



Conference of Radiation Control Program Directors, Inc.

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June 27, 2001

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Paul Lohaus
Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Dear Mr. Lohaus:

Please find enclosed a draft copy of the latest suggested state regulation from the Conference of Radiation Control Program Directors. **Part S – Requirements for Financial Assurance**, is being presented for peer review. Currently, CRCPD members and industry stakeholders are peer reviewing this Part. We request that NRC likewise review the enclosed Parts relative to eventual Federal Concurrence.

The CRCPD requests that correspondence relative to Parts S be sent to Ken Weaver at the Colorado Department of Public Health, 8100 Lowry Blvd, Denver, CO 80230-6928. (kenneth.weaver@state.co.us).

Thank you for your attention to this important matter.

Sincerely,


Bruce Hirschler
Technical Assistant, CRCPD

Cc: Charles Hardin, Executive Director, CRCPD
Patricia Gorman, Deputy Director
Paul Merges, Chairperson, CRCPD

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PART S

REQUIREMENTS FOR FINANCIAL ASSURANCE

Sec. S.1 - Purpose. This Part provides for financial assurance arrangements for decontaminating, decommissioning, reclaiming, restoring, disposal, and any other activity required by the Agency, for costs associated with licensed facilities and sites.

Sec. S.2 - Scope. This Part sets forth the requirements pursuant to [cite applicable State statute(s)] for the establishment of financial assurance arrangements for the categories of licensees listed in S.4f. Such arrangements may consist of surety bonds, cash deposits, certificates of deposit, deposit of government securities, letters or lines of credit, another approved mechanism, or any approved combination.

Sec. S.3 - Definitions.

“Facility” means the location within one building, vehicle, or under one roof and under the same administrative control (1) at which the possession, use, processing or storage of radioactive material is or was authorized or (2) at which one or more radiation-producing machines or radioactivity-inducing machines are installed or located. “Facility” may also mean multiple such locations at a site or part of a site.

“Site” means the area contained within the boundary of a location under the control of persons generating or storing radioactive materials.

Sec. S.4 - Financial Surety Arrangements Required.

- a. The Agency may require any licensee to furnish a decommissioning financial assurance arrangement in a dollar amount determined by the Agency as necessary to protect public health and safety, to ensure corrective action during operation, to ensure decontamination and decommissioning of a facility or site, and for disposal of radioactive materials in the event of abandonment, insolvency [default] or other inability of the licensee to meet the requirements of [cite applicable State statute(s)], these regulations, or the license.
- b. The following specific licensees are required to furnish decommissioning financial assurance arrangements:
 - i. Each licensee authorized to possess and use greater than 370 megabecquerel (10 mCi) of source material in a readily dispersible form; and
 - ii. Each licensee authorized to possess and use radioactive material with a half-life greater than 120 days, in quantities:
 - (1) Greater than 10^3 times the applicable quantity of Appendix A, in unsealed form. For a combination of isotopes, if R divided by 10^3 is greater than 1 (unity rule),

where R is defined here as the sum of the ratios of the quantity of each isotope to the applicable value in Appendix A.

- (2) Greater than 10^{10} times the applicable quantity of Appendix A, in sealed sources or plated foils. For a combination of isotopes, if R divided by 10^{10} is greater than 1 (unity rule), where R is defined as in S.4b.ii(1).
 - (3) For the purpose of determining if the quantity of licensed radioactive material requires a decommissioning warranty or a decommissioning funding plan as defined, a value of 370 becquerel (0.01 μ Ci) shall be used as the Appendix A quantity for any alpha emitting radionuclide not listed in Appendix A of Part S, or mixtures of alpha emitters of unknown composition;
- iii. Former U.S. Atomic Energy Commission or NRC licensed facilities; and
 - iv. Other persons with or applicants for a specific license as determined by the Agency;
 - [v. Commercial radioactive waste handling and/or packaging licensees;]
 - [vi. Radioactive waste disposal licensees;]
 - [vii. Source material milling licensees;]
 - [viii. Ore refineries.]
- c. The amount of funds to be provided by such financial assurance arrangements shall be based on Agency-approved cost estimates for (1) the disposal of radioactive materials, (2) decontamination and decommissioning of buildings, facilities and the site to levels which would allow unrestricted use of these areas upon decommissioning, [and (3) for the reclamation of tailings and/or waste disposal areas in accordance with technical criteria delineated in Parts C, M, and/or U of these regulations as appropriate.]
 - d. The Agency shall consider the following in making its determination of the financial assurance requirements of each individual applicant or licensee:
 - i. The cost of removal and/or disposal of radioactive material, or a radiation-producing or radioactivity-inducing machine, which is or would be generated, stored, processed or otherwise present at the facility or site;
 - ii. The probable extent of contamination through the possession or use of radioactive material, at or adjacent to the facility or site and the probable cost of removal of such contamination.
 - e. Cost estimates used to determine the amount of a decommissioning financial assurance arrangement shall take into account total costs that would be incurred if an independent contractor were hired to dispose of radioactive materials and perform decontamination, decommissioning, and reclamation work. The cost estimates shall include all reasonable Agency

costs, including administrative indirect and legal costs incurred by the Agency in conducting or overseeing the decontamination, decommissioning financial instruments established by the licensee in accordance with this Part.

- f. A signed executed original copy of each financial assurance instrument required by the Part and approved by the Agency prior to receipt or possession of radioactive materials, the licensee shall provide

Sec. S.5 - Decommissioning Funding Plan Required.

