

Introductory Comments:

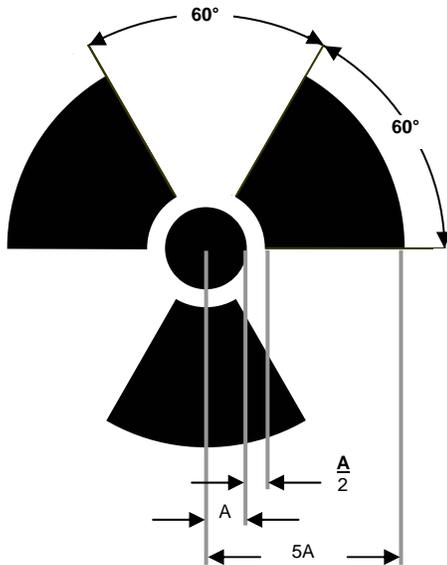
“Licensee” denotes users of radioactive material and “registrant” denotes users of electronically-produced ionizing radiation. References to “registrant” were removed from rules dealing only with radioactive material. References to “licensee” were removed from rules dealing only with electronically-produced ionizing radiation.

Boxes containing information are not part of the draft rules and are included to provide additional information for the reviewer.

Subpart J - Precautionary Procedures

Rule D.1901 - Caution Signs.

- a. Except as provided in this rule or otherwise authorized by the department, the licensee or registrant shall use the radiation symbol prescribed by this rule with the three-bladed design as follows:
 - i. The blades and interior circle shall be magenta, purple, or black on a yellow background; or
 - ii. Conspicuously cast, etched, or stamped without regard to a color requirement on sources, source holders, or device components containing sources that are subject to extreme environmental conditions that would cause the color to deteriorate.



- b. In addition to the contents of signs and labels required in this part, a licensee or registrant may provide, on or near the required signs and labels, additional information to make individuals aware of potential radiation exposures and to minimize those exposures.

Rule D.1902 - Posting Requirements.

- 24 a. The licensee or registrant shall post each radiation area with a conspicuous sign or signs
25 bearing the radiation symbol and the words "CAUTION, RADIATION AREA".
26
- 27 b. The licensee or registrant shall post each high radiation area with a conspicuous sign or
28 signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or
29 "DANGER, HIGH RADIATION AREA".
30
- 31 c. The licensee or registrant shall post each very high radiation area with a conspicuous sign
32 or signs bearing the radiation symbol and the words "GRAVE DANGER, VERY HIGH
33 RADIATION AREA".
34
- 35 d. The licensee shall post each airborne radioactivity area with a conspicuous sign or signs
36 bearing the radiation symbol and the words "CAUTION, AIRBORNE RADIOACTIVITY
37 AREA" or "DANGER, AIRBORNE RADIOACTIVITY AREA".
38
- 39 e. If an area or room contains more than ten times the quantity of licensed radioactive material
40 specified in Appendix C in use or in storage, the licensee shall post the area or room with a
41 conspicuous sign or signs bearing the radiation symbol and the words "CAUTION,
42 RADIOACTIVE MATERIAL(S)" or "DANGER, RADIOACTIVE MATERIAL(S)".
43
- 44 f. The licensee shall post access openings to manufacturing or process equipment such as
45 tanks and vessels on or in which radiation sources are mounted, if a person could gain
46 access to the radiation beam and receive a dose to any part of their body greater than the
47 applicable limits for individuals in rules D.1201 through D.1302. The posting must include a
48 conspicuous sign or signs bearing the radiation symbol and warning of the hazard.
49

50 **Rule D.1903 - Exceptions to Posting Requirements.**
51

52 A licensee or registrant is not required to post caution signs pursuant to rule D.1902 in areas or
53 rooms in the following situations:
54

- 55 a. The sources of radiation are in the room for periods of less than 8 hours and:
56
- 57 i. The sources of radiation are constantly attended by an individual who takes the
58 precautions necessary to prevent the exposure of individuals to radiation or radioactive
59 materials above the limits specified in this part; and
60
- 61 ii. The area or room is under the licensee's or registrant's control.
62
- 63 b. The area or room is occupied by patients who could be released from licensee control
64 pursuant to rule G.40.
65
- 66 c. A sealed source is in the area or room and the radiation level at 30 centimeters from the
67 surface of the source container or housing does not exceed 0.05 millisievert (5 millirem) per
68 hour.
69
- 70 d. The room is used for teletherapy and:
71
- 72 i. Access to the room is controlled pursuant to rules G.75, X.6, or X.7; and
73

- 74 ii. Attending personnel take the necessary precautions to prevent the inadvertent exposure
75 of workers, other patients, and members of the public to radiation above the limits
76 specified in this part.
77
78 e. The area or room contains radiation machines used for diagnosis in the healing arts.
79

INFORMATION

Rule G.40 Release of Individuals Containing Radioactive Drugs or Implants.

Rule G.75 Safety Precautions for Remote Afterloader Units, Teletherapy Units, and Gamma Stereotactic Radiosurgery Units.

