



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

PDR

SEP 26 1989

The Honorable John Glenn, Chairman
Committee on Governmental Affairs
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

The Commission generally agrees with the GAO recommendations and is taking actions to strengthen our current procedures for regulating nuclear facility decommissioning. In addition, we plan a major initiative to review the adequacy of decontamination at sites decommissioned since 1965. We will request funds in the Fiscal Year 1991 budget to begin the documentation review phase of this project.

Sincerely,

Kenneth C. Rogers

Kenneth C. Rogers
Acting Chairman

Enclosures:

1. Responses to GAO Recommendations
2. Additional NRC Comments

cc: Senator William V. Roth, Jr.

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

SEP 26 1989

The Honorable John Conyers, Jr., Chairman
Committee on Government Operations
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

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Sincerely,

Kenneth C. Rogers
Acting Chairman

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2. Additional NRC Comments

cc: Rep. Frank Horton



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

SEP 26 1989

The Honorable John B. Breaux, Chairman
Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

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Sincerely,

Kenneth C. Rogers
Acting Chairman

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2. Additional NRC Comments

cc: Senator Alan K. Simpson



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

SEP 26 1989

The Honorable Morris K. Udall, Chairman
Subcommittee on Energy and the Environment
Committee on Interior and Insular Affairs
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

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Sincerely,

Kenneth C. Rogers
Acting Chairman

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2. Additional NRC Comments

cc: Rep. James V. Hansen



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

SEP 26 1989

The Honorable Philip R. Sharp, Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

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Kenneth C. Rogers
Acting Chairman

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2. Additional NRC Comments

cc: Rep. Carlos J. Moorhead



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

SEP 26 1989

The Honorable Mike Synar, Chairman
Subcommittee on Environment, Energy,
and Natural Resources
Committee on Government Operations
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

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Acting Chairman

Enclosures:

1. Responses to GAO Recommendations
2. Additional NRC Comments

cc: Rep. William F. Clinger, Jr.



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

SEP 26 1989

The Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office
Washington, D. C. 20548

Dear Mr. Bowsher:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

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

SEP 26 1989

The Honorable Richard G. Darman
Director
Office of Management and Budget
Washington, D. C. 20503

Dear Mr. Darman:

In accordance with the statutory obligation to respond to recommendations by the General Accounting Office (GAO), I am submitting the Nuclear Regulatory Commission's (NRC's) response to the recommendations in the report GAO/RCED-89-119, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened." Some additional comments are also enclosed for perspective on the report.

The Commission generally agrees with the GAO recommendations and is taking actions to strengthen our current procedures for regulating nuclear facility decommissioning. In addition, we plan a major initiative to review the adequacy of decontamination at sites decommissioned since 1965. We will request funds in the Fiscal Year 1991 budget to begin the documentation review phase of this project.

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Acting Chairman

Enclosures:

1. Responses to GAO Recommendations
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NRC RESPONSES TO GAO RECOMMENDATIONS IN REPORT GAO/RCED-89-119, "NRC's DECOMMISSIONING PROCEDURES AND CRITERIA NEED TO BE STRENGTHENED."

The GAO/RCED-89-119 report provided six specific recommendations.

1. Require licensees to specifically list in one document all land, buildings, and equipment involved with their licensed operations.

NRC Response: NRC agrees with this recommendation. Our new decommissioning rule specifically requires licensees to keep in one identified location all records important to decommissioning. Such records include drawings of structures and equipment where radioactive materials are used or stored, documentation identifying the locations of inaccessible residual contamination, and detailed descriptions of spilled radioactive material. In addition, such records include identification and characterization of wastes that have been disposed of on site. Further, in response to the GAO recommendation, NRC will require licensees to specifically list in one document all land, buildings, and equipment involved with their licensed operations.

2. Ensure that licensees decontaminate their facilities in accordance with NRC's guidelines before NRC fully or partially releases a site for unrestricted use.