- a. Licensees authorized to possess and use unsealed radioactive material with half-life greater than 120 days and in quantities greater than 10^5 times the applicable quantity in Appendix A shall establish an Agency-approved decommissioning funding plan to assure the availability of funds for decommissioning activities conducted over the life of the licensed facility. The decommissioning funding plan is also required for licensees authorized for a combination of isotopes if R divided by 10^5 is greater than 1 (unity rule), where R is defined as in S.4b.ii.(1).
- b. This decommissioning funding plan shall contain a cost estimate for decommissioning, as required in this section, including means for adjusting cost estimates and associated funding levels periodically over the life of the facility.
- c. The decommissioning funding plan shall also include a certification by the licensee that funding for decommissioning activities has been provided for in the amount of the cost estimate for decommissioning. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued, but prior to the receipt or possession of radioactive material. A copy of the financial instrument shall be submitted to the Agency.

Sec. S.6 - Acceptable Financial Assurance Methods.

- a. Financial assurance arrangements shall contain provisions which are acceptable to the Agency for:
 - i. Defining the amount and term of the warranty,
 - ii. Providing written notification to the Agency by the warrantor at least ninety (90) days prior to cancellation, termination, or revocation of the warranty, and
 - iii. Converting the warranty into cash upon forfeiture of the warranty.
- b. Financial assurance arrangements shall be in a form as described below:
 - i. Prepayment of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets such that the amount of funds would be sufficient to pay decommissioning costs.

- ii. A guarantee method which ensures that decommissioning costs will be paid should the licensee default, such as:
 - (1) A bond issued by a fidelity or surety company consistent with the provisions of [cite applicable State statute(s)]; or
 - (2) An irrevocable “letter of credit” or “line of credit” issued by a recognized financial institution whose financial condition and commitment are established to the satisfaction of the Agency; or
 - (3) A guarantee of funds by the applicant, licensee, or parent company which satisfies the requirements listed below. However, this self guarantee shall not apply to uranium or thorium milling licensees.
 - (a) The Agency may accept a parent company guarantee of funds for decommissioning costs based upon a financial test of the parent company and a written guarantee as contained in Appendix B.
 - (b) The Agency may accept an applicant or licensee guarantee of funds for decommissioning costs based upon a financial test of the applicant or licensee and a written guarantee as contained in Appendix C.
 - (c) For commercial companies that do not issue bonds, the Agency may accept an applicant or licensee guarantee for decommissioning costs based upon a financial test of the applicant or licensee and a written guarantee as contained in Appendix D.
 - (d) For nonprofit entities, such as colleges, universities, and nonprofit hospitals, the Agency may accept an applicant or licensee guarantee of funds for decommissioning costs based upon a financial test of the applicant or licensee and a written guarantee as contained in Appendix E.
 - (4) Any financial assurance shall provide that:
 - (a) The term be open-ended or have provisions for automatic renewal until termination of the license by the Agency, unless it can be demonstrated that another arrangement would provide an equivalent level of assurance.

[...or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Agency, the beneficiary, and the licensee of its intention not to renew.]
 - (b) The full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if the licensee fails to provide a

replacement acceptable to the Agency within 30 days after receipt of notification of cancellation.

- (c) Be payable to a trust established for decommissioning costs. The trustee and trust must be acceptable to the Agency. An acceptable trustee includes an appropriate state or federal government agency or an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.
 - (d) Remain in effect until the Agency has terminated the license.
- (5) For any financial assurance arrangement:
- (a) A parent company guarantee may not be used in combination with other financial methods to satisfy the requirements of this part.
 - (b) A guarantee by the applicant or licensee may not be used in any situation where the applicant or licensee has a parent company holding majority control of the voting stock of the company.
 - (c) The value shall not be dependent upon the success, profitability, or continued operation of the licensed business or operation.
- iii. An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by setting aside funds periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. The surety or insurance provisions must be as stated in S.4; or
- iv. A statement of intent, in the case of federal, state, or local government licensees, containing a cost estimate for decommissioning or an amount pursuant to S.4, and indicating that funds for decommissioning will be obtained when necessary.
- v. When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.
- vi. Financial assurance warranties previously provided to any State, Federal and/or local governing bodies concerning activities subject to license under these regulations, where the amount, terms, and conditions of such financial assurances have been established to the satisfaction of the Agency and in accordance with the requirements of this part.
- vii. Except for the guarantee of funds noted in S.6bii.(2)(3), an approved combination of the above may be used to establish an acceptable financial assurance arrangement.

Sec. S.7 - Periodic Review of Financial Assurances.

- a. The licensee shall provide proposed changes to the financial assurances in writing to the Agency.
 - i. These changes may include, but are not limited to, updated decommissioning funding plans, cost estimates, or the type of financial assurance.
 - ii. The licensee shall include an evaluation of whether an adjustment is necessary to the amount of financial assurance to account for:
 - (1) Increases or decreases in cost estimates resulting from inflation or deflation;
 - (2) Changes in engineering plans, activities performed, authorized quantities of radioactive material; or
 - (3) Changes in any other conditions affecting the costs to decontaminate, decommission, and store, transfer, process, or dispose radioactive material.
 - iii. [The licensee shall submit these proposed changes no later than {insert date} in any calendar year in which the changes become necessary.]
- b. Each financial assurance shall be subject to [annual or periodic] review and approval by the Agency to assure its adequacy.
- c. With the approval of the Agency, a licensee may reduce the amount of a decommissioning financial assurance instrument as decommissioning activities are completed in accordance with an approved decommissioning plan and/or to reflect current site conditions and license authorizations.
- d. Regardless of whether decommissioning is phased through the life of licensed operations or occurs at the end, appropriate and adequate decommissioning financial assurances shall be maintained in effect and in good standing by the licensee until termination of the license or as otherwise authorized by the Agency.