Rule X.6 Therapeutic Radiation Machines of Less Than 500 kV.

Rule X.7 Therapeutic Radiation Machines - Photon Therapy Systems (500 kV and Above) and Electron Therapy Systems (500 keV and Above).

80

81 **Rule D.1904 - Labeling Containers of Radioactive Material.**

82

- 83 a. The licensee shall make sure that each container of licensed material bears a durable,
84 clearly visible label with the radiation symbol and the words "CAUTION, RADIOACTIVE
85 MATERIAL" or "DANGER, RADIOACTIVE MATERIAL". The label must also provide
86 sufficient information to permit individuals handling or using the containers, or working in the
87 vicinity of the containers, to take precautions to avoid or minimize exposures. As
88 appropriate, the label information may include the radionuclides present, an estimate of the
89 activity, the date for which the activity is estimated, a description of the contents, radiation
90 levels, kinds of materials, and mass enrichment.
91
92 b. Before disposing of an empty, uncontaminated container or moving a container to an
93 unrestricted area, the licensee shall remove or deface the radioactive material label or
94 otherwise clearly show that the container no longer contains radioactive materials.
95

96

97 **Rule D.1904a - Labeling Radiation Machines.**

98

99 Each registrant shall make sure that each radiation machine is labeled in a conspicuous manner
100 that cautions individuals that radiation is produced when the machine is energized.

101

102 **Rule D.1905 - Exemptions to Labeling Requirements.**

103

104 A licensee is not required to label:

105

106 a. A container holding licensed radioactive material in quantities less than the quantities listed
107 in Appendix C;

108

109 b. A container holding licensed radioactive material in concentrations less than those specified
110 in Table III of Appendix B;

111

112 c. A container attended by an individual who takes the precautions necessary to prevent the
113 exposure of individuals to radiation or radioactive material above the limits specified in this
114 part;

114

- 115 d. A container in transport and packaged and labeled according to the regulations of the U.S.
116 Department of Transportation.
117
118 e. A container accessible only to individuals authorized to handle, use, or work in the vicinity of
119 the container, if a readily available written record identifies the contents of the container to
120 the individuals. Containers of this type include containers in water-filled canals, storage
121 vaults, or hot cells. A licensee shall keep the record as long as the containers are used for
122 the purpose written on the record; or
123
124 f. Installed manufacturing or process equipment, such as piping and tanks.
125

126 **Rule D.1906 - Procedures for Receiving and Opening Packages.**
127

- 128 a. Each licensee who expects to receive a package containing quantities of radioactive
129 material exceeding a Type A quantity, as defined in rule T.2 and Appendix A of part T of
130 these rules, shall arrange to receive:
131
132 i. The package when the carrier offers it for delivery; or
133
134 ii. Notification of the arrival of the package at the carrier's terminal and to take possession
135 of the package expeditiously.
136

INFORMATION

Part T - Transportation of Radioactive Material

Rule T.2 - Definitions

"Type A quantity" means a quantity of radioactive material, the aggregate radioactivity of which does not exceed A1 for special form radioactive material or A2 for normal form radioactive material, where A1 and A2 are given in Appendix A or may be determined by procedures described in Appendix A.

- 137
138 b. Upon receipt of a package containing radioactive material, a licensee shall:
139
140 i. Monitor the external surfaces of a package for removable radioactive contamination if
141 the package has a Radioactive White I, Yellow II, or Yellow III label as specified in U.S.
142 Department of Transportation regulations, 49 CFR 172.403 and 172.436 through
143 172.440 unless the package contains only radioactive material as a gas or in special
144 form as defined in rule A.2;
145
146 ii. Monitor the external surfaces of a package for radiation levels if the package has a
147 Radioactive White I, Yellow II, or Yellow III label as specified in U.S. Department of
148 Transportation regulations, 49 CFR 172.403 and 172.436 through 172.440 unless the
149 package contains quantities of radioactive material that are less than or equal to the
150 Type A quantity, as defined in rule T.2 and Appendix A of part T of these rules; and
151
152 iii. Monitor all packages known to contain radioactive material for radioactive contamination
153 and radiation levels if there is evidence of package degradation, such as a crushed, wet,
154 or damaged package.
155

- 156 c. The licensee shall monitor as required by subrule b. of this rule as soon as practical after
157 receipt of the package, but not later than 3 hours after the package is received at the
158 licensee's facility if it is received during the licensee's normal working hours. If a package is
159 received after normal working hours, the package shall be monitored no later than 3 hours
160 from the beginning of the next working day.
161
- 162 d. The licensee shall immediately notify the final delivery carrier and the department by
163 telephone (telephone number: [to be added later] - daytime; [to be added later] - after
164 hours) when:
- 165 i. Removable radioactive surface contamination exceeds the limits of subrule T.15h.; or
 - 166 ii. External radiation levels exceed the limits of subrules T.15i. and j.
- 167
168
169

Part T References

Sec. T.15 - Routine Determinations. Prior to each shipment of licensed material, the licensee shall determine that:

- h. The level of non-fixed radioactive contamination on the external surfaces of each package offered for shipment is as low as reasonably achievable.
 - i.
 - ii. ...
- i. External radiation levels around the package and around the vehicle, if applicable, will not exceed 2 millisievert per hour (200 mrem/hr) at any point on the external surface of the package at any time during transportation. The transport index shall not exceed 10.0;
- j. For a package transported in exclusive use by rail, highway or water, radiation levels external to the package may exceed the limits specified in T.15i. but shall not exceed any of the following:
 - i.
 - ii.
 - iii.
 - iv.

