

11/18/91



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 WASHINGTON, D.C. 20555

NOV 18 1991

MEMORANDUM FOR: Ronald R. Bellamy, Chief  
 Nuclear Materials Safety Branch  
 Division of Radiation Safety  
 and Safeguards, RI

FROM: John E. Glenn, Chief  
 Medical, Academic, and Commercial  
 Use Safety Branch  
 Division of Industrial and  
 Medical Nuclear Safety, NMSS

SUBJECT: GUIDANCE FOR APPROVAL OF DISPOSAL OF RADIOACTIVE WASTE  
 BY DECAY-IN-STORAGE

The staff has reviewed Region I's "Guidance for Approval of Disposal of Radioactive Waste by Decay-In-Storage," dated February 4, 1991 (enclosed). This guidance concerns approval of licensing conditions which:

1. Allow licensees to hold radioactive material with a physical half-life of greater than 65 days, but not greater than 120 days, for decay-in-storage before disposal in ordinary trash.
2. Allow the number of half-lives of storage to be reduced to 5 if the licensee provides assurance that, when placed in storage, the waste will contain less than the quantity of radioactive material specified in 10 CFR 20, Appendix C per waste container. The 1/R rule will be used for multiple isotopes.

Requests for relief from 10 CFR 35.92 for waste generated from medical uses should be rare. The Regions must continue to seek NMSS concurrence on responses to such requests.

For non-medical waste, decay-in-storage may be permitted provided that:

1. Policy and Guidance Directive 90-3, "Licensing of Low-Level Radioactive Waste Storage by Materials and Fuel Cycle Licensees" is followed.
2. That isotopes with a physical half-life of greater than 65 days but less than 120 days, or those isotopes to be stored for less than 10 half-lives are specifically listed on the license for decay-in-storage.
3. That the regional office concludes that the survey procedures and the radiation detection/counting instrumentation to be used by the licensee are adequate to determine that waste is at background level.
4. That the licensee's request is granted by a modification of the standard license condition and not as an exemption to 10 CFR 35.92.

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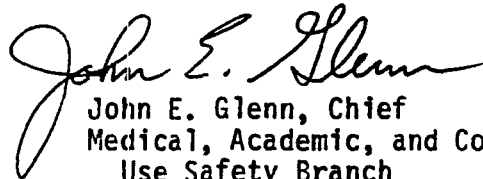
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Mr. Ronald R. Bellamy

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It should be noted that the staff has not used Below Regulatory Concern (BRC) criteria in reaching this conclusion, but rather has considered previous regulatory practice and demonstrated need by the licensee.

If you have any questions, please contact Sally Merchant, of this staff on FTS: 492-0637.



John E. Glenn, Chief  
Medical, Academic, and Commercial  
Use Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS

Enclosure: As stated



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
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KING OF PRUSSIA, PENNSYLVANIA 19406

FEB. 04 1991

MEMORANDUM FOR: John E. Glenn, Chief, Medical, Academic,  
and Commercial Use and Safety Branch  
Division of Industrial and Medical Nuclear Safety

FROM: Ronald R. Bellamy, Chief  
Nuclear Materials Safety Branch  
Division of Radiation Safety  
and Safeguards

SUBJECT: DISPOSAL OF RADIOACTIVE WASTE BY DECAY-IN-STORAGE

Our staff has been somewhat unclear on the basis necessary to modify the standard decay-in-storage license condition. We have summarized our understanding of current policy and added some clarifying elements in the enclosed guidance. Please note that application of the enclosed guidance to licenses issued pursuant to 10 CFR 35, will result in a de facto modification to or exemption from 10 CFR 35.92. We do not plan to seek NMSS concurrence on individual actions where this policy is applied.

We plan to distribute the attached memorandum to the Region I staff on February 19, 1991 and wish to implement the policy described on March 1, 1991 unless we receive alternate guidance from your office.

*Ronald R. Bellamy*  
Ronald R. Bellamy, Chief  
Nuclear Materials Safety Branch  
Division of Radiation Safety  
and Safeguards

Enclosure:  
Guidance for Approval of Disposal of  
Radioactive Waste by Decay-in-Storage

cc:  
J. Hickey, NMSS

## GUIDANCE FOR APPROVAL OF DISPOSAL OF RADIOACTIVE WASTE BY DECAY-IN-STORAGE

### 1. ~~The standard decay-in-storage license condition is:~~

The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
- B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
- C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

NOTE: Due to 10 CFR 35.92 this condition should not be used for Part 35 licenses unless they have requested and we are granting a change to the numbers in the condition.

### 2. The standard number of days for the half-life of the radioactive material authorized for decay-in-storage is 65 days and the standard multiple of the half-life is 10. The reviewer need not get detailed information about the licensee's procedures beyond commitments to survey the material prior to disposal and to deface all radioactive labels prior disposal to add the standard decay-in-storage condition to a license.

If the licensee specifically requests, the half-life in the condition may be increased to 120 days with the following specific information:

- a. A brief statement of why the increase is necessary. The particular isotopes which necessitate the increase should be stated. The volume of contaminated waste to be produced should be estimated. Do not increase the number of days unless the licensee has stated a clear need. Reviewers should not increase the number of days more than necessary and may not increase the number of days above 120.
- b. A copy of the instructions which will be provided to employees concerning the segregation of radioactive waste. These procedures must provide a high degree of assurance that long-lived isotopes will not be included with those of shorter half-life and must be adequate to assure that the waste is properly labelled or identified, especially with regard to isotope.
- c. A description of the records that will be maintained and/or the labelling that will be used to track and identify the waste as it is placed in storage and removed for disposal.

- d. A description of the instrumentation and the monitoring procedure that will be used to determine that the waste is free of radioactive contamination at the end of the storage period. This must include an explicit statement of the MDA which will be achieved.
  - e. A description of the containers in which the waste will be stored and an evaluation that they are appropriate to the waste form and are likely to survive the proposed storage interval.
  - f. A description of the storage facility, including security and fire protection features and data demonstrating that it is large enough to hold the expected volume of waste for a reasonable time period into the future, and adequate to protect the waste containers from deterioration due to environmental conditions.
3. The number of half-lives of required storage may be reduced to ~~5~~ under extraordinary circumstances. In addition to the above information:
- a. The licensee must show the volume of waste to be stored will be large and therefore create a real burden.
  - b. The licensee must provide assurance that the waste will contain less than the quantity of radioactive material specified in 10 CFR 20, Appendix C per waste container when placed in storage. Use the 1/R rule for multiple isotopes.
  - c. The licensee must show that their instrumentation and the monitoring procedure will detect the type of radioactive material in the waste.
  - d. The decrease must be for specific isotopes only.

Reviewers may not reduce the number of half-lives to less than 5.

3. For licenses issued pursuant to 10 CFR 35 (Medical) the words, "Notwithstanding 10 CFR 35.92,..." must be inserted prior to the modified standard license condition.