Sec. S.8 - Financial Assurances Recordkeeping. Each licensee shall keep records of financial assurances, including, but not limited to, records of the cost estimate performed for the decommissioning funding plan in accordance with S.5, of the amount certified for decommissioning in accordance with S.4, and records of the funding method used for assuring funds if either a funding plan or certification is used in accordance with S.6.

Sec. S.9 - Minimum Financial Assurance Amount. Each licensee authorized to possess and use radioactive material with a half-life greater than 120 days shall provide no less than the following minimum required amount of financial assurance for decommissioning by quantity of material:

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|----|--|-----------|
| a. | Greater than 10^4 but less than or equal to 10^5 times the applicable quantities in Appendix A in unsealed form. For a combination of isotopes, if R, as defined in S.4b.ii.(1), divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1. | \$750,000 |
| b. | Greater than 10^3 but less than or equal to 10^4 times the applicable quantities in Appendix A in unsealed form. For a combination of isotopes, if R, as defined in S.4b.ii.(1), divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1. | \$150,000 |
| c. | Greater than 10^{10} times the applicable quantities Appendix A in sealed sources or plated foils. For a combination of isotopes, if R, as defined in S.4b.ii.(1), divided by 10^{10} is greater than 1. | \$75,000 |

Sec. S.10 - Long-term Care Financial Assurance Requirements. In addition to the decommissioning financial assurance required by S.4, the Agency may require any licensee to provide a long-term care warranty if the licensed facility will remain a disposal site for radioactive materials subsequent to the termination of the license, or the license will be terminated using criteria in Part O.10 or O.11 of the regulations.

Sec. S.11 - Exemption From Financial Assurance Requirements. The following persons are exempt from the requirements of Part S:

- a. Persons authorized to possess no more than 1,000 times the quantity specified in C.4, Appendix A of these regulations, or combination of radioactive material listed therein as given in Appendix A, Note 1.
- b. Persons authorized to possess radioactive noble gases in sealed sources with no radioactive daughter produce with half-life greater than 30 days.
- c. Other persons authorized by the Agency.

[Sec. S.12 - Timely Instatement of Financial Assurance Arrangements. Each holder of a specific license issued on or after {date specified by the Agency}, which is of a type described in S.4 shall:

- a. Provide financial assurance for decommissioning in accordance with the criteria set forth in this Part.
- b. On or before [date specified by the Agency], submit a decommissioning funding plan or a certification of financial assurance for decommissioning in an amount at least equal to \$750,000, in accordance with the criteria set forth in this Part. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.

- c. Submit, on or before {date specified by the Agency}, a certification of financial assurance for decommissioning or a decommissioning funding plan in accordance with the criteria set forth in this Part.]

Part S

Appendix A

Table I - Quantities For Use With S.4

<u>Material</u>	<u>Microcuries</u>
Americium-241	0.01
Antimony-122	100.00
Antimony-124	10.00
Antimony-125	10.00
Arsenic-73	100.00
Arsenic-74	10.00
Arsenic-76	10.00
Arsenic-77	100.00
Barium-131	10.00
Barium-133	10.00
Barium-140	10.00
Bismuth-210	1.00
Bromine-82	10.00
Cadmium-109	10.00
Cadmium-115m	10.00
Cadmium-115	100.00
Calcium-45	10.00
Calcium-47	10.00
Carbon-14	100.00
Cerium-141	100.00
Cerium-143	100.00
Cerium-144	1.00
Cesium-131	1,000.00
Cesium-134m	100.00
Cesium-134	1.00
Cesium-135	10.00
Cesium-136	10.00
Cesium-137	10.00
Chlorine-36	10.00
Chlorine-38	10.00
Chromium-51	1,000.00
Cobalt-58m	10.00
Cobalt-58	10.00
Cobalt-60	1.00
Copper-64	100.00
Dysprosium-165	10.00
Dysprosium-166	100.00
Erbium-169	100.00

Table 1 (continued)

Material	Microcuries
Erbium-171	100.00
Europium-152 (9.2 h)	100.00
Europium-152 (13 yr)	1.00
Europium-154	1.00
Europium-155	10.00
Fluorine-18	1,000.00
Gadolinium-153	10.00
Gadolinium-159	100.00
Gallium-72	10.00
Germanium-71	100.00
Gold-198	100.00
Gold-199	100.00
Hafnium-181	10.00
Holmium-166	100.00
Hydrogen-3,	1000.00
Indium-113m	100.00
Indium-114m	10.00
Indium-115m	100.00
Indium-115	10.00
Iodine-125	1.00
Iodine-126	1.00
Iodine-129	0.10
Iodine-131	1.00
Iodine-132	10.00
Iodine-133	1.00
Iodine-134	10.00
Iodine-135	10.00
Iridium-192	10.00
Iridium-194	100.00
Iron-55	100.00
Iron-59	10.00
Krypton-85	100.00
Krypton-87	10.00
Lanthanum-140	10.00
Lutetium-177	100.00
Manganese-52	10.00
Manganese-54	10.00
Manganese-56	10.00
Mercury-197m	100.00
Mercury-197	100.00
Mercury-203	10.00
Molybdenum-99	100.00
Neodymium-147	100.00
Neodymium-149	100.00
Nickel-59	100.00
Nickel-63	10.00