- 170
- 171 e. Each licensee shall:
- 172
- 173 i. Establish, maintain, and retain written procedures for safely opening packages
174 containing radioactive material; and
 - 175 ii. Make sure that the procedures are followed and that due consideration is given to
176 special instructions for the type of package being opened.
- 177
- 178
- 179 f. A licensee transporting special form sources in licensee-owned or licensee-operated
180 vehicles to and from a work site are exempt from the contamination monitoring requirements
181 of subrule b. of this rule, but shall measure radiation levels to verify that the source is still
182 properly lodged in its shield as required by subrule b. of this rule.
- 183

Subpart K - Waste Disposal

Rule D.2001 - Waste Disposal General Requirements.

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- 188 a. Unless otherwise exempted, a licensee shall dispose of licensed radioactive material only:
189
190 i. By transfer to an authorized recipient as provided in rule D.2006 or in part C of these
191 rules, or to the Department of Energy;
192
193 ii. By decay in storage;
194
195 iii. By release in effluents within the limits specified in rule D.1301; or
196
197 iv. As authorized under rules D.2002, D.2003, D.2004, D.2005, or D.2008.
198

INFORMATION

Part C - Licensing of Radioactive Material

Part M - Licensing Requirements for Land Disposal of Radioactive Waste. The state does not intend to include Part M in the rules.

- 199
200 b. A person shall be specifically licensed to receive waste containing licensed radioactive
201 material from other persons for:
202
203 i. Treatment before disposal;
204
205 ii. Incineration;
206
207 iii. Decay in storage;
208
209 iv. Disposal at a land disposal facility; or
210
211 v. Storage pending transfer to a storage or disposal facility authorized to receive the waste.
212

Rule D.2002 - Method to Obtain Approval of Alternate Disposal Procedures.

213 A person can apply to the department for approval of procedures to dispose of radioactive
214 material not otherwise authorized in these rules. The application shall include:
215
216

- 217 a. A description of the waste containing radioactive material including:
218
219 i. The quantities and kinds of radioactive material,
220
221 ii. The levels of radioactivity involved,
222
223 iii. Other physical and chemical properties important to risk evaluation, and
224
225 iv. The proposed manner and conditions of disposal.
226
227 b. An analysis and evaluation of pertinent information about the environment of the disposal
228 site;
229
230 c. The nature and location of other potentially affected facilities; and
231
232

- 233 d. Analyses and procedures to make sure that doses are as low as reasonably achievable and
234 within the dose limits in this part.
235

236 **Rule D.2003 - Disposal by Release into Sanitary Sewerage.**
237

- 238 a. A licensee can discharge radioactive material into the sanitary sewerage under the following
239 conditions :
240
- 241 i. The material is readily soluble in water or is biological material that readily disperses in
242 water;
 - 243
 - 244 ii. The quantity of radioactive material that the licensee releases into the sanitary sewerage
245 in 1 month divided by the average monthly volume of water released into the sanitary
246 sewerage by the licensee does not exceed the concentration listed in Table III of
247 Appendix B;
248
 - 249 iii. If more than one radionuclide is to be released:
250
251 (1) The licensee shall determine the fraction of the limit in Table III of Appendix B
252 represented by discharges into the sanitary sewerage by dividing the actual monthly
253 average concentration of each radionuclide released by the licensee into the sanitary
254 sewerage by the concentration of that radionuclide listed in Table III of Appendix B;
255 and
256
257 (2) The sum of the fractions for each radionuclide required by subrule D.2003a.iii.(1)
258 does not exceed unity; and
259
 - 260 iv. The total quantity of radioactive material that the person releases into the sanitary
261 sewerage in a year does not exceed 185 Gigabecquerel (5 curies) of hydrogen-3, 37
262 Gigabecquerel (1 curie) of carbon-14, and 37 Gigabecquerel (1 curie) of all other
263 radioactive materials combined.
264
- 265 b. Excreta from individuals undergoing medical diagnosis or therapy with radioactive material
266 are not subject to the limits in subrule (a) of this rule.
267

268 **Rule D.2004 - Incineration.**
269

270 A licensee can incinerate licensed radioactive material only :

- 271
- 272 a. If the material is in a form and concentration specified in rule D.2005; or
273
 - 274 b. As specifically approved by the department pursuant to rule D.2002.
275

276 **Rule D.2005 - Disposal of Specific Wastes.**
277

- 278 a. A licensee may dispose of the following licensed radioactive material without regard to its
279 radioactivity:
280
- 281 i. 1.85 kilobecquerel (0.05 microcuries), or less, of hydrogen-3 or carbon-14 per gram of
282 medium used for liquid scintillation counting; and
283

