorado Regulations (CCR) hosted by the  
77 Colorado Secretary of State's Office, online at  
78 <https://www.sos.state.co.us/CCR/RegisterHome.do>.

79 **17.2 Definitions.**

80 17.2.1 Definitions of general applicability to these regulations are in Part 1, Section 1.2.2.

81 17.2.2 Terms used in Part 17 have the definitions set forth as follows.

82 [ \* \* \* DENOTES UNAFFECTED SECTIONS/PROVISIONS IN THE DRAFT RULE]

83 \* \* \*

84 "Type B package" means a Type B packaging together with its radioactive contents.<sup>1</sup>

85  
86 1 A Type B package design is designated as B(U) or B(M). On approval, a Type B package design is designated by NRC as B(U)  
87 unless the package has a maximum normal operating pressure of more than 700kPa (100 lb/in<sup>2</sup>) gauge or a pressure relief device  
88 that would allow the release of radioactive material to the environment under the tests specified in 10 CFR Part 71.73 (hypothetical  
89 accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral approval of international  
90 shipments; B(M) refers to the need for multilateral approval of international shipments. No distinction is made in how packages with  
91 these designations may be used in domestic transportation. To determine their distinction for international transportation, refer to 49  
92 CFR Part 173. A Type B package approved prior to September 6, 1983 was designated only as Type B; limitations on its use are  
93 specified in 17.8.

94 \* \* \*

95 **QUALITY ASSURANCE**

96 **17.10 Quality Assurance Requirements.**

97 17.10.1 Subpart H of 10 CFR Part 71 describes quality assurance requirements applying to design,  
98 purchase, fabrication, handling, shipping, storing, cleaning, assembly, inspection, testing,  
99 operation, maintenance, repair, and modification of components of packaging that are important  
100 to safety. As used in Subpart H of 10 CFR Part 71, "quality assurance" comprises all those  
101 planned and systematic actions necessary to provide adequate confidence that a system or  
102 component will perform satisfactorily in service. Quality assurance includes quality control, which  
103 comprises those quality assurance actions related to control of the physical characteristics and  
104 quality of the material or component to predetermined requirements.

105 17.10.2 Each licensee is responsible for satisfying the applicable quality assurance requirements that  
106 apply to its use of a packaging for the shipment of licensed material subject to the applicable  
107 requirements set forth in Subpart H of 10 CFR Part 71 (excluding 10 CFR Part 71.101(c)(2), (d),  
108 and (e) and 10 CFR Part 71.107 through 71.125).

109 17.10.3 Before the use of any package for the shipment of licensed material subject to Subpart H of 10  
110 CFR Part 71, each licensee shall obtain Department approval of its quality assurance program.  
111 Each licensee shall file with the Department, a description of its quality assurance program,  
112 including a discussion of which requirements of Subpart H of 10 CFR Part 71 are applicable and  
113 how they will be satisfied.

114 17.10.4 Radiography containers.

Commented [JSJ7]: In footnote "1", "Part" is added for consistency with format of references to federal rule.

Commented [JSJ8]: Added "Part" for consistency with format of references to federal rule.

115 A program for transport container inspection and maintenance limited to radiographic exposure  
116 devices, source changers, or packages transporting these devices and meeting the requirements  
117 of Part 5, sections 5.12.4 through 5.12.6 or equivalent Agreement State or NRC requirement, is  
118 deemed to satisfy the requirements of 17.7.2 and 10 CFR Part 71.101(b).

119 **17.11 Advance Notification of Shipment of Nuclear Waste.**

120 17.11.1 As specified in 17.11.3, 17.11.4, and 17.11.5, each licensee shall provide advance notification to  
121 the governor of a state, or the governor's designee, of the shipment of licensed material (nuclear  
122 waste), within or across the boundary of the state, before the transport, or delivery to a carrier, for  
123 transport, of licensed material outside the confines of the licensee's plant or other place of use or  
124 storage.

125 17.11.2 As specified in 17.11.3, 17.11.4, and 17.11.5 of this section, after June 11, 2013, each licensee  
126 shall provide advance notification to the Tribal official of participating Tribes referenced in  
127 17.11.4.3(3), or the official's designee, of the shipment of licensed material, within or across the  
128 boundary of the Tribe's reservation, before the transport, or delivery to a carrier, for transport, of  
129 licensed material outside the confines of the licensee's plant or other place of use or storage.

130 17.11.3 Advance notification is also required under this section for the shipment of licensed material,  
131 other than irradiated fuel, meeting the following three conditions:

132 17.11.3.1 The licensed material is required by this part to be in Type B packaging for  
133 transportation;

134 17.11.3.2 The licensed material is being transported to or across a state boundary en route  
135 to a disposal facility or to a collection point for transport to a disposal facility; and

136 17.11.3.3 The quantity of licensed material in a single package exceeds the least of the  
137 following:

138 (1) 3000 times the A1 value of the radionuclides as specified in Appendix 17A, Table  
139 A1 for special form radioactive material; or

140 (2) 3000 times the A2 value of the radionuclides as specified in Appendix 17A, Table  
141 A1 for normal form radioactive material; or

142 (3) 1000 TBq (27,000 Ci).

143 17.11.4 Procedures for submitting advance notification

144 17.11.4.1 The notification must be made in writing to:

145 (1) The office of each appropriate governor or governor's designee;

146 (2) The office of each appropriate Tribal official or Tribal official's designee;

147 (3) The Department; and

148 (4) The NRC's Director, Office of Nuclear Security and Incident Response.

149 17.11.4.2 A notification delivered by mail must be postmarked at least 7 days before the  
150 beginning of the 7 day period during which departure of the shipment is  
151 estimated to occur.