<u>Material</u>	<u>Microcuries</u>
Nickel-65	100.00
Niobium-93m	10.00
Niobium-95	10.00
Niobium-97	10.00
Osmium-185	10.00
Osmium-191m	100.00
Osmium-191	100.00
Osmium-193	100.00
Palladium-103	100.00
Palladium-109	100.00
Phosphorus-32	10.00
Phosphorus-33	100.00
Platinum-191	100.00
Platinum-193m	100.00
Platinum-193	100.00
Platinum-197m	100.00
Platinum-197	100.00
Plutonium-239	0.01
Polonium-210	0.10
Potassium-42	10.00
Praseodymium-142	100.00
Praseodymium-143	100.00
Promethium-147	10.00
Promethium-149	10.00
Radium-226	0.01
Rhenium-186	100.00
Rhenium-188	100.00
Rhodium-103m	100.00
Rhodium-105	100.00
Rubidium-86	10.00
Rubidium-87	10.00
Ruthenium-97	100.00
Ruthenium-103	10.00
Ruthenium-105	10.00
Ruthenium-106	1.00
Samarium-151	10.00
Samarium-153	100.00
Scandium-46	10.00
Scandium-47	100.00
Scandium-48	10.00
Selenium-75	10.00
Silicon-31	100.00
Silver-105	10.00
Silver-110m	1.00
Silver-111	100.00
Sodium-22	1.00

Table 1 (continued)

<u>Material</u>	<u>Microcuries</u>
Sodium-24	10.00
Strontium-85	10.00
Strontium-89	1.00
Strontium-90	0.10
Strontium-91	10.00
Strontium-92	10.00
Sulphur-35	100.00
Tantalum-182	10.00
Technetium-96	10.00
Technetium-97m	100.00
Technetium-97	100.00
Technetium-99m	100.00
Technetium-99	10.00
Tellurium-125m	10.00
Tellurium-127m	10.00
Tellurium-127	100.00
Tellurium-129m	10.00
Tellurium-129	100.00
Tellurium-131m	10.00
Tellurium-132	10.00
Terbium-160	10.00
Thallium-200	100.00
Thallium-201	100.00
Thallium-202	100.00
Thallium-204	10.00
Thorium (natural)	100.00
Thulium-170	10.00
Thulium-171	10.00
Tin-113	10.00
Tin-125	10.00
Tungsten-181	10.00
Tungsten-185	10.00
Tungsten-187	100.00
Uranium (natural)	100.00
Uranium-233	0.01
Uranium-234/235	0.01
Vanadium-48	10.00
Xenon-131m	1,000.00
Xenon-133	100.00
Xenon-135	100.00
Ytterbium-175	100.00
Yttrium-90	10.00
Yttrium-91	10.00
Yttrium-92	100.00
Yttrium-93	100.00
Zinc-65	10.00

Table 1 (continued)

<u>Material</u>	<u>Microcuries</u>
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Table 1 (continued)

Zinc-69m	100.00
Zinc-69	1,000.00
Zirconium-93	10.00
Zirconium-95	10.00
Zirconium-97	10.00

Any alpha-emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.01
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Any radionuclide other than alpha-emitting radionuclides, not listed above or mixtures of beta emitters of unknown composition	0.10
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Note: For purposes of S.4, where there is involved a combination of radionuclides in known amounts, the limit for the combination should be derived as follows: Determine, for each radionuclide in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific radionuclide when not in combination. The sum of such ratios for all the radionuclides in the combination is R.

Note: To convert microcuries (μCi) to SI units of kilobecquerels (kBq), multiply the above values by 37.

Example: Zirconium-97 ($10 \mu\text{Ci}$) (37) = 370 kBq .
($10 \mu\text{Ci}$ multiplied by 37 is equivalent to 370 kBq)

PART S

Appendix B

**CRITERIA RELATING TO USE OF FINANCIAL TESTS AND PARENT COMPANY
GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR
DECOMMISSIONING**

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on obtaining a parent company guarantee that funds will be available for decommissioning costs and on a demonstration that the parent company passes a financial test. This appendix establishes criteria for passing the financial test and for obtaining the parent company guarantee.

II. Financial Test

- (A) To pass the financial test, the parent company must meet the criteria of either II.(A)(1) or II.(A)(2):
- (1) The parent company must have:
- (a) Two of the following three ratios: A ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and,
 - (b) Net working capital and tangible net worth each at least six times the current decommissioning cost estimates (or prescribed amount if a certification is used); and,
 - (c) Tangible net worth of at least \$10 million; and,
 - (d) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the current decommissioning cost estimates (or prescribed amount if a certification is used).
- (2) The parent company must have:
- (a) A current rating for its most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's; and,
 - (b) Tangible net worth at least six times the current decommissioning cost estimate (or prescribed amount if a certification is used); and,
 - (c) Tangible net worth of at least \$10 million; and,

- (d) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the current decommissioning cost estimates (or prescribed amount if certification is used).
- (B) The parent company's independent certified public accountant must have compared the data used by the parent company in the financial test, which is derived from the independently audited, year-end financial statement. In connection with that procedure, the licensee shall inform the Agency within 90 days of any matters coming to the auditor's attention that cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.
- (C)
 - (1) After the initial financial test, the parent company must repeat the passage of the test within 90 days after the close of each succeeding fiscal year.
 - (2) If the parent company no longer meets the requirements of II.(A), the licensee must send notice to the Agency of intent to establish alternate financial assurance as specified in the Commission's regulations. The notice must be sent by certified mail within 90 days after the end of the fiscal year for which the year end financial data show that the parent company no longer meets the financial test requirements. The licensee must provide alternate financial assurance within 120 days after the end of such fiscal year.