- 284 ii. 1.85 kilobecquerel (0.05 microcuries), or less, of hydrogen-3 or carbon-14 per gram of
285 animal tissue, averaged over the weight of the entire animal.
286
287 b. A licensee shall not dispose of tissue under subrule (a)(ii) of this rule that would allow its use
288 as food for humans or as animal feed.
289
290 c. A licensee may hold radioactive material with a physical half-life of 120 days or less for
291 decay in storage before disposal in ordinary trash, and is exempt from the requirements of
292 rule D.2001, if:
293
294 i. The licensee monitors the container of radioactive material at the surface before
295 disposal to determine that its radioactivity cannot be distinguished from the background
296 radiation level with an appropriate radiation detection survey meter set on its most
297 sensitive scale and with no interposed shielding; and
298
299 ii. The licensee removes or obliterates all radiation labels, except for radiation labels on
300 materials that are within containers and that will be managed as biomedical waste after
301 they have been released from the licensee.
302
303 d. The licensee shall keep records in accordance with rule D.2108.
304

305 **Rule D.2006 - Transfer for Disposal and Manifests.**
306

- 307 a. The requirements of this rule and Appendix G of this part:
308
309 i. Control transfers of low-level radioactive waste intended for disposal at a licensed low-
310 level radioactive waste disposal facility.
311
312 ii. Establish a manifest tracking system; and
313
314 iii. Supplement existing requirements concerning transfers and recordkeeping for those
315 wastes.
316
317 b. Each shipment of radioactive waste destined for disposal at a licensed low-level radioactive
318 waste disposal facility shall be accompanied by a shipment manifest in accordance with
319 Appendix G of this part.
320
321 c. Each shipment manifest shall include a certification by the waste generator as specified in
322 section II of Appendix G.
323
324 d. Each person involved in the transfer for disposal and disposal of waste, including the waste
325 generator, waste collector, waste processor, and disposal facility operator, shall comply with
326 the requirements specified in section III of Appendix G of this part.
327
328 e. Any licensee shipping byproduct material as defined in subrules (3) and (4) of the definition
329 of byproduct material in Rule A.2 destined for ultimate disposal at a licensed low-level
330 radioactive waste disposal facility shall document the information required on the NRC's
331 Uniform Low-Level Radioactive Waste Manifest and transfer this recorded manifest
332 information to the intended consignee in accordance with Appendix G of this part.
333

334 **Rule D.2007 - Compliance with Environmental and Health Protection Rules and**
335 **Regulations.**

336
337 Nothing in these rules relieves the licensee from complying with other applicable federal, state,
338 and local rules and regulations governing any other toxic or hazardous properties of materials
339 that can be disposed in accordance with this part.

340
341 **Rule D.2008 - Disposal of certain byproduct material.**
342

- 343 a. Licensed material as defined in subrules (3) and (4) of the definition of byproduct material in
344 rule A.2 may be disposed in accordance with 10 CFR part 61 or equivalent agreement state
345 rules, even though it is not defined as low-level radioactive waste. Therefore, any licensed
346 byproduct material being disposed at a licensed low-level radioactive waste disposal facility,
347 or transferred for ultimate disposal at a licensed low-level radioactive waste disposal facility,
348 must meet the requirements of rule D.2006.
349
- 350 b. A licensee may dispose of byproduct material, as defined in subrules (3) and (4) of the
351 definition of byproduct material in rule A.2, at a disposal facility authorized to dispose of such
352 material in accordance with any Federal or State solid or hazardous waste law.
353

354 **Subpart L - Records**

355
356 **Rule D.2101 - General Provisions for Records.**
357

- 358 a. Each licensee or registrant shall use either or both of the international system of units (SI)
359 becquerel, gray, sievert, and coulomb per kilogram, or the special units curie, disintegrations
360 per minute, rad, rem, and roentgen, including multiples and subdivisions, and shall clearly
361 indicate the units of all quantities on records required by this part.
362
- 363 b. The licensee or registrant shall make a clear distinction among the quantities entered on the
364 records required by these rules. The dose to an individual must be specified in quantities
365 such as the effective dose equivalent, total effective dose equivalent, shallow-dose
366 equivalent, lens dose equivalent, deep-dose equivalent, total organ dose equivalent, or
367 committed effective dose equivalent.
368

369 **Rule D.2102 - Records of Radiation Protection Programs.**
370

- 371 a. Each licensee or registrant shall maintain records of the radiation protection program,
372 including:
373
- 374 i. The provisions of the program; and
 - 375 ii. Audits and other reviews of program content and implementation.
- 376
377 b. The licensee or registrant shall retain the records required by subrule a.i. of this rule until the
378 department terminates each pertinent license or registration requiring the record. The
379 licensee or registrant shall retain the records required by subrule a.ii. of this rule for 3 years
380 after the record is made.
381
382