**Commented [JSJ9]:**  
Certain provisions of Section 17.11 have been  
formatted for alignment of text.

152 17.11.4.3 A notification delivered by any other means than mail must reach the office of the  
153 governor or of the governor's designee or the Tribal official, or Tribal official's  
154 designee at least 4 days before the beginning of the 7-day period during which  
155 departure of the shipment is estimated to occur.

156 (1) ~~A list of the names and mailing addresses of the governors' designees receiving~~  
157 ~~advance notification of transportation of nuclear waste was published in the~~  
158 ~~Federal Register on June 30, 1995 (60 FR 34306)RESERVED.~~

159 (2) Contact information for each State, including telephone and mailing addresses of  
160 governors and governors' designees, and participating Tribes, including  
161 telephone and mailing addresses of Tribal officials and Tribal official's designees,  
162 is available on the NRC Web site at: <https://scp.nrc.gov/special/designee.pdf>.

163 (3) A list of the names and mailing addresses of the governor's designees and Tribal  
164 official's designees of participating Tribes is available on request from the  
165 Director, Division of Materials Safety, Security, State, and Tribal Programs, Office  
166 of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory  
167 Commission, Washington, DC 20555-0001.

168 17.11.4.4 The licensee shall retain a copy of the notification as a record for 3 years.

169 \* \* \*

170 **17.17 Shipment Records.**

171 \* \* \*

172 17.17.3 The licensee shall maintain sufficient written records to furnish evidence of the quality of  
173 packaging.

174 17.17.3.1 The records to be maintained shall include:

175 (1) ~~Results of the determinations required by 10 CFR Part 71.85(a) through (c);~~

176 (2) Design, fabrication, and assembly records;

177 (3) Results of reviews, inspections, tests, and audits; results of monitoring work  
178 performance and materials analyses; and

179 (4) Results of maintenance, modification, and repair activities.

180 \* \* \*  
181

**Commented [JSJ10]:**

This provision is removed and reserved for consistency with the 2020 amendments to [10 CFR Part 71.97\(c\)\(3\)\(i\)](#). The information in the current rule (and original federal rule) references information in the 1995 Federal Register. This information is out of date. Current information can be found on the website specified in 17.11.4.3(2), or by contacting the NRC as indicated in provision (3).

[NRC RATS 2020-3](#)  
[NRC Compatibility B](#)

**Commented [JSJ11]:** Added "Part" for consistency with format of references to federal rule.

182 **Appendix 17A - Determination of A1 and A2**

183 17A1 Values of A<sub>1</sub> and A<sub>2</sub> for individual radionuclides, which are the bases for many activity limits  
184 elsewhere in these regulations are given in Table 17A1. The curie (Ci) values specified are  
185 obtained by converting from the Terabecquerel (TBq) value. The Terabecquerel values are the  
186 regulatory standard. The curie values are for information only and are not intended to be the  
187 regulatory standard. Where values of A<sub>1</sub> or A<sub>2</sub> are unlimited, it is for radiation control purposes  
188 only. For nuclear criticality safety, some materials are subject to controls placed on fissile  
189 material.

190 17A2 For individual radionuclides whose identities are known, but which are:

191 17A2.1 Not listed in Table 17A1:

- 192 (1) The A<sub>1</sub> and A<sub>2</sub> values Table 17A3 may be used.
- 193 (2) Otherwise, the licensee shall obtain prior NRC approval of the A<sub>1</sub> and A<sub>2</sub> values  
194 for radionuclides not listed in Table 17A1, before shipping the material. The  
195 licensee shall submit such request for prior approval to NRC in accordance with  
196 10 CFR Part 71.1.

197 17A2.2 Not listed in Table 17A2:

- 198 (1) The exempt material activity concentration and exempt consignment activity  
199 values contained in Table 17A3 may be used.

200 (2) Otherwise, the licensee shall obtain prior NRC approval of the exempt material  
201 activity concentration and exempt consignment activity values for radionuclides  
202 not listed in Table 17A2, before shipping the material. The licensee shall submit  
203 such request for prior approval to NRC in accordance with 10 CFR **Part** 71.1.

**Commented [JSJ12]:** Added "Part" for consistency with format of references to federal rule.

204 \* \* \*

205

206

TABLE 17A1: A1 AND A2 VALUES FOR RADIONUCLIDES							
Symbol of radionuclide	Element and atomic number	A <sub>1</sub> (TBq)	A <sub>1</sub> (Ci) <sup>b</sup>	A <sub>2</sub> (TBq)	A <sub>2</sub> (Ci)	Specific activity	
						(TBq/g)	(Ci/g)
***	***	***	***	***	***	***	***
Sm-145	Samarium (62)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.8X10 <sup>-1</sup>	2.6X10 <sup>-3</sup>
Sm-147	.	Unlimited	Unlimited	Unlimited	Unlimited	<del>8.5X10<sup>-4</sup></del> 8.5X10 <sup>-10</sup>	2.3X10 <sup>-8</sup>
Sm-151	.	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.7X10 <sup>-1</sup>	2.6X10 <sup>-1</sup>
***	***	***	***	***	***	***	***

**Commented [JSJ13]:**  
For brevity, most unaffected radionuclides are not shown in Table 17A1, but remain as-is with no changes.

**Commented [JSJ14]:**  
The specific activity value is revised for Sm-147 to maintain consistency with 2020 technical corrections to [10 CFR Part 71, Appendix A, Table A-1](#).

The specific activity is a standardized value/constant rather than a limit and can be found in other references or can be calculated or converted from the adjacent Ci/g value. No impacts are expected by this change as this is an isotope not commonly used or transported/shipped by licensees.

[NRC RATS 2020-3](#)  
[NRC Compatibility B](#)

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\* \* \*

208

[NO FURTHER CHANGES TO THE RULE BEYOND THIS POINT]

209

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