III. Parent Company Guarantee

The terms of a parent company guarantee that an applicant or licensee obtains must provide that:

- (A) The parent company guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the licensee and the Agency. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the licensee and the Agency, as evidenced by the return receipts.
- (B) If the licensee fails to provide alternate financial assurance as specified in the Agency's regulations within 90 days after receipt by the licensee and the Agency of a notice of cancellation of the parent company guarantee from the guarantor, the guarantor will provide such alternative financial assurance in the name of the licensee.
- (C) The parent company guarantee and financial test provisions must remain in effect until the Agency has terminated the license.
- (D) If a trust is established for decommissioning costs, the trustee and trust must be acceptable to the Agency. An acceptable trustee includes an appropriate state or federal government agency or an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

PART S

Appendix C**CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF GUARANTEES FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING**

I Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes the financial test of Section II of this Appendix. The terms of the self-guarantee are in Section III of this Appendix. Appendix C establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

(A) To pass the financial test, a company must meet all of the following criteria:

- (1) Tangible net worth at least 10 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.
- (2) Assets located in the United States amounting to at least 90 percent of total assets or at least 10 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.
- (3) A current rating for its most recent bond issuance of AAA, AA, or A as issued by Standard and Poors (S&P), Aaa, As, or A as issued by Moody's.

(B) To pass the financial test, a company must meet all of the following additional requirements:

- (1) The company must have at least one class of equity securities registered under the Securities Exchange Act of 1934.
- (2) The company's independent certified public accountant must have compared the data used by the company in the financial test which is derived from the independently audited, yearend financial statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure, the licensee shall inform the Agency within 90 days of any matters coming to the attention of the auditor that cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.
- (3) After the initial financial test, the company must repeat passage of the test within 90 days after the close of each succeeding fiscal year.

- (C) If the licensee no longer meets the requirements of Section II.(A) of this Appendix, the licensee must send immediate notice to the Agency of its intent to establish alternate financial assurance as specified in the Agency's regulations within 120 days of such notice.

III. Company Self-Guarantee

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

- (A) The parent company guarantee will remain in force unless the licensee sends notice of cancellation by certified mail to the Agency. Cancellation may not occur during the 120 days beginning on the date of receipt of the notice of cancellation by the Agency, as evidenced by the return receipts.
- (B) The licensee shall provide alternative financial assurance as specified in the Agency's regulations within 90 days following receipt by the Agency of a notice of cancellation of the guarantee.
- (C) The guarantee and financial test provisions must remain in effect until the Agency has terminated the license or until another financial assurance method acceptable to the Agency has been put in effect by the licensee.
- (D) The licensee will promptly forward to the Agency and the licensee's independent auditor all reports covering the latest fiscal year filed by the licensee with the Securities and Exchange Commission pursuant to the requirements of section 13 of the Securities and Exchange Act of 1934.
- (E) If, at any time, the licensee's most recent bond issuance ceases to be rated in any category of "A" or above by either Standard and Poors or Moody's, the licensee will provide notice in writing of such fact to the Agency within 20 days after publication of the change by the rating service. If the licensee's most recent bond issuance ceases to be rated in any category of A or above by both Standard and Poors and Moody's, the licensee no longer meets the requirements of Section II.(A) of this Appendix.
- (F) The applicant or licensee must provide to the Agency a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Agency, the licensee will set up and fund a trust in the amount of the current cost estimates for decommissioning.

PART S

Appendix D**CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF-GUARANTEE FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING BY COMMERCIAL COMPANIES THAT HAVE NO OUTSTANDING RATED BONDS**

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the company passes the financial test of Section II of this appendix. The terms of the self-guarantee are in Section III of this appendix. This appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

(A) To pass the financial test a company must meet the following criteria:

- (1) Tangible net worth greater than \$10 million, or at least 10 times the total current *decommissioning* cost estimate (or the current amount required if certification is used), whichever is greater, for all *decommissioning* activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.
- (2) Assets located in the United States amounting to at least 90 percent of total assets or at least 10 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the company is responsible as self-guaranteeing licensee and as parent-guarantor.
- (3) A ratio of cash flow divided by total liabilities greater than 0.15 and a ratio of total liabilities divided by net worth less than 1.5.

(B) In addition, to pass the financial test, a company must meet all of the following requirements:

- (1) The company's independent certified public accountant must have compared the data used by the company in the financial test, which is required to be derived from the independently audited year end financial statement based on United States generally accepted accounting practices for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure, the licensee shall inform The Agency within 90 days of any matters that may cause the auditor to believe that the data specified in the financial test should be adjusted and that the company no longer passes the test.
- (2) After the initial financial test, the company must repeat passage of the test within 90 days after the close of each succeeding fiscal year.

- (3) If the licensee no longer meets the requirements of paragraph II.A of this appendix, the licensee must send notice to the Agency of intent to establish alternative financial assurance as specified in Agency regulations. The notice must be sent by certified mail, return receipt requested, within 90 days after the end of the fiscal year for which the year end financial data show that the licensee no longer meets the financial test requirements. The licensee must provide alternative financial assurance within 120 days after the end of such fiscal year.

