



NEW YORK STATE ENERGY OFFICE

FRANCIS J. MURRAY, JR.  
COMMISSIONER

November 15, 1993

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Mr. Richard L. Bangart  
Director  
Office of State Programs  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

*Dick*  
Dear Mr. Bangart:

This letter and the attached documents are being submitted in response to your October 14, 1993 letter seeking further clarification of New York State's July 6, 1993 response to the U.S. Nuclear Regulatory Commission's 1992 staff review of our radiation control programs.

We are glad that the lingering issue involving the licensing of incinerators has been brought to closure based on a January 1992 review visit. We are also happy to see that NRC staff has found the New York State Department of Environmental Conservation's regulations for low-level radioactive waste are compatible with 10 CFR Part 61.

With respect to your statement about New York's timeliness in adopting regulations, we remain distressed and confused. Your criticism of the New York State Department of Health appears to be based on misinformation. The Department of Health revised Part 16 in both 1979 and 1992. Those revisions addressed a number of NRC adopted regulations. Also, the Department of Health currently is in the process of addressing other NRC regulations that apply to its licensees.

Further, your letter indicates that the finding of compatibility for the 1992 review is being withheld because programs have not adopted certain rules that the State needs to adopt at a future date; i.e., part 20 which is not due until January 1, 1994 and Part 35 which is not due until January 27, 1995. This appears to add more confusion to the issue of a finding of compatibility. Although the NRC had developed these regulations by 1992, Agreement States are allowed three years to adopt the same. We have no procedure to simultaneously adopt regulations. Further, your letter seems to imply that the NRC will only deem states compatible once they have adopted all necessary regulations, notwithstanding the three-year allowance. If this is the case, we fail to see how any program can be found to be compatible considering the continuous flow of NRC regulations.

Regarding the corrected page 3 of Enclosure 2 of the March 23, 1993 letter, one minor change should be incorporated; Robert Kulikowski's title should read Director, Bureau of Radiological Health.

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*Mr. Richard L. Bangart*

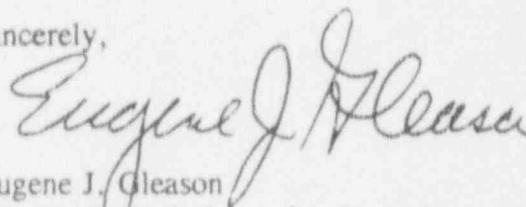
*Page 2*

*November 15, 1993*

Each agency has reviewed the NRC summary and evaluation of the radiation control program responses, and their comments are attached.

We trust that our response is satisfactory. I will be happy to provide any further assistance you may require.

Sincerely,

A handwritten signature in cursive script that reads "Eugene J. Gleason". The signature is written in dark ink and is positioned above the printed name and title.

Eugene J. Gleason  
Deputy Commissioner for Operations

/ta  
Enclosure

**INDIVIDUAL AGENCY**

**RESPONSE**

# CONTENTS

	<u>Page</u>
New York State Department of Health . . . . .	1
New York State Department of Labor . . . . .	3
New York State Department of Environmental Conservation . . . . .	4
New York City Department of Health . . . . .	5

# NEW YORK STATE DEPARTMENT OF HEALTH

## 1. LEGISLATION AND REGULATIONS

The public comment period on the Department's proposed Part 16 amendments incorporating 10 CFR Part 20 requirements ended October 15, 1993. Four comments have been received and evaluated. The Department has determined that no significant changes are needed and will present the proposed amendments to the Public Health Council at its November 19, 1993 meeting for adoption. Once approved by the Public Health Council, the regulations will be signed by the State Health Commissioner and published in the State Register as final rule. It is expected that the amendments will become effective on January 1, 1994.

The Department is in the process of additional internal review of our proposed decommissioning regulations. The Department's Division of Legal Affairs have raised questions concerning the implementation of the various methods of assuring funds will be available for decommissioning that are identified in NRC regulations. The Department lacks the authority to administer funds if they were paid to the Department as a trustee or otherwise. We are in the process of discussing with legal and fiscal staff the alternatives available for the Department which will allow us to adopt similar regulations, and the need for seeking legislative and/or budgetary authority. We will keep the NRC advised of our progress.

## 4. LICENSING APPLICATION REVIEW STATUS

The following describes the status of the licensing backlog and the steps we have taken to address this issue.

As of the end of September 1993, there were 272 applications for new licenses, amendments and renewals that were pending review. This can be compared to 359 such applications at the end of December 1992. There are no renewal applications pending that were received prior to 1988. All of the 1988 renewal applications have been reviewed except for two applications.

Recently, one of the license reviewers accepted a promotion to the New York State Department of Labor. This, coupled with the loss of the Radioactive Materials Section Chief who also accepted a promotion to a position at the Department of Labor, made it difficult for our program to significantly reduce the license renewal backlog. With the reduced resources, the highest priority is given to license amendment requests and new license applications, since delays in these areas are likely to cause hardship to the licensees and may affect their ability to provide important public health services.

We have taken the following steps to deal with the license renewal backlog while maintaining the quality of the reviews:

- (1) The licensing staff has been augmented by staff from other programs within the Bureau, who while not assigned full time to the function, will be able to assist.

- (2) The inspection staff will be utilized in reviewing the renewal applications for those licenses that they plan to inspect and will provide feedback to licensing staff on the portions of the application that require special attention.
- (3) Priority will be given to the most outstanding renewal applications.
- (4) The vacant license reviewer position will be given the highest priority when hiring new staff. Steps will be taken to fill this position as soon as we receive the list of qualified candidates that will be compiled by the New York State Department of Civil Service from an examination that was given on October 2, 1993.

# NEW YORK STATE DEPARTMENT OF LABOR

## 1. LEGISLATION AND REGULATIONS

The NRC letter asked for a status report on adoption of regulations required for compatibility.

Under "Previous Review Findings (1991)" and "Current Reviewing Findings (1993)" in the NRC letter, it is stated that a copy of the Department's final rule on decommissioning was omitted from the State's July 6, 1993 response to NRC. Another copy of the final rule is attached. These sections also refer to rulemakings required for emergency preparedness (off-site) plans and Part 20 compatibility. A rulemaking is in preparation which addresses these, as well as other regulatory changes for compatibility with NRC regulations, and a draft will be forwarded to the NRC shortly.