NRC Response: NRC agrees. We require licensees to decontaminate their facilities in a safe manner prior to release for unrestricted use. We have expanded the scope of our confirmatory surveys to verify that licensees adequately decontaminate their facilities in accordance with NRC's guidance and criteria. Our inspectors and agency contractors have been specially trained and equipped to perform such verification surveys. Prior to license termination, where appropriate, NRC conducts verification surveys during closeout inspections to confirm the accuracy of the licensees' surveys. In addition, we will revise our existing guidance to clarify the scope and rigor of verification surveys conducted to ensure that licensees decontaminate their facilities in accordance with our guidelines before we fully or partially release a site for unrestricted use.

3. Determine if NRC's residual radiation criteria should be revised on the basis of the standards proposed by the Health Physics Society Standards Committee.

NRC Response: The NRC staff previously considered adopting the criteria proposed by the Health Physics Society in 1986 but elected not to because the criteria are based on measurement capabilities rather than acceptable risk, and they are not supported by an adequate technical rationale. In addition, the Society's proposed standards have not yet been adopted by the American National Standards Institute. We would be pleased to reconsider the Society's proposed standards if they are revised to respond to the NRC staff's concerns.

The Commission recognizes that residual radioactivity standards are necessary to plan, conduct, and verify decommissioning projects. In the absence of such standards, NRC has been using criteria that were developed in the early seventies in the form of Regulatory Guidance (primarily Regulatory Guide 1.86) to ensure consistency and safety of decommissioning projects at nuclear facilities.

At present, NRC is developing a policy to exempt practices involving low levels of radioactivity. The so-called "Below Regulatory Concern" policy would aid NRC in ensuring that decommissioning decisions are based on a consistent and defensible level of public protection. In addition, the Commission has directed the NRC staff to develop interim guidance by December 1989 to define acceptable levels of residual radioactivity in soils and structures based on the "Below Regulatory Concern" policy. These levels of residual radioactivity will be developed as an initial step in a longer term effort to incorporate risk-based decontamination criteria in NRC's regulations. Further, NRC staff is working with staff from the Environmental Protection Agency and other agencies to develop standards for residual radioactivity. This interagency effort should produce final standards for implementation in the mid-1990's.

4. Ensure that licensees appropriately monitor buried waste sites to determine the extent of environmental contamination.

NRC Response: NRC agrees. An earlier provision in NRC's regulations allowed licensees to dispose of radioactive waste on site without prior approval by NRC, provided that the waste did not exceed certain radionuclide quantity limits and that licensees kept records of what was disposed of and where. NRC revoked this provision in 1981 to provide greater assurance that buried radioactive material would not present a public health and safety hazard and stated that this action would not affect material already buried. NRC will require licensee monitoring of buried waste sites, as appropriate, and determine at the time of decommissioning what remedial measures, including removal and disposal of such waste off site, are appropriate before a site can be released and the license terminated.

Under present NRC rules, on-site disposal of low-activity radioactive waste must be in accord with license provisions. To qualify for on-site disposal, a licensee needs to consider geologic, hydrologic, and other characteristics that influence the migration potential of the waste and demonstrate that the disposal of the waste will not endanger the public health and safety or the environment. The licensee's demonstration would also include provisions for monitoring and surveillance to satisfy licensing requirements. In approving on-site disposal under a license, NRC ensures that the disposal is sufficiently restricted so that long-term monitoring is not necessary to protect humans and the environment.

5. Ensure that NRC obtains and keeps for more than 10 years decommissioning information such as licensee radiological surveys and certification of materials disposed, NRC's or other organization's confirmatory surveys, and specifics on land, building, and equipment that were contaminated over the life of the license.

NRC Response: NRC agrees. Earlier this year, our staff initiated development of an agency-wide, centralized program for permanent retention of records that document decommissioning activities. These records include the information recommended by GAO. NRC has developed a permanent retention schedule, which has been submitted for approval to the National Archives and Records Administration under the Federal Records Act.

6. Act expeditiously to issue regulations permitting issuance of orders to require additional cleanup activities after terminating a license and to ensure that there is a mechanism to enforce orders requiring such activities. GAO also recommends that, in the interim, the NRC should ensure that all contamination at a site has been cleaned up so that it is below the levels allowed in NRC's guidelines before releasing all or part of a site for unrestricted use.