III. Company Self-Guarantee

The terms of a self-guarantee which an applicant or licensee furnishes must provide that:

- (A) The guarantee shall remain in force unless the licensee sends notice of cancellation by certified mail, return receipt requested, to the Agency. Cancellation may not occur until an alternative financial assurance mechanism is in place.
- (B) The licensee shall provide alternative financial assurance as specified in the regulations within 90 days following receipt by the Agency of a notice of cancellation of the guarantee.
- (C) The guarantee and financial test provisions must remain in effect until the Agency has terminated the license or until another financial assurance method acceptable to the Agency has been put in effect by the licensee.
- (D) The applicant or licensee must provide to the Agency a written guarantee (a written commitment by a corporate officer) which states that the licensee will fund and carry out the required decommissioning activities or, upon issuance of an order by the Agency, the licensee will set up and fund a trust in the amount of the current cost estimates for decommissioning.

PART S

Appendix E

**CRITERIA RELATING TO USE OF FINANCIAL TESTS AND SELF-GUARANTEES
FOR PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING
BY NONPROFIT COLLEGES, UNIVERSITIES, AND HOSPITALS**

I. Introduction

An applicant or licensee may provide reasonable assurance of the availability of funds for decommissioning based on furnishing its own guarantee that funds will be available for decommissioning costs and on a demonstration that the applicant or licensee passes the financial test of Section II of this appendix. The terms of the self-guarantee are in Section III of this appendix. This Appendix establishes criteria for passing the financial test for the self-guarantee and establishes the terms for a self-guarantee.

II. Financial Test

- (A) For colleges and universities, to pass the financial test a college or university must meet either the criteria in Paragraph II.A.(1) or the criteria in Paragraph II.A.(2) of this appendix.
- (1) For applicants or licensees that issue bonds, a current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A as issued by Standard and Poors (S&P) or Aaa, Aa, or A as issued by Moodys.
 - (2) For applicants or licensees that do not issue bonds, unrestricted endowment consisting of assets located in the United States of at least \$50 million, or at least 30 times the total current decommissioning cost estimate (or the current amount required if certification is used), whichever is greater, for all decommissioning activities for which the college or university is responsible as a self-guaranteeing licensee.
- (B) For hospitals, to pass the financial test a hospital must meet either the criteria in Paragraph II.B.(1) or the criteria in Paragraph II.B.(2) of this appendix:
- (1) For applicants or licensees that issue bonds, a current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A as issued by Standard and Poor's (S&P) or Aaa, Aa, or A as issued by Moody's.
 - (2) For applicants or licensees that do not issue bonds, all the following tests must be met:
 - (a) (Total Revenues less total expenditures) divided by total revenues must be equal to or greater than 0.04.
 - (b) Long term debt divided by net fixed assets must be less than or equal to 0.67.

- (c) (Current assets and depreciation fund) divided by current liabilities must be greater than or equal to 2.55.
 - (d) Operating revenues must be at least 100 times the total current decommissioning cost estimate (or the current amount required if certification is used) for all decommissioning activities for which the hospital is responsible as a self-guaranteeing license.
- (C) In addition, to pass the financial test, a licensee must meet all the following requirements:
- (1) The licensee's independent certified public accountant must have compared the data used by the licensee in the financial test, which is required to be derived from the independently audited year end financial statements, based on United States generally accepted accounting practices, for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure, the licensee shall inform Agency within 90 days of any matters coming to the attention of the auditor that cause the auditor to believe that the data specified in the financial test should be adjusted and that the licensee no longer passes the test.
 - (2) After the initial financial test, the licensee must repeat passage of the test within 90 days after the close of each succeeding fiscal year.
 - (3) If the licensee no longer meets the requirements of Section I of this appendix, the licensee must send notice to the Agency of its intent to establish alternative financial assurance as specified in Agency regulations. The notice must be sent by certified mail, return receipt requested, within 90 days after the end of the fiscal year for which the year end financial data show that the licensee no longer meets the financial test requirements. The licensee must provide alternate financial assurance within 120 days after the end of such fiscal year.

III. Self-Guarantee

The terms of a self-guarantee which an applicant or licensee furnishes must provide that--

- (A) The guarantee shall remain in force unless the licensee sends notice of cancellation by certified mail, and/or return receipt requested, to the Agency. Cancellation may not occur unless an alternative financial assurance mechanism is in place.
- (B) The licensee shall provide alternative financial assurance as specified in the Agency's regulations within 90 days following receipt by the Agency of a notice of cancellation of the guarantee.
- (C) The guarantee and financial test provisions must remain in effect until the Agency has terminated the license or until another financial assurance method acceptable to the Agency has been put in effect by the licensee.
- (D) The applicant or licensee must provide to the Agency a written guarantee (a written commitment by a corporate officer or officer of the institution) which states that the licensee will fund and

carry out the required decommissioning activities or, upon issuance of an order by the Agency, the licensee will set up and fund a trust in the amount of the current cost estimates for decommissioning.

- (E) If, at any time, the licensee's most recent bond issuance ceases to be rated in any category of "A" or above by either Standard and Poor's or Moody's, the licensee shall provide notice in writing of such fact to the Agency within 20 days after publication of the change by the rating service.

**2001
RATIONALE**

PART S

LICENSING REQUIREMENTS FOR FINANCIAL ASSURANCE

Introduction

U.S. Nuclear Regulatory Commission (NRC) regulations in 10 CFR Parts 30, 40, and 70 set forth the criteria for financial assurance requirements for licensed non-reactor nuclear facilities. These regulations, promulgated in 1988 as part of the decommissioning rulemaking (53FR24018, June 27, 1988), are the basis of this Part S. Their intent is to ensure that sufficient financial resources are available to the cognizant government agency to ensure that reclaiming and decommissioning is performed in a safe and timely manner at all licensed nuclear facilities.