## 2. PERSONNEL

The NRC letter, under "Current Review Findings (1993)," acknowledged that the Principal Radiophysicist position has been filled, but that the State's July 6, 1993 response to NRC "did not address staff supervision" by the Principal Radiophysicist.

The State's July 6<sup>th</sup> letter stated that the position had been filled, that inspection and licensing backlogs were being addressed, that all inspections due and overdue in 1993 had been assigned and would be completed by the end of 1993, that each inspector would be accompanied on a field inspection and evaluated by the Principal Radiophysicist annually, that all inspection reports and letters were now being reviewed and finalized, that formal letters had replaced inspection result forms, and that the frequency of inspection had been reduced to NRC frequencies as had been recommended during their last review. All of these activities are being implemented by the Principal Radiophysicist; therefore, we believe that staff oversight by the Principal Radiophysicist was adequately described.

## 3. COMPLIANCE

The NRC letter refers to elimination of inspection backlogs, annual accompaniments of inspectors, improvement of inspection reports and phasing-out inspection result notices in favor of formal letters as "open issues." Please see response number 2 above.

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## 1. LEGISLATION AND REGULATIONS

We are pleased that the NRC has found our regulations for low-level radioactive waste disposal facilities (6 NYCRR Parts 382 and 383) to be compatible.

The NRC requested to be informed of our progress in adopting regulations compatible with 10 CFR Part 20. DEC issued its proposed rule (6 NYCRR Part 380) on October 6, 1993. We will hold a public hearing on the proposed rule on November 22, 1993, and the comment period will close one week later, on November 29, 1993. We will complete the assessment of comments and prepare the final rulemaking package this December. The final rule must be approved by the State Environmental Board before the final rule can be filed at the Department of State. The rule will become effective approximately 45 days after State Environmental Board approval.

## 2. LICENSING

DEC will develop a plan to implement 6 NYCRR Part 380 in New York City after the amendments to 6 NYCRR Part 380 have become effective.

## 3. COMPLIANCE

An enforcement guidance memorandum for the revised 6 NYCRR Part 380 has been drafted and is undergoing internal review. We expect to finalize it by January 1, 1994.



# NEW YORK CITY DEPARTMENT OF HEALTH

## 1. LEGISLATION AND REGULATIONS

In anticipation of adopting 10 CFR Part 20 equivalent rules, the NYCDOH has revised in entirety Article 175 of the New York City Health Code. The revision is complete and being reviewed by our Counsel's Office at present prior to submission to the Law Department as required by the City's administrative procedures act. Adoption in early 1994 is anticipated. The specific rules mentioned are addressed in more detail below.

EP (Emergency Planning): Language equivalent to 10 CFR 30.32(i) has been incorporated into the proposed revision discussed above.

10 CFR 20: The Department's equivalent to Part 20 is included in the proposed revision discussed above.

NVLAP Certification: These regulations are included in 10 CFR Part 20 and are also included in our revision.

Bankruptcy Notification: Language identical to that found in 10 CFR 30.34(h) has been included in the revision discussed above.

Decommissioning: Provisions equivalent to 10 CFR 30.36 have been included in the revision discussed above.

Notification of Incidents: We are somewhat confused by this tone. The cover letter provides a reference to 55 FR 40757. Perhaps there is a typo and the correct reference is 56 FR 40757 which is where 10 CFR 30.50 was amended. No reference to this FR citation could be found in 10 CFR 31. Notwithstanding the foregoing, language identical to 10 CFR 30.50 and 10 CFR 20.2202 have been incorporated into our Code revision. Please note that the Code currently contains incident reporting requirements similar to those in the federal regulations and this revision of the Code will update the requirements to be consistent with the federal requirements. These will be adopted well within the "due" date of October 15, 1994.

QM Program and Misadministrations: As noted in Dick Bangart's letter, this rule is not "due" until January 1995. The Code currently has definitions of misadministrations which were the same as those of NRC until the January 1992 revision of Part 35. These have been effective since July 1990, as has a more generic form of QM rule, for the City's licensees. Please note that our QM rule predated that of the NRC. However, this revision of the Code will include NRC's updated misadministration definitions and a QM program which is the same as NYSDOH. These, too, will be adopted well ahead of the three-year time frame.

## 2. MANAGEMENT AND ADMINISTRATION

For some reason, NRC appears to have gotten confused. The Bureau has never owned a Ge-Li gamma spectrometer, although we have been trying for years to purchase one. Therefore, it is not out of service. However, the Bureau has been researching the purchase of a gamma spectroscopy system for the past several months and plans to submit a purchase request for a system that will best serve our needs in the near future.

With respect to the liquid scintillation counter, it has been operational for well over a year and is covered by a service contract. Bureau personnel are well aware of the capabilities of the instrumentation which we use.

## 3. ADMINISTRATIVE PROCEDURES

All computer hardware and software for the LAN system has been received. Due to problems with electrical services within the building (the Department leases space for the Bureau), the installation of the LAN has been delayed. However, the new PCs are being used in stand-alone configuration. The database system has been developed and data input is nearly complete.

With respect to additional staff, two additional licensing reviewers (one a senior position) have been identified in response to advertisements. The paperwork necessary to have these people formally appointed is undergoing processing as of November 1993. The Bureau expects to identify the administrative support person (part-time technical support aide) in the near future.

## 4. STATUS OF INSPECTION PROGRAM

The inspection backlog was corrected within several weeks after the 1992 review and has not recurred. The database discussed above includes an inspection tracking system.

The Bureau concurs that inspections should be unannounced and is pursuing this with our Counsel's Office.

## 5. LICENSING — INSPECTION FEEDBACK

With the appointment of a senior license reviewer, this problem should be eliminated. One of the duties of the senior license reviewer is to interface with the supervisor of the inspections section. Potential problems can also be discussed at Bureau senior staff meetings which are held weekly.

The inspection tracking system includes monitoring of inspections, reinspections, escalated enforcement activities (enforcement conferences, hearings, etc.) and fee collection and cannot be closed out until certain parameters are met. Installation of the LAN system will allow this system to be more easily monitored by Bureau management.