383 **Rule D.2103 - Records of Surveys and Calibrations.**
384

- 385 a. The licensee or registrant shall maintain records of the results of surveys and calibrations
386 required by rules D.1501 and D.1906b. The licensee or registrant shall retain these records
387 for 3 years after the record is made.
388
- 389 b. The licensee or registrant shall retain the following records until the department terminates
390 the license or registration requiring the record:
391
- 392 i. Records of the results of surveys to determine the dose from external sources of
393 radiation and used, in the absence of or in combination with individual monitoring data,
394 in the assessment of individual dose equivalents;
395
- 396 ii. Records of the results of measurements and calculations used to determine individual
397 intakes of radioactive material and used in the assessment of internal dose;
398
- 399 iii. Records of the results of air sampling, surveys, and bioassays required pursuant to rules
400 D.1703c.i. and ii.; and
401
- 402 iv. Records of the results of measurements and calculations used to evaluate the release of
403 radioactive effluents to the environment.
404

405 **Rule D.2103A - Records of Tests for Leakage or Contamination of Sealed Sources.**
406

407 A record of each test for leakage or contamination of sealed sources required by these rules
408 shall be kept in units of becquerel or microcurie and maintained for inspection by the
409 department for 3 years after the record is made.
410

411 **Rule D.2104 - Determination and Records of Prior Occupational Dose.**
412

- 413 a. For each individual likely to receive an annual occupational dose requiring monitoring under
414 rule D.1502, the licensee or registrant shall
415 determine the occupational radiation dose received during the current year.
416
- 417 b. Before allowing an individual to participate in a planned special exposure, the licensee or
418 registrant shall determine:
419
- 420 i. The internal and external doses from all previous planned special exposures; and
421
- 422 ii. All doses in excess of the limits including doses received during accidents and
423 emergencies received during the lifetime of the individual.
424
- 425 c. To comply with subrules a. or b. of this rule, a licensee or registrant may:
426
- 427 i. Accept, as a record of an individual's occupational dose, a written and signed statement
428 from the individual, or from the individual's most recent employer for work involving
429 radiation exposure, that documents the nature and the amount of any occupational dose
430 the individual may have received during the current year;
431
- 432 ii. Accept, as the record of cumulative radiation dose, an up-to-date department Form Y or
433 equivalent, signed by the individual and countersigned by an appropriate official of the
434 most recent employer for work involving radiation exposure, or the individual's current
435 employer if the individual is not employed by the licensee or registrant; and

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Information

Department Form Y is equivalent to NRC Form 4, "Cumulative Occupational Dose History."

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iii. Obtain reports of the individual's dose equivalent(s) from the most recent employer for work involving radiation exposure, or the individual's current employer if the individual is not employed by the licensee or registrant, by telephone, telegram, facsimile, other electronic media, or letter. The licensee or registrant shall request a written verification of the dose data if the authenticity of the reports cannot be established.

d. The licensee or registrant shall record the exposure history of each individual, as required by subrules a. or b. of this rule, on department Form Y, or other clear and legible record, that includes all the information required on that form.

i. The form or record must show each period in which the individual received occupational exposure to radiation or radioactive material. For each period for which the licensee or registrant obtains reports, the licensee or registrant shall use the dose shown in the report in preparing department Form Y or equivalent. For any period in which the licensee or registrant does not obtain a report, the licensee or registrant shall place a notation on department Form Y or equivalent indicating the periods for which data are not available.

ii. For the purposes of complying with this requirement, licensees or registrants are not required to partition historical dose between external dose equivalent(s) and internal committed dose equivalent(s). Occupational exposure histories obtained and recorded on department Form Y or equivalent before [cite effective date of these regulations], might not have included effective dose equivalent, but may be used in the absence of specific information on the intake of radionuclides by the individual.

e. If the licensee or registrant cannot obtain a complete record of:

i. An individual's occupational dose for the current year, the licensee or registrant shall assume, in establishing administrative controls pursuant to subrule D.1201f. for the current year, that the allowable dose limit for the individual is reduced by 12.5 millisieverts (1,250 millirem) for each quarter for which records are unavailable and the individual was engaged in activities that could have resulted in occupational radiation exposure; and

ii. An individual's current and previously accumulated occupational dose, that the individual is not available for planned special exposures.

f. The licensee or registrant shall retain the records on department Form Y or equivalent until the department terminates each pertinent license or registration requiring this record. The licensee or registrant shall retain records used in preparing department Form Y or equivalent for 3 years after the record is made.

Rule D.2105 - Records of Planned Special Exposures.