On July 26, 1995 (60 FR 38235), effective November 24, 1995, NRC clarified that financial assurance requirements must be in place during operations and updated when licensed operations cease. The intent of this requirement is to ensure that adequate funds are available to ensure that the decommissioning of licensed facilities can be accomplished.

Requirements added to 10 CFR Parts 30, 40 and 70 include those published on May 16, 1996 (61 FR 24669), effective June 17, 1996, on July 21, 1997 (62 FR 39057), effective August 20, 1997, and on June 1, 1998 (63 FR 29535), effective July 1, 1998.

The final rule on radiological criteria for license termination, published July 21, 1997 (62 FR 39068), closely relates decommissioning and financial assurance requirements.

The sections of this rationale are [to be] annotated with the U.S. Nuclear Regulatory Commission compatibility categories, as follows:

A = Basic radiation protection standard or related definitions, signs, labels or terms necessary for a common understanding of radiation protection principles. The State program element should be essentially identical to that of NRC.

B = Program element with significant direct transboundary implications. The State program element should be essentially identical to that of NRC.

C = Program element, the essential objectives of which should be adopted by the State to avoid conflicts, duplications or gaps. The manner in which the essential objectives are addressed need not be the same as NRC provided the essential objectives are met.

D = Not required for purposes of compatibility.

NRC = Not required for purposes of compatibility. These are NRC program element areas of regulation that

cannot be relinquished to Agreement States pursuant to the AEA or provisions of Title 10 of the Code of Federal Regulations. The State should not adopt these program elements.

H&S = Program elements identified as H&S are not required for purposes of compatibility; however, they do have particular health and safety significance. The State should adopt the essential objectives of such program elements in order to maintain an adequate program.

Sec. S.1 and S.2 - Purpose and Scope.

Part S brings together special requirements for financial assurance related to reclaiming and decommissioning a facility or site with residual radioactivity. Part S applies to any licensed facility or site, including radioactive waste handling and disposal as well as source material milling.

Sec. S.3 - Definitions.

The definition of “decommission”, which is “to remove a facility or site safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license”, is from 10 CFR 20.1003 (62 FR 39058), and also 30.4, 40.4 and 70.4. The definition is NRC compatibility category C.

The U.S. Nuclear Regulatory definition of a “decommissioning funding plan” in 10 CFR 30.35(e), 40.36(d) and 70.25(e) is condensed. For comparison, the U.S. Nuclear Regulatory Commission definition is “a plan which includes a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning, including means of adjusting cost estimates and associated funding levels periodically over the life of the facility”. The definition is NRC compatibility category D.

The definition of “financial surety” may be appropriately placed in Part A.

The definition of “licensed site” may be appropriately placed in Part A.

The definition of “reclaiming” may be appropriately placed in Part A.

Sec. S.4 - Financial Assurance Arrangements [Sureties] [Warranties] Required.

Sec. S.4a. states that the Agency may require any licensee to furnish a decommissioning financial assurance.

Sec. S.4b. identifies the specific licensees which are required to furnish decommissioning financial assurance arrangements. S.4b. is an inclusive list of all of the types of specific licensees which are required to furnish decommissioning financial assurance arrangements.

Sec. S.4b.i. is drawn from 10 CFR 40.36(b). Part S simply requires a decommissioning funding plan for any license authorizing possession and use of more than 370 MBq (10 mCi) of source material in a readily dispersible form. The option provided by 10 CFR 40.36(a) for between 37 and 370 MBq (10-100 mCi) is omitted from Part S, which requires in S.5c that the decommissioning funding plan includes certification by the licensee that funding for decommissioning activities has been provided for in the full amount of the cost

estimate for decommissioning.

S.4b.ii.(1) is drawn from 10 CFR 30.35, 40.36 and 70.25.

S.4b.ii.(2) is drawn from 10 CFR 30.35, 40.36 and 70.25.

S.4b.ii(3) is added because Table I in Appendix A does not list values for certain alpha emitting radionuclides (e.g., radium-226, thorium-230, and uranium-238). A decommissioning funding plan is explicitly required for licensees authorized to possess these materials. Under this provision, small quantities of alpha emitting radionuclides may be licensed without requiring financial assurances or a decommissioning funding plan. This provision is consistent with the federal financial assurance requirements in 10 CFR Part 30, Appendix B.

S.4b.v requires a decommissioning funding plan for any commercial radioactive waste handling and/or packaging licensee.

S.4b.vi. requires a decommissioning funding plan for any radioactive waste disposal licensee.

S.4b.vii. requires a decommissioning funding plan for any source material milling licensee.

Sec. S.4c., from the State of Tennessee, and Sec. S.4d, from the State of Colorado, explain more explicitly the basis for the amount of funds required.

Sec. S.4e., from the State of Colorado, makes clear that cost estimates must be based upon the costs of hiring an independent contractor to perform decommissioning and disposal and must be sufficient to cover reasonable administration and legal costs incurred by the Agency in overseeing the activities.

Sec. S.4f. reflects state concerns that a signed original be provided. In Colorado, a decommissioning (and long-term) warranty are explicitly required for radioactive waste disposal licensees. These facilities will have authorization for large quantities of radioactive materials and will ultimately end in a permanent disposal site. The potential liability of the Agency to license a waste disposal facility would be similar to the licensure of a uranium mill facility.

The value of 10^3 times the Table I value in Appendix A is from 10 CFR 30.35(d) and 70.25(d).

Sec. S.5 - Decommissioning Funding Plan Required.