## AMENDMENTS TO CODE RULE 38

(Effective Date - March 31, 1993)

SECTION 38.3

Paragraphs (j) through (rr) are renumbered to (k) through (ss), and a new paragraph (j) is adopted to read as follows:

(j) *Decommission*. To remove (as an installation) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

SECTION 38.7

Section 38.7 is repealed and a new section 38.7 is adopted to read as follows:

38.7 *Financial assurance for decommissioning*. (a) Each applicant for a license, renewal thereof or amendment thereto, authorizing the possession and use of unsealed radioactive material of half-life greater than 120 days and in quantities exceeding 100,000 times the applicable quantities set forth in Table 4 of this Part (Rule) shall submit a decommissioning funding plan as described in subdivision (d) of this section. The decommissioning funding plan must also be submitted when a combination of isotopes is involved if  $R$  divided by 100,000 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 set forth in Table 4 of this Part (Rule).

(b) Each applicant for a license, renewal thereof or amendment thereto, authorizing the possession and use of radioactive material of half-life greater than 120 days and in quantities specified in subdivision (c) of this section shall either:

(1) Submit a decommissioning funding plan as described in subdivision (d) of this section; or

(2) submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by subdivision (c) of this section using one of the methods

described in subdivision (e) of this section. In the case of an applicant for a license, 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 of licensed material. As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of subdivision (e) of this section is to be submitted to the commissioner.

(c) Table of required amounts of financial assurance for decommissioning by quantity of material.

(1) Greater than 10,000 but less than or equal to 100,000 times the applicable quantities set forth in Table 4 of this Part (Rule) in unsealed form (for a combination of isotopes, if R, as defined in subdivision (a) of this section, divided by 10,000, is greater than 1, but R divided by 100,000 is less than or equal to 1): \$750,000.

(2) Greater than 1,000 but less than or equal to 10,000 times the applicable quantities set forth in Table 4 of this Part (Rule) in unsealed form (for a combination of isotopes, if R, as defined in subdivision (a) of this section, divided by 1,000, is greater than 1 but R divided by 10,000 is less than or equal to 1): \$150,000.

(3) Greater than 10,000,000,000 times the applicable quantities set forth in Table 4 of this Part (Rule) in sealed sources or plated foils (for a combination of isotopes, if R, as defined in subdivision (a) of this section, divided by 10,000,000,000, is greater than 1): \$75,000.

(d) Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning from subdivision (e) of this section, including means of adjusting cost estimates and associated funding levels periodically over the life of the installation.

(e) Financial assurance for decommissioning must be provided by one or more of the following methods:

(1) Prepayment. 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. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) A surety method, insurance, or other guarantee method. These methods guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, or line of credit. A parent company guarantee of funds for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in Appendix C to this Part (Rule). A parent company guarantee may not be used in combination with other financial methods to satisfy the requirements of this section. Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

(i) The surety method or insurance must be open-ended 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 commissioner, the beneficiary, and the licensee of its intention not to renew. The surety method or insurance must also provide that 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 commissioner within 30 days after receipt of notification of cancellation.

(ii) The surety method or insurance must be payable to a trust established for decommissioning costs. The trustee and trust must be acceptable to the commissioner.

(iii) The surety method or insurance must remain in effect until the commissioner has terminated the license.

(3) 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 paragraph (e)(2) of this section.

(4) In the case of State or local government licensees, a statement of intent containing a cost estimate for decommissioning or an amount based on the Table in subdivision (c) of this section, and indicating that funds for decommissioning will be obtained when necessary.

(f) Each person licensed under this Part (Rule) shall keep records of information important to the safe and effective decommissioning of the installation, as specified in section 38.36 of this Part (Rule), in an identified location until the license is terminated by the commissioner. If records of relevant information are kept for other purposes, reference to these records and their locations may be used.

#### SECTION 38.36

Section 38.36 is amended to read as follows:

*38.36 Records.* (a) General requirements. Each person who possesses any radiation source shall maintain accurate and complete written records in the same units used in this Part (Rule). Such records shall show the following:

- (1) the results of each required survey, check and test;
- (2) each transfer, receipt and disposal of radioactive materials in accordance with section 38.23 (d) of this Part (Rule);
- (3) each dose received by an individual to whom personnel monitoring equipment is supplied pursuant to this Part (Rule);
- (4) the results of each bio-assay or other medical evaluation service made pursuant to this Part (Rule); and
- (5) each dose to any individual required to be reported by this Part (Rule);
- (6) information important to decommissioning, as follows:

(i) Records of spills or other unusual occurrences involving the spread of contamination in and around the installation, equipment, or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms and concentrations.

(ii) As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

(iii) Records of the cost estimate performed for the decommissioning funding plan or of the amount certified for decommissioning, and records of the funding method used for assuring funds if either a funding plan or certification is used.

(b) Forms and preservation. (1) Each required record of any dose received by any individual, and each required record of any bio-assay or other medical evaluation service:

(i) shall be on, and shall contain all information called for by, a form prescribed by the commissioner, or any other clear and legible record form containing all such information; and

(ii) shall be preserved until disposition is authorized by the commissioner. Such records may be maintained in the form of microfilms together with adequate viewing apparatus, or as otherwise acceptable to the commissioner. The discontinuance of

curtailment of activities does not relieve the licensee or registrant of responsibility for retaining all records required by this section. A licensee or registrant in such case may request the commissioner to accept such records.

(2) Records of information important to the safe and effective decommissioning of the installation shall be kept in an identified location until the license is terminated by the commissioner.

(3) Each other record required by this Part (Rule) shall be preserved for a period of three years commencing on the date of the occurrence that is the subject of such record.

### SECTION 38.37

Section 38.37(a) - new paragraphs (3) and (4) are added to read as follows:

(3) Each holder of a specific and general license shall report immediately by certified mail to the commissioner following the filing of voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:

(i) the holder of a specific or general license,

(ii) an entity (i.e., person, estate, trust, governmental unit, or United States trustee) controlling the holder of a specific or general license or listing the license or holder thereof as property of the bankrupt estate, or,

(iii) an affiliate (as defined in 11 USC Section 101(2)) of the holder of a specific or general license.