- 482 a. For each planned special exposure, the licensee or registrant shall maintain records that
483 describe:
484
485 i. The exceptional circumstances requiring the use of a planned special exposure;
486
487 ii. The name of the management official who authorized the planned special exposure and
488 a copy of the signed authorization;
489
490 iii. What actions were necessary;
491
492 iv. Why the actions were necessary;
493
494 v. How doses were maintained as low as reasonably achievable;
495
496 vi. What individual and collective doses were expected to result, and
497
498 vii. The doses actually received during the planned special exposure.
499
500 b. The licensee or registrant shall retain the records until the department terminates each
501 pertinent license requiring these records.
502

503 **Rule D.2106 - Records of Individual Monitoring Results.**
504

- 505 a. Each licensee or registrant shall maintain records of doses received by all individuals for
506 whom monitoring was required pursuant to rule D.1502, and records of doses received
507 during planned special exposures, accidents, and emergency conditions. These records
508 must include, when applicable:
509
510 i. The deep-dose equivalent to the whole body, lens dose equivalent, shallow-dose
511 equivalent to the skin, and shallow-dose equivalent to the extremities;
512
513 ii. The estimated intake of radionuclides see rule D.1202;
514
515 iii. The committed effective dose equivalent assigned to the intake of radionuclides;
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517 iv. The specific information used to assess the committed effective dose equivalent
518 pursuant to rules D.1204a. and D.1204c. and when required by rule D.1502;
519
520 v. The total effective dose equivalent when required by rule D.1202; and
521
522 vi. The total organ dose equivalent.
523
524 b. The licensee or registrant shall make entries of the records specified in subrule a. of this rule
525 at least annually.
526
527 c. The licensee or registrant shall maintain the records specified in subrule a. of this rule on
528 department Form Z, in accordance with the instructions for department Form Z, or in clear
529 and legible records containing all the information required by department Form Z.
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Department Form Z is equivalent to NRC Form 5, "Occupational Dose Record for a Monitoring Period."

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- d. The licensee or registrant shall maintain the records of dose to an embryo/fetus with the records of dose to the declared pregnant woman. The declaration of pregnancy shall also be kept on file, but may be maintained separately from the dose records.
 - e. The licensee or registrant shall retain the required form or record until the department terminates each pertinent license or registration requiring the record.

539 **Rule D.2107 - Records of Dose to Individual Members of the Public.**

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- a. Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public as required by rule D.1301.
 - b. The licensee or registrant shall retain the records required by subrule a. of this rule until the department terminates each pertinent license or registration requiring the record.

547 **Rule D.2108 - Records of Waste Disposal.**

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- a. Each licensee shall maintain records of:
 - i. The disposal of licensed radioactive materials made under rules D.2002, D.2003, D.2004, and D.2005 of these rules.
 - ii. The burial of any licensed material made under 10 CFR 20.304 before its repeal in 1981 or under R325.5240 before it was rescinded on [insert the effective date of the current rule changes].
 - b. The licensee shall retain the records required by subrule a. of this rule until the department terminates each pertinent license requiring the record.

561 **Rule D.2109 - Records of Testing Entry Control Devices for Very High Radiation Areas.**

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- a. Each licensee or registrant shall maintain records of tests performed on entry control devices for very high radiation areas. These records must include the date, time, and results of each test.
 - b. The licensee or registrant shall retain the records required by subrule a. of this rule for 3 years after the record is made.

570 **Rule D.2110 - Form of Records.**

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- a. Each record required by these rules must be legible, readily identifiable, and retrievable throughout the specified retention period.
 - b. The record shall be:
 - i. The original;

- 629
630 v. Actions that have been taken, or will be taken, to recover the source of radiation; and
631
632 vi. Actions taken or planned to prevent a recurrence of the loss or theft of licensed or
633 registered sources of radiation.
634
635 c. After filing the written report, the licensee or registrant shall make an additional written report
636 to the department containing any additional substantive information regarding the loss or
637 theft within 30 days after the licensee or registrant learns of the new information.
638
639 d. The licensee or registrant shall prepare any report filed with the department pursuant to this
640 rule so that the names of individuals who may have received exposure to radiation are
641 contained in a separate and detachable part of the report.
642

643 **Rule D.2202 - Notification of Incidents.**
644

- 645 a. In addition to any other requirements for notification, a licensee or registrant shall
646 immediately notify the department of any event involving a source of radiation possessed by
647 the licensee or registrant that may have caused or threatens to cause any of the following
648 conditions:
649
650 i. An individual to receive:
651 (1) A total effective dose equivalent of 0.25 sievert (25 rem) or more;
652 (2) A lens dose equivalent of 0.75 sievert (75 rem) or more; or
653 (3) A shallow-dose equivalent to the skin or extremities of 2.5 gray (250 rads) or more;
654 or
655
656 ii. The release of radioactive material, inside or outside a restricted area, so that, if an
657 individual had been present for 24 hours, the individual could have received an intake
658 equal to or greater than five times the occupational annual limit on intake. This provision
659 does not apply to locations where personnel are not normally stationed during routine
660 operations, such as hot-cells or process enclosures.
661
662 b. Within 24 hours of discovery of the event, a licensee or registrant shall, notify the
663 department of any event involving a licensed or registered source of radiation possessed by
664 the licensee or registrant that may have caused, or threatens to cause, any of the following
665 conditions:
666
667 i. An individual to receive, in a period of 24 hours:
668 (1) A total effective dose equivalent exceeding 0.05 sievert (5 rem);
669 (2) A lens dose equivalent exceeding 0.15 sievert (15 rem); or
670 (3) A shallow-dose equivalent to the skin or extremities exceeding 0.5 sievert (50 rem);
671 or
672
673 ii. The release of radioactive material, inside or outside a restricted area, so that, if an
674 individual had been present for 24 hours, the individual could have received an intake
675 exceeding one occupational annual limit on intake. This provision does not apply to
676 locations where personnel are not normally stationed during routine operations, such as
677 hot-cells or process enclosures.
678