Sec. S.5a. is drawn from 10 CFR 30.35(a) and 70.25(a).

Sec. S.5b. compares to 10 CFR 30.35(e), 40.36(d) and 70.25(e).

Sec. S.5c. requires the decommissioning funding plan to include a certification that funding has been provided. S.5c. also requires a copy of the financial instrument as part of certification. S.4e. requires a signed executed original copy of each financial assurance instrument be furnished to and approved by the Agency prior to the issuance of a new license, or any amendment or renewal of an existing license. Unlike

10 CFR 30.35(b)(2), 40.36(b)(2) and 70.25(b)(2), Part S does not include deferral of execution of the financial instrument until after the license has been issued.

Sec. S.6 - Acceptable Financial Assurance Methods.

Sec. S.6 is drawn from several parts of 10 CFR, for example 40.36(e).

S.6a. clearly states the key required components.

S.6b. lists the acceptable methods by type.

S.6b.i., prepayment, is parallel to compares to 10 CFR 30.35(f)(1), 40.36(e)(1) and 70.25(f)(1).

S.6b.ii., regarding a surety method, insurance, or other guarantee method, is parallel to compares to 10 CFR 30.35(f)(2), 40.36(e)(2) and 70.25(f)(2).

Sec. 6b.ii.(3): If a financial warranty is provided by a corporate surety, then that surety must be “ best rated AA-V” or better and listed on the U.S. Treasury’s federal register of companies holding certificates of authority as acceptable sureties on federal bonds.

Sec. 6b.ii.(3)(c) is added based on NRC rulemaking effective July 1, 1998, modifying 10 CFR 30.35(f)(2), 40.36(e)(2) and 70.25(f)(2) to provide for self-guarantee of decommissioning funding for commercial companies that do not issue bonds.

Sec. 6b.ii.(3)(d) is added based on NRC rulemaking effective July 1, 1998, modifying 10 CFR 30.35(f)(2), 40.36(e)(2) and 70.25(f)(2) to provide for self-guarantee of decommissioning funding for nonprofit entities, such as colleges, universities, and nonprofit hospitals.

S.6b.iii., regarding an external sinking fund, is parallel to 10 CFR 30.35(f)(3), 40.36(e)(3) and 70.25(f)(3).

S.6b.iv., regarding government licensees, is parallel to 10 CFR 30.35(f)(4), 40.36(e)(4) and 70.25(f)(4).

S.6b.v., regarding government entity assuming custody and ownership of a site, is parallel to 10 CFR 30.35(f)(5), 40.36(e)(5) and 70.25(f)(5).

Sec. S.7 - Periodic Review of Financial Assurances.

Sec. S.7 provides for all financial assurances the kind of periodic review of financial assurances require for source material mills.

Sec. S.8 - Financial Assurances Recordkeeping.

The provisions of S.8 are comparable to 10 CFR 30.35(g), 40.36(f) and 70.25(g). They incorporate modified requirements for disposition of records were added to 10 CFR Parts 30, 40 and 70 on May 16, 1996 (61 FR 24669), effective June 17, 1996 and again July 21, 1997 (62 FR 39057), effective August 20, 1997.

Sec. S.9 - Minimum Financial Assurance Amount.

Sec. S.9 is comparable to 10 CFR 30.35(d) and 70.25(d), except that because Part S explicitly requires full cost decommissioning funding rather than bracketed amounts.

Sec. S.10 - Long-Term Care Financial Assurance Requirements.

This provision requires licensees to provide a long-term care warranty if the facility will be decommissioned and the license terminated under conditions of restricted use or using alternate dose criteria. This requirement was derived from the provisions of 10 CFR 20.1403(c).

S.10a. makes explicit that, in addition to the decommissioning warranty required by S.4, the Agency may require any licensee to provide a long-term care warranty if the licensed facility will remain a disposal site for radioactive materials subsequent to the termination of the license, or the license will be terminated using criteria in Parts O.10 or O.11. Part O.10a. is based on the U.S. Nuclear Regulatory Commission 10 CFR 20.1403 criteria for a site to be considered acceptable for restricted use. Part O.10b. is the same as 10 CFR 20.1403(b). O.10c. of these regulations refers to NRC financial assurance criteria which are incorporated into this Part S.

Sec. S.11 - Exemption from Financial Assurance Requirements.

S.11 provides for certain exemptions from financial assurances.

Sec. S.12 - Timely Instatement of Financial Assurance Arrangements.

Similar to 10 CFR 30.35(c), 40.36(c) and 70.25(c), Sec. S.12 enables the Agency to bootstrap existing licensees from whom financial assurances are required. Similarly, O.11 of these regulations is based on the U.S. Nuclear Regulatory Commission 10 CFR 20.1404 mechanism for license termination in the very rare case when dose criteria are difficult to meet directly. Agreement states may not wish to include these provisions.

Matters for Future Consideration

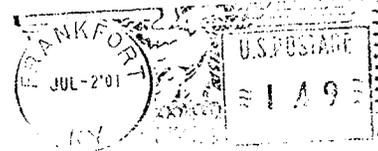
These matters for future consideration came from state radiation control agency comments and from federal and state agency documents used by the working group.

1. In Section S.3, consider adding the definition of "facility" from Part O, which is augmented from Sec. B.2, Registration of Radiation Machine Facilities by adding a clause related to use of radioactive material, could also be included in Part S.
2. Consider extending the reach of licensee financial assurance to certain transportation accident decontamination situations.

3. Revise Part S in coordination with the 2001 US Nuclear Regulatory Commission proposed rulemaking.



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