(4) The bankruptcy notification shall indicate the:

(i) bankruptcy court in which the petition for bankruptcy was filed,

(ii) date on which the petition was filed.



## SECTION 38.41

Section 38.41 is amended to read as follows:

*38.41 Tables and appendices.* The tables hereto annexed (see Appendices A-10, B-1, C-1, and C-2, *infra*) and designated "Table 1 - Exemptions," "Table 2 - Exempt Concentrations," "Table 3 - General Licenses: Items, Terms and Conditions," "Table 4 - Exempt Quantities," "Table 5 - Limits for Uncontrolled Areas," "Table 6 - Concentrations in Air and Water Above Natural Background," "Table 7 - Quantities Applicable to Posting and Disposal Requirements," "Table 8 - Approvals," "Specific Requirements for Industrial Radiography," "Appendix B-1 - Specific Requirements for Radioactive Waste Classification, Packaging, Stability and Transfer Documentation," and "Appendix C-2 - Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning" are hereby made provisions of this Part (Rule). Licenses: Items, Terms and Conditions," "Table 4 - Exempt Quantities," "Table 5 - Limits for Uncontrolled Areas," "Table 6 - Concentrations in Air and Water Above Natural Background," "Table 7 - Quantities Applicable to Posting and Disposal Requirements," "Table 8 - Approvals," "Specific Requirements for Industrial Radiography," "Appendix B-1 - Specific Requirements for Radioactive Waste Classification, Packaging, Stability and Transfer Documentation," and "Appendix C-2 - Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning" are hereby made provisions of this Part (Rule).

Appendix A-10, the Notes to Table 2 (Exempt Concentrations) are amended to read as follows:

### NOTES

\* Values are given for those materials normally used as gases.

\*\*  $\mu\text{Ci/gm}$  for solids.

**Note 1.** Many radionuclides disintegrate into daughter products which are also radioactive. In expressing the concentrations in Table 2, the activity stated is that of the parent radionuclide and takes into account the daughter products.

**Note 2.** For purposes of section 38.41, Table 1, Exemption 2 of this Part (Rule), where there is present a combination of radionuclides, the limit for the combination shall be derived as follows:

(a) Determine for each radionuclide present the following quotient: Set the numerator equal to the concentration of the radionuclide present and the denominator equal to the exempt concentration listed in Table 2. The sum of such quotients shall not exceed 1.

Example:

$$\frac{\text{Concentration of Radionuclide A present}}{\text{Exempt concentration of Radionuclide A}} + \frac{\text{Concentration of Radionuclide B present}}{\text{Exempt concentration of Radionuclide B}} + \dots \leq 1$$

Table 4 of Section 38.41 is repealed and a new Table 4 is adopted to read as follows:

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Hydrogen-3.....	1,000	Calcium-41.....	100
Beryllium-7.....	1,000	Calcium-45.....	100
Beryllium-10....	1	Calcium-47.....	100
Carbon-11.....	1,000	Scandium-43.....	1,000
Carbon-14.....	1,000	Scandium-44m....	100
Fluorine-18.....	1,000	Scandium-44.....	100
Sodium-22.....	10	Scandium-46.....	10
Sodium-24.....	100	Scandium-47.....	100
Magnesium-28....	100	Scandium-48.....	100
Aluminum-26.....	10	Scandium-49.....	1,000
Silicon-31.....	1,000	Titanium-44.....	1
Silicon-32.....	1	Titanium-45.....	1,000
Phosphorus-32...	10	Vanadium-47.....	1,000
Phosphorus-33...	100	Vanadium-48.....	100
Sulfur-35.....	100	Vanadium-49.....	1,000
Chlorine-36.....	10	Chromium-48.....	1,000
Chlorine-38.....	1,000	Chromium-49.....	1,000
Chlorine-39.....	1,000	Chromium-51.....	1,000
Argon-39.....	1,000	Manganese-51.....	1,000
Argon-41.....	1,000	Manganese-52m....	1,000
Potassium-40....	100	Manganese-52.....	100
Potassium-42....	1,000	Manganese-53.....	1,000
Potassium-43....	1,000	Manganese-54.....	100
Potassium-44....	1,000	Manganese-56.....	1,000
Potassium-45....	1,000	Iron-52.....	100

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Iron-55.....	100	Zinc-71m.....	1,000
Iron-59.....	10	Zinc-72.....	100
Iron-60.....	1	Gallium-65.....	1,000
Cobalt-55.....	100	Gallium-66.....	100
Cobalt-56.....	10	Gallium-67.....	1,000
Cobalt-57.....	100	Gallium-68.....	1,000
Cobalt-58m.....	1,000	Gallium-70.....	1,000
Cobalt-58.....	100	Gallium-72.....	100
Cobalt-60m.....	1,000	Gallium-73.....	1,000
Cobalt-60.....	1	Germanium-66.....	1,000
Cobalt-61.....	1,000	Germanium-67.....	1,000
Cobalt-62m.....	1,000	Germanium-68.....	10
Nickel-56.....	100	Germanium-69.....	1,000
Nickel-57.....	100	Germanium-71.....	1,000
Nickel-59.....	100	Germanium-75.....	1,000
Nickel-63.....*	100	Germanium-77.....	1,000
Nickel-65.....	1,000	Germanium-78.....	1,000
Nickel-66.....	10	Arsenic-69.....	1,000
Copper-60.....	1,000	Arsenic-70.....	1,000
Copper-61.....	1,000	Arsenic-71.....	100
Copper-64.....	1,000	Arsenic-72.....	100
Copper-67.....	1,000	Arsenic-73.....	100
Zinc-62.....	100	Arsenic-74.....	100
Zinc-63.....	1,000	Arsenic-76.....	100
Zinc-65.....	10	Arsenic-77.....	100
Zinc-69m.....	100	Arsenic-78.....	1,000
Zinc-69.....*	1,000	Selenium-70....	1,000