- 679 c. Licensees or registrants shall make the notifications required by subrules a. and b. of this
680 rule by telephone to the department and shall confirm the notification within 24 hours by e-
681 mail, facsimile, or overnight mail to the department.
682
- 683 d. The licensee or registrant shall prepare the written confirmation filed with the department
684 pursuant to this rule so that the names of individuals who have received an exposure to
685 radiation or radioactive material are contained in a separate and detachable part of the
686 written confirmation.
687
- 688 e. This rule does not apply to doses from planned special exposures that are within the limits
689 for planned special exposures, and that are reported pursuant to rule D.2204.
690

691 **Rule D.2203 - Reports of Exposures, Radiation Levels, and Concentrations of Radioactive**
692 **Material Exceeding the Constraints or Limits.**
693

- 694 a. In addition to the notification required by rule D.2202, a licensee or registrant shall submit a
695 written report to the department within 30 days after learning of any of the following
696 occurrences:
697
- 698 i. Any event requiring notification under rule D.2202; or
699
- 700 ii. Any dose exceeding any of the following:
701 (1) The occupational dose limits for adults in rule D.1201;
702 (2) The occupational dose limits for a minor in rule D.1207;
703 (3) The limit for an embryo/fetus of a declared pregnant woman in rule D.1208;
704 (4) The limits for a member of the public in rule D.1301;
705 (5) Any applicable limit in the license or registration; or
706 (6) The air emission constraint in rule D.1101d. or
707
- 708 iii. Levels of radiation or concentrations of radioactive material in:
709 (1) A restricted area exceeding any applicable limit in the license or registration; or
710 (2) An unrestricted area exceeding 10 times any applicable limit in this part or in the
711 license or registration, whether or not this involves a dose to any individual in excess
712 of the limits in rule D.1301; or
713
- 714 iv. For licensees subject to the U.S. Environmental Protection Agency's generally applicable
715 environmental radiation standards in 40 CFR part 190, levels of radiation or releases of
716 radioactive material exceeding those standards, or of license conditions related to those
717 standards.
718
- 719 b. i. Each written report required by subrule a. of this rule must include, as appropriate:
720 (1) A description of the event, including the possible cause and the manufacturer and
721 model number, if applicable, of any equipment that failed or malfunctioned;
722 (2) The location of the event;
723 (3) The isotopes, quantities, and chemical and physical form of the licensed material;
724 (4) The date and time of the event;
725 (5) The results of any evaluations or assessments, including:
726 (a) An estimate of each individual's dose; and
727 (b) The levels of radiation and concentrations of radioactive material; and
728 (6) Actions taken or planned to prevent a recurrence, including the schedule for
729 achieving conformance with applicable limits, the air emission constraint in rule

730 D.1101d, and generally applicable environmental standards, and applicable license
731 or registration conditions.

732
733 ii. After filing the written report, the licensee or registrant shall make an additional written
734 report to the department containing any additional substantive information regarding the
735 event within 30 days after the licensee or registrant learns of the new information.

736
737 iii. (1) Each report filed with the department under this rule must include the name, a
738 unique identification number or social security number, and date of birth of each
739 overexposed individual. If the dose to an embryo/fetus exceeds the limit in rule
740 D.1208, the identifiers should be those of the declared pregnant woman.

741
742 (2) The report must be prepared so that the information in subrule b.ii.(1) of this rule is
743 contained in a separate and detachable part of the report and must be clearly labeled
744 "Protected Information: Not for Public Disclosure."
745

746 **Rule D.2204 - Reports of Planned Special Exposures.**

747
748 A licensee shall submit a written report to the department within 30 days following any planned
749 special exposure conducted as specified in rule D.1206. The written report must include the
750 date the planned special exposure occurred and the information required by rule D.2105.

751 **Rule D.2205 - Reports to Individuals of Exceeding Dose Limits.**

752
753 When rules D.2203 or D.2204 require a licensee or registrant to report to the department the
754 exposure of an identified occupationally exposed individual, or an identified member of the
755 public, to radiation or radioactive material, the licensee or registrant shall also provide the
756 individual a report on his or her exposure data included in the report submitted to the
757 department. This report must be transmitted no later than the transmittal to the department.
758
759

760 **Rule D.2206 - Reports of Individual Monitoring for Licensed Industrial Radiography and**
761 **for Processing or Manufacturing of Radioactive Material for Distribution.**

762
763 a. This rule applies to each person licensed by the department to:

764
765 i. Possess or use byproduct material for industrial radiography pursuant to Parts C and E
766 of these rules; or
767

<u>Information</u> Part C is licensing of radioactive material. Part E is industrial radiography.
--