\*OMITTED FROM THE TEXT IN ERROR

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Selenium-73m...	1,000	Krypton-87.....	1,000
Selenium-73....	100	Krypton-88.....	1,000
Selenium-75....	100	Rubidium-79....	1,000
Selenium-79....	100	Rubidium-81m...	1,000
Selenium-81m...	1,000	Rubidium-81....	1,000
Selenium-81....	1,000	Rubidium-82m...	1,000
Selenium-83....	1,000	Rubidium-83....	100
Bromine-74m....	1,000	Rubidium-84....	100
Bromine-74.....	1,000	Rubidium-86....	100
Bromine-75.....	1,000	Rubidium-87....	100
Bromine-76.....	100	Rubidium-88....	1,000
Bromine-77.....	1,000	Rubidium-89....	1,000
Bromine-80m....	1,000	Strontium-80...	100
Bromine-80.....	1,000	Strontium-81...	1,000
Bromine-82.....	100	Strontium-83...	100
Bromine-83.....	1,000	Strontium-85m..	1,000
Bromine-84.....	1,000	Strontium-85...	100
Krypton-74.....	1,000	Strontium-87m..	1,000
Krypton-76.....	1,000	Strontium-89...	10
Krypton-77.....	1,000	Strontium-90...	0.1
Krypton-79.....	1,000	Strontium-91...	100
Krypton-81.....	1,000	Strontium-92...	100
Krypton-83m....	1,000	Yttrium-86m....	1,000
Krypton-85m....	1,000	Yttrium-86.....	100
Krypton-85.....	1,000	Yttrium-87.....	100

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Yttrium-88.....	10	Molybdenum-93m..	100
Yttrium-90m....	1,000	Molybdenum-93...	10
Yttrium-90.....	10	Molybdenum-99...	100
Yttrium-91m....	1,000	Molybdenum-101..	1,000
Yttrium-91.....	10	Technetium-93m..	1,000
Yttrium-92.....	100	Technetium-93...	1,000
Yttrium-93.....	100	Technetium-94m..	1,000
Yttrium-94.....	1,000	Technetium-94...	1,000
Yttrium-95.....	1,000	Technetium-96m..	1,000
Zirconium-86...	100	Technetium-96...	100
Zirconium-88...	10	Technetium-97m..	100
Zirconium-89...	100	Technetium-97...	1,000
Zirconium-93...	1	Technetium-98...	10
Zirconium-95...	10	Technetium-99m..	1,000
Zirconium-97...	100	Technetium-99...	100
Niobium-88.....	1,000	Technetium-101..	1,000
Niobium-89m (66 min)..	1,000	Technetium-104..	1,000
Niobium-89 (122 min)..	1,000	Ruthenium-94....	1,000
Niobium-90.....	100	Ruthenium-97....	1,000
Niobium-93m....	10	Ruthenium-103...	100
Niobium-94.....	1	Ruthenium-105...	1,000
Niobium-95m....	100	Ruthenium-106...	1
Niobium-95.....	100	Rhodium-99m.....	1,000
Niobium-96.....	100	Rhodium-99.....	100
Niobium-97.....	1,000	Rhodium-100.....	100
Niobium-98.....	1,000	Rhodium-101m....	1,000
Molybdenum-90..	100	Rhodium-101.....	10

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Rhodium-102m....	10	Cadmium-104.....	1,000
Rhodium-102.....	10	Cadmium-107.....	1,000
Rhodium-103m....	1,000	Cadmium-109.....	1
Rhodium-105.....	100	Cadmium-113m....	0.1
Rhodium-106m....	1,000	Cadmium-113.....	100
Rhodium-107.....	1,000	Cadmium-115m....	10
Palladium-100...	100	Cadmium-115.....	100
Palladium-101...	1,000	Cadmium-117m....	1,000
Palladium-103...	100	Cadmium-117.....	1,000
Palladium-107...	10	Indium-109.....	1,000
Palladium-109...	100	Indium-110 (69.1 min)..	1,000
Silver-102...	1,000	Indium-110.....	
Silver-103...	1,000	(4.9h).....	1,000
Silver-104m..	1,000	Indium-111.....	100
Silver-104...	1,000	Indium-112.....	1,000
Silver-105...	100	Indium-113m.....	1,000
Silver-106m..	100	Indium-114m.....	10
Silver-106...	1,000	Indium-115m.....	1,000
Silver-108m..	1	Indium-115.....	100
Silver-110m..	10	Indium-116m.....	1,000
Silver-111...	100	Indium-117m.....	1,000
Silver-112...	100	Indium-117.....	1,000
Silver-115...	1,000	Indium-119m.....	1,000

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Tin-110.....	100	Antimony-126m...	1,000
Tin-111.....	1,000	Antimony-126....	100
Tin-113.....	100	Antimony-127....	100
Tin-117m.....	100	Antimony-128 (10.4 min.)	1,000
Tin-119m.....	100	Antimony-128 (9.01h)..	100
Tin-121m.....	100	Antimony-129....	100
Tin-121.....	1,000	Antimony-130....	1,000
Tin-123m.....	1,000	Antimony-131....	1,000
Tin-123.....	10	Tellurium-116...	1,000
Tin-125.....	10	Tellurium-121m..	10
Tin-126.....	10	Tellurium-121...	100
Tin-127.....	1,000	Tellurium-123m..	10
Tin-128.....	1,000	Tellurium-123...*	100
Antimony-115....	1,000	Tellurium-125m..	10
Antimony-116m...	1,000	Tellurium-127m..	10
Antimony-116....	1,000	Tellurium-127...	1,000
Antimony-117....	1,000	Tellurium-129m..	10
Antimony-118m...	1,000	Tellurium-129...	1,000
Antimony-119....	1,000	Tellurium-131m..	10
Antimony-120 (16 min.)..	1,000	Tellurium-131...	100
Antimony-120 (5.76d)...	100	Tellurium-132...	10
Antimony-122....	100	Tellurium-133m...	100
Antimony-124m...	1,000	Tellurium-133....	1,000
Antimony-124....	10	Tellurium-134...	1,000
Antimony-125....	100	Iodine-120m.....	1,000
		Iodine-120.....	100

\*OMITTED FROM THE TEXT IN ERROR

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Iodine-121.....	1,000	Cesium-125.....	1,000
Iodine-123.....	100	Cesium-127.....	1,000
Iodine-124.....	10	Cesium-129.....	1,000
Iodine-125.....	1	Cesium-130.....	1,000
Iodine-126.....	1	Cesium-131.....	1,000
Iodine-128.....	1,000	Cesium-132.....	100
Iodine-129.....	1	Cesium-134m....	1,000
Iodine-130.....	10	Cesium-134.....	10
Iodine-131.....	1	Cesium-135m....	1,000
Iodine-132m....	100	Cesium-135.....	100
Iodine-132.....	100	Cesium-136.....	10
Iodine-133.....	10	Cesium-137.....	10
Iodine-134.....	1,000	Cesium-138.....	1,000
Iodine-135.....	100	Barium-126.....	1,000
Xenon-120.....	1,000	Barium-128.....	100
Xenon-121.....	1,000	Barium-131m....	100
Xenon-122.....	1,000	Barium-131.....	100
Xenon-123.....	1,000	Barium-133m....	100
Xenon-125.....	1,000	Barium-133.....	100
Xenon-127.....	1,000	Barium-135m....	100
Xenon-129m....	1,000	Barium-139.....	1,000
Xenon-131m....	1,000	Barium-140.....	100
Xenon-133m....	1,000	Barium-141.....	1,000
Xenon-133.....	1,000	Barium-142.....	1,000
Xenon-135m....	1,000	Lanthanum-131..	1,000
Xenon-135.....	1,000	Lanthanum-132..	100
Xenon-138.....	1,000	Lanthanum-135..	1,000



TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Lanthanum-137..	10	Neodymium-138.....	100
Lanthanum-138..	100	Neodymium-139m....	1,000
Lanthanum-140..	100	Neodymium-139.....	1,000
Lanthanum-141..	100	Neodymium-141....	1,000
Lanthanum-142..	1,000	Neodymium-147....	100
Lanthanum-143..	1,000	Neodymium-149....	1,000
Cerium-134.....	100	Neodymium-151....	1,000
Cerium-135.....	100	Promethium-141...	100
Cerium-137m....	100	Promethium-143...	100
Cerium-137.....	1,000	Promethium-144...	10
Cerium-139.....	100	Promethium-145...	10
Cerium-141.....	100	Promethium-14....	1
Cerium-143.....	100	Promethium-147...	10
Cerium-144.....	1	Promethium-148m..	10
Praesodymium-136..	1,000	Promethium-148...	10
Praesodymium-137..	1,000	Promethium-149...	100
Praesodymium-138m..	1,000	Promethium-150...	1,000
Praesodymium-139..	1,000	Promethium-151...	100
Praesodymium-142m..	1,000	Samarium-141m....	1,000
Praesodymium-142...	100	Samarium-141.....	1,000
Praesodymium-143...	100	Samarium-142.....	1,000
Praesodymium-144...	1,000	Samarium-145.....	100
Praesodymium-145...	100	Samarium-146.....	1
Praesodymium-147..	1,000	Samarium-147.....	100
Neodymium-136.....	1,000	Samarium-151.....	10

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Lanthanum-137..	10	Neodymium-138.....	100
Lanthanum-138..	100	Neodymium-139m....	1,000
Lanthanum-140..	100	Neodymium-139.....	1,000
Lanthanum-141..	100	Neodymium-141....	1,000
Lanthanum-142..	1,000	Neodymium-147....	100
Lanthanum-143..	1,000	Neodymium-149....	1,000
Cerium-134.....	100	Neodymium-151....	1,000
Cerium-135.....	100	Promethium-141...	100
Cerium-137m....	100	Promethium-143...	100
Cerium-137.....	1,000	Promethium-144...	10
Cerium-139.....	100	Promethium-145...	10
Cerium-141.....	100	Promethium-146...	1
Cerium-143.....	100	Promethium-147...	10
Cerium-144.....	1	Promethium-148m..	10
Praesodymium-136..	1,000	Promethium-148...	10
Praesodymium-137..	1,000	Promethium-149...	100
Praesodymium-138m..	1,000	Promethium-150...	1,000
Praesodymium-139..	1,000	Promethium-151...	100
Praesodymium-142m..	1,000	Samarium-141m....	1,000
Praesodymium-142...	100	Samarium-141.....	1,000
Praesodymium-143...	100	Samarium-142.....	1,000
Praesodymium-144...	1,000	Samarium-145.....	100
Praesodymium-145...	100	Samarium-146.....	1
Praesodymium-147..	1,000	Samarium-147.....	100
Neodymium-136.....	1,000	Samarium-151.....	10

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Samarium-153.....	100	Terbium-147.....	1,000
Samarium-155.....	1,000	Terbium-149.....	100
Samarium-156.....	1,000	Terbium-150.....	1,000
Europium-145.....	100	Terbium-151.....	100
Europium-146.....	100	Terbium-153.....	1,000
Europium-147.....	100	Terbium-154.....	100
Europium-148.....	10	Terbium-155.....	1,000
Europium-149.....	100	Terbium-156m (5.0h)..	1,000
Europium- 50 (12.62h)..	100	Terbium-156m (24.4h)..	1,000
Europium- 50 (34.2y)...	1	Terbium-156.....	100
Europium-152m....	100	Terbium-157.....	10
Europium-152.....	1	Terbium-158.....	1
Europium-154.....	1	Terbium-160.....	10
Europium-155.....	10	Terbium-161.....	100
Europium-156.....	100	Dysprosium-155....	1,000
Europium-157.....	100	Dysprosium-157....	1,000
Europium-158.....	1,000	Dysprosium-159....	100
Gadolinium-145....	1,000	Dysprosium-165....	1,000
Gadolinium-146....	10	Dysprosium-166....	100
Gadolinium-147....	100	Holmium-155.....	100
Gadolinium-148....	0.001	Holmium-157.....	1,000
Gadolinium-149....	100	Holmium-159.....	1,000
Gadolinium-151....	10	Holmium-161.....	1,000
Gadolinium-152....	100	Holmium-162m.....	1,000
Gadolinium-153....	10	Holmium-162.....*	1,000
Gadolinium-159....	10	Holmium-164m.....	1,000
		Holmium-164.....	1,000