768
769 ii. Possess or use, for processing or manufacturing for distribution pursuant to Parts C or G
770 of these rules, radioactive material in quantities exceeding one or more of the following
771 quantities:
772

<u>Radionuclide</u>	<u>Activity</u>	
	<u>GBq</u>	<u>Ci</u>
Cesium-137	37	1
Cobalt-60	37	1

<u>Radionuclide</u>	<u>Activity</u>	
	<u>GBq</u>	<u>Ci</u>
Gold-198	3,700	100
Iodine-131	37	1
Iridium-192	370	10
Krypton-85	37,000	1,000
Promethium-147	370	10
Technetium-99m	37,000	1,000

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The department may require as a license condition, or by rule or order pursuant to rule A.7, reports from licensees who are licensed to use radionuclides not on this list, in quantities sufficient to cause comparable radiation levels.

Information

Part C is licensing of radioactive material. Part G is radioactive material in the healing arts.

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- b. Each licensee subject to subrule a. of this rule shall submit an annual report of the results of individual monitoring carried out by the licensee for each individual for whom monitoring was required by rule D.1502 during that year. The licensee may include additional data for individuals for whom monitoring was provided but not required. The licensee shall use Agency Form Z or equivalent.
- c. The licensee shall submit the report required by subrule b. of this rule, covering the preceding year, before May 1 of each year to the department.

Rule D.2207 - Reports of Transactions Involving Nationally Tracked Radioactive Sources.

Each licensee who manufactures, transfers, receives, disassembles, or disposes of a nationally tracked source shall complete and submit a National Source Tracking Transaction Report as specified in subrules a. through e. of this rule for each type of transaction.

- a. Each licensee who manufactures a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:
 - i. The name, address, and license number of the reporting licensee;
 - ii. The name of the individual preparing the report;
 - iii. The manufacturer, model, and serial number of the source;
 - iv. The radioactive material in the source;
 - v. The initial source strength in becquerels (curies) at the time of manufacture; and
 - vi. The manufacture date of the source.
- b. Each licensee that transfers a nationally tracked source to another person shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:
 - i. The name, address, and license number of the reporting licensee;
 - ii. The name of the individual preparing the report;
 - iii. The name and license number of the recipient facility and the shipping address;
 - iv. The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

- 812 v. The radioactive material in the source;
813 vi. The initial or current source strength in becquerels (curies);
814 vii. The date for which the source strength is reported;
815 viii. The shipping date;
816 ix. The estimated arrival date; and
817 x. For nationally tracked sources transferred as waste under a Uniform Low-Level
818 Radioactive Waste Manifest, the waste manifest number and the container identification
819 of the container with the nationally tracked source.
820
- 821 c. Each licensee that receives a nationally tracked source shall complete and submit a
822 National Source Tracking Transaction Report. The report must include the following
823 information:
824 i. The name, address, and license number of the reporting licensee;
825 ii. The name of the individual preparing the report;
826 iii. The name, address, and license number of the person that provided the source;
827 iv. The manufacturer, model, and serial number of the source or, if not available, other
828 information to uniquely identify the source;
829 v. The radioactive material in the source;
830 vi. The initial or current source strength in becquerels (curies);
831 vii. The date for which the source strength is reported;
832 viii. The date of receipt; and
833 ix. For material received under a Uniform Low-Level Radioactive Waste Manifest, the waste
834 manifest number and the container identification with the nationally tracked source.
835
- 836 d. Each licensee that disassembles a nationally tracked source shall complete and submit a
837 National Source Tracking Transaction Report. The report must include the following
838 information:
839 i. The name, address, and license number of the reporting licensee;
840 ii. The name of the individual preparing the report;
841 iii. The manufacturer, model, and serial number of the source or, if not available, other
842 information to uniquely identify the source;
843 iv. The radioactive material in the source;
844 v. The initial or current source strength in becquerels (curies);
845 vi. The date for which the source strength is reported;
846 vii. The date the source was disassembled.
847
- 848 e. Each licensee who disposes of a nationally tracked source shall complete and submit a
849 National Source Tracking Transaction Report. The report must include the following
850 information:
851 i. The name, address, and license number of the reporting licensee;
852 ii. The name of the individual preparing the report;
853 iii. The waste manifest number;
854 iv. The container identification with the nationally tracked source.
855 v. The date of disposal; and
856 vi. The method of disposal.
857
- 858 f. The licensee shall submit the reports required in subrules a. through e. of this rule by the
859 close of the next business day after the transaction. A single report may be submitted for
860 multiple sources and transactions. The reports must be submitted to the National Source
861 Tracking System by using:
862 i. The on-line National Source Tracking System;

913 **Rule D.2404. - Appendix G. Requirements for Transfers of Low-Level Radioactive Waste**
914 **Intended for Disposal at Licensed Land Disposal Facilities and Manifests.**

915

916 “Appendix G - Requirements for Transfers of Low-Level Radioactive Waste Intended for
917 Disposal at Licensed Land Disposal Facilities and Manifests” 10 CFR Part 20 (2009), is
918 incorporated by reference in these rules.

919