\*OMITTED FROM THE TEXT IN ERROR

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Holmium-166m.....	1	Lutetium-172.....	100
Holmium-166.....	100	Lutetium-173.....	10
Holmium-167.....	1,000	Lutetium-174m.....	10
Erbium-161.....	1,000	Lutetium-174.....	10
Erbium-165.....	1,000	Lutetium-176m.....	1,000
Erbium-169.....	100	Lutetium-176.....	100
Erbium-171.....	100	Lutetium-177m.....	10
Erbium-172.....	100	Lutetium-177.....	100
Thulium-162.....	1,000	Lutetium-178m.....	1,000
Thulium-166.....	100	Lutetium-178.....	1,000
Thulium-167.....	100	Lutetium-179.....	1,000
Thulium-170.....	10	Hafnium-170.....	100
Thulium-171.....	10	Hafnium-172.....	1
Thulium-172.....	100	Hafnium-173.....	1,000
Thulium-173.....	100	Hafnium-175.....	100
Thulium-175.....	1,000	Hafnium-177m.....	1,000
Ytterbium-162.....	1,000	Hafnium-178m.....	0.1
Ytterbium-166.....	100	Hafnium-179m.....	10
Ytterbium-167.....	1,000	Hafnium-180m.....	1,000
Ytterbium-169.....	100	Hafnium-181.....	10
Ytterbium-175.....	100	Hafnium-182m.....	1,000
Ytterbium-177.....	1,000	Hafnium-182.....	0.1
Ytterbium-178.....	1,000	Hafnium-183.....	1,000
Lutetium-169.....	100	Hafnium-184.....	100
Lutetium-170.....	100	Tantalum-172.....	1,000
Lutetium-171.....	100	Tantalum-173.....	1,000

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Tantalum-174.....	1,000	Rhenium-184m.....	10
Tantalum-175.....	1,000	Rhenium-184.....	100
Tantalum-176.....	100	Rhenium-186m.....	10
Tantalum-177.....	1,000	Rhenium-186.....	100
Tantalum-178.....	1,000	Rhenium-187.....	1,000
Tantalum-179.....	100	Rhenium-188m.....	1,000
Tantalum-180m.....	1,000	Rhenium-188.....	100
Tantalum-180.....	100	Rhenium-189.....	100
Tantalum-182m.....	1,000	Osmium-180.....	1,000
Tantalum-182.....	10	Osmium-181.....	1,000
Tantalum-183.....	100	Osmium-182.....	100
Tantalum-184.....	100	Osmium-185.....	100
Tantalum-185.....	1,000	Osmium-189m.....	1,000
Tantalum-186.....	1,000	Osmium-191m.....	1,000
Tungsten-176.....	1,000	Osmium-191.....	100
Tungsten-177.....	1,000	Osmium-193.....	100
Tungsten-178.....	1,000	Osmium-194.....	1
Tungsten-179.....	1,000	Iridium-182.....	1,000
Tungsten-181.....	1,000	Iridium-184.....	1,000
Tungsten-185.....	100	Iridium-185.....	1,000
Tungsten-187.....	100	Iridium-186.....	100
Tungsten-188.....	10	Iridium-187.....	1,000
Rhenium-177.....	1,000	Iridium-188.....	100
Rhenium-178.....	1,000	Iridium-189.....	100
Rhenium-181.....	1,000	Iridium-190m....	1,000
Rhenium-182 (12.7h)	1,000	Iridium-190.....	100
Rhenium-182 (64.0h)	100	Iridium-192 (73.8d)..	1

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Iridium-192 $\alpha$ (1.4min.)	10	Mercury-193.....	1,000
Iridium-194m....	10	Mercury-194.....	1
Iridium-194.....	100	Mercury-195m....	100
Iridium-195m....	1,000	Mercury-195.....	1,000
Iridium-195.....	1,000	Mercury-197m....	100
Platinum-186....	1,000	Mercury-197.....	1,000
Platinum-188....	100	Mercury-199m....	1,000
Platinum-189....	1,000	Mercury-203.....	100
Platinum-191.....	100	Thallium-194m...	1,000
Platinum-193m...	100	Thallium-194....	1,000
Platinum-193....	1,000	Thallium-195....	1,000
Platinum-195m...	100	Thallium-197....	1,000
Platinum-197m...	1,000	Thallium-198m...	1,000
Platinum-197....	100	Thallium-198....	1,000
Platinum-199....	1,000	Thallium-199....	1,000
Platinum-200....	100	Thallium-200....	1,000
Gold-193.....	1,000	Thallium-201....	1,000
Gold-194.....	100	Thallium-202....	100
Gold-195.....	10	Thallium-204....	100
Gold-198m.....	100	Lead-195m.....	1,000
Gold-198.....	100	Lead-198.....	1,000
Gold-199.....	100	Lead-199.....	1,000
Gold-200m.....	100	Lead-200.....	100
Gold-200.....	1,000	Lead-201.....	1,000
Gold-201.....	1,000	Lead-202m.....	1,000
Mercury-193m....	100	Lead-202.....	10

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Lead-203.....	1,000	Radon-222.....	1
Lead-205.....	100	Francium-222....	100
Lead-209.....	1,000	Francium-223....	100
Lead-210.....	0.01	Radium-223.....	0.1
Lead-211.....	100	Radium-224.....	0.1
Lead-212.....	1	Radium-225.....	0.1
Lead-214.....	100	Radium-226.....	0.1
Bismuth-200.....	1,000	Radium-227.....	1,000
Bismuth-201.....	1,000	Radium-228.....	0.1
Bismuth-202.....	1,000	Actinium-224....	1
Bismuth-203.....	100	Actinium-225....	0.01
Bismuth-205.....	100	Actinium-226....	0.1
Bismuth-206.....	100	Actinium-227....	0.001
Bismuth-207.....	10	Actinium-228....	1
Bismuth-210m....	0.1	Thorium-226.....	10
Bismuth-210.....	1	Thorium-227.....	0.01
Bismuth-212.....	10	Thorium-228.....	0.001
Bismuth-213.....	10	Thorium-229.....	0.001
Bismuth-214.....	100	Thorium-230.....	0.001
Polonium-203....	1,000	Thorium-231.....	100
Polonium-205....	1,000	Thorium-232.....	100
Polonium-207....	1,000	Thorium-234.....	10
Polonium-210....	0.1	Thorium-natural...	100
Astatine-207....	100	Protactinium-227...	10
Astatine-211....	10	Protactinium-228...	1
Radon-220.....	1	Protactinium-230...	0.1

TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Protactinium-231...	0.001	Plutonium-235..	1,000
Protactinium-232...	1	Plutonium-236..	0.001
Protactinium-233...	100	Plutonium-237..	100
Protactinium-234...	100	Plutonium-238..	0.001
Uranium-230.....	0.01	Plutonium-239..	0.001
Uranium-231.....	100	Plutonium-240..	0.001
Uranium-232.....	0.001	Plutonium-241..	0.01
Uranium-233.....	0.001	Plutonium-242..	0.001
Uranium-234.....	0.001	Plutonium-243..	1,000
Uranium-235.....	0.001	Plutonium-244..	0.001
Uranium-236.....	0.001	Plutonium-245..	100
Uranium-237.....	100	Americium-237..	1,000
Uranium-238.....	100	Americium-238..	100
Uranium-239.....	1,000	Americium-239..	1,000
Uranium-240.....	100	Americium-240..	100
Uranium-natural	100	Americium-241..	0.001
Neptunium-232..	100	Americium-242m.	0.001
Neptunium-233..	1,000	Americium-242..	10
Neptunium-234..	100	Americium-243..	0.001
Neptunium-235..	100	Americium-244m.	100
Neptunium-236 (1.15x10 <sup>5</sup> y)	0.001	Americium-244..	10
Neptunium-236 (22.5h)	1	Americium-245..	1,000
Neptunium-237..	1,001	Americium-246m.	1,000
Neptunium-238..	10	Americium-246..	1,000
Neptunium-239..	100	Curium-238.....	100
Neptunium-240..	1,000	Curium-240.....	0.1
Plutonium-234..	10	Curium-241.....	1



TABLE 4  
EXEMPT QUANTITIES

Radionuclide	Microcuries	Radionuclide	Microcuries
Curium-242.....	0.01	Einsteinium-250..	100
Curium-243.....	0.001	Einsteinium-251..	100
Curium-244.....	0.001	Einsteinium-253..	0.1
Curium-245.....	0.001	Einsteinium-254m.	1
Curium-246.....	0.001	Einsteinium-254..	0.01
Curium-247.....	0.001	Fermium-252.....	1
Curium-248.....	0.001	Fermium-253.....	1
Curium-249.....	1,000	Fermium-254.....	10
Berkelium-245..	100	Fermium-255.....	1
Berkelium-246..	100	Fermium-257.....	0.01
Berkelium-247..	0.001	Mendelevium-257..	10
Berkelium-249..	0.01	Mendelevium-258..	0.01
Berkelium-250..	10		
Californium-244	100		
Californium-246	1		
Californium-248	0.01		
Californium-249	0.001		
Californium-250	0.001		
Californium-251	0.001		
Californium-252	0.001		
Californium-253	0.1		
Californium-254	0.001		
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition...	0.001		

## Radionuclide

## Microcuries

Any radionuclide other than alpha emitting radionuclides not listed above, or mixtures of beta emitters of unknown composition.....	0.01
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Note: For purposes of sections 38.7 and 38.41, Table 1, Exemption 28 of this Part (rule) where there is involved a combination of radionuclides in known amounts, the limit for the combination shall 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 radionuclides in the combination may not exceed "1" (i.e., "unity").

Appendix A-10, section A4, subdivision (f) is amended to read as follows:

(f) Internal management audits. Each licensee or registrant shall conduct an internal audit program to ensure that his license conditions, operating and emergency procedures are followed by each radiographer and radiographer's assistant. These internal audits shall be performed at least quarterly and each radiographer and radiographer's assistant shall be audited at least quarterly provided that, if a radiographer or a radiographer's assistant has not participated in a radiographic operation for more than three months since the last audit, that individual's performance must be observed and recorded the next time the individual participates in a radiographic operation.

Appendix A-10, section A.5, subdivision (c), subparagraph (1) is amended to read as follows:

(c) Radiation surveys and survey records. (1) No radiographic operations shall be conducted unless calibrated and operable radiation survey instrumentation as described in section A.3 subdivision (d) of this Appendix is available and used at each site where radiographic exposures are being made and/or radiographic exposure devices are being placed in storage.

A new Appendix C-1 is added to read as follows:

#### APPENDIX C-1

##### SPECIFIC REQUIREMENTS FOR WELL-LOGGING OPERATIONS

C.1 Purpose. The requirements of this Appendix are established for persons conducting well-logging operations in New York State. The requirements of this appendix are in addition to, and not in substitution of, the requirements of this Part (Rule).

C.2 Specific requirements. Each person conducting well-logging operations shall comply with the provisions of part 39 of title 10 of the *Code of Federal Regulations*, revised as of January 1, 1990 "Licenses and Radiation Safety Requirements for Well-Logging". These regulations are published as a Special Edition of the *Federal Register* by the Office of Federal Register, National Archives and Record Administration, which Special Edition is filed in the New York Department of State in Albany.

A new Appendix C-2 is added to read as follows:

**APPENDIX C-2**

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

*C.1 Purpose.* 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.

*C.2 Financial test.* (a) To pass the financial test, the parent company must meet the criteria of either paragraph (1) or (2) of this subdivision:

(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 statements for the latest fiscal year, with the amounts in such financial statement. In connection with that procedure the licensee shall inform the commissioner within 90 days of any matters coming to the auditor's attention which 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 subdivision (a) of this section, the licensee must send notice to the commissioner of intent to establish alternate financial assurance as specified in section 38.7 of this Part (rule). 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.

*C.3 Parent company guarantee.* The terms of a parent company guarantee which 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 commissioner. 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 commissioner, as evidenced by the return receipts;

(b) If the licensee fails to provide alternate financial assurance as specified in the section 38.7 of this Part (rule) within 90 days after receipt by the licensee and commissioner 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 commissioner has terminated the license.

(d) If a trust is established for decommissioning costs, the trustee and trust must be acceptable to the commissioner. An acceptable trustee includes an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.