NRC Response: NRC has sufficient authority under section 161b of the Atomic Energy Act to issue orders to protect the public health and safety from radiation hazards caused by nuclear materials regulated by the NRC. Most former licensees have cooperated with the NRC in addressing decontamination concerns that have been identified after license termination. Nevertheless, we are currently considering modification of our regulations to clarify procedures for issuing orders to persons against whom action should be taken on matters within NRC's jurisdiction, whether or not those persons hold licenses. This initiative should adequately address the purely procedural aspects of NRC's authority to issue orders, for example, to require additional cleanup activities after terminating a license.

Although NRC's existing authority to issue orders is adequate, our power to enforce such orders to compel prompt corrective actions is largely determined by the circumstances of each case. Where the former licensee has violated the requirements for license termination imposed by prior order or regulation, NRC's authority to require adherence to those requirements is clear. Such adherence can be achieved through subsequent orders, civil penalties, injunctions, and even appropriate use of criminal sanctions when warranted. NRC's remedies may be limited as a practical matter, however, where former licensees have satisfied the requirements in place at the time of license termination, but where additional cleanup action subsequently appears necessary to comply with today's more stringent requirements. Other problems that could arise include the dissolution or financial insolvency of former licensees. These potential problems underscore the importance of assuring application of appropriate decontamination standards before the license is terminated.

As stated earlier in response to GAO's recommendation number two, NRC will ensure that sites are decontaminated in accordance with NRC's guidance prior to releasing all or a part of the site and terminating the license. In this regard, the NRC agrees with GAO that it is preferable to ensure cleanup before terminating the license rather than to attempt to compel cleanup after license termination.

If provided adequate resources, NRC plans to review the adequacy of decontamination at sites decommissioned since 1965. Our review would begin by screening records to identify sites where follow-up site surveys and more detailed site characterization are appropriate. Based on these results, we would take appropriate actions to ensure that the sites have been adequately decontaminated. We will request funds in the Fiscal Year 1991 budget to begin this project.

ADDITIONAL NRC COMMENTS ON REPORT GAO/RCED-89-119, "NRC'S DECOMMISSIONING PROCEDURES AND CRITERIA NEED TO BE STRENGTHENED."

The GAO/RCED-89-119 report (GAO report) presents the current as well as historical status of NRC's decommissioning procedures and criteria. The conclusions expressed in the GAO report are in line with our own judgment. These conclusions were based on a review by the GAO evaluator of NRC records, interviews, and discussions with several NRC staff over a period of one and one-half years, and visits to NRC-licensed facilities. Many of the criticisms in the report are valid, support the recommendations, and highlight the actions necessary to improve our decommissioning procedures and criteria. However, there are two criticisms which are misleading and of sufficient importance to warrant comment.

1. The GAO report cites cases of radionuclide contamination concentrations which are high multiples of NRC's guidelines for disposal of uranium and thorium in soil and surface contamination on buildings and equipment.

NRC Comment: For land cleanup, NRC guidelines set a target value rather than an absolute value that must be achieved because the target criteria (soil concentrations) are based on conservative pathway analyses involving doses that are very small. The derived soil concentrations are intended to be applied to large areas of soil. Licensees are required to subdivide the whole site or area into subsections or grids (e.g., less than 100 m² per grid block) and measure soil concentrations in each grid to determine compliance. Licensees may average the concentrations in up to four grids.

In the case of Nuclear Fuel Services in Erwin, Tennessee, a licensed site where the GAO report noted that the NRC had released land where soil concentrations were in excess of the guidelines, the licensee had made extra efforts to clean up "hot spots" after initial land cleanup. After these efforts, a few grids were found to be above the guidelines. The average concentration in the decontaminated area was within the NRC's release criteria. In view of the fact that the area was further back-filled with several feet of soil, the critical pathway (the inhalation pathway used to derive the soil concentration) was eliminated. Even though the soil may be disturbed in the future, the amount of clean soil would dilute the contamination below concentrations of concern. Absent such an explanation, the GAO report gives the incorrect impression that all or much of the area in question is contaminated at levels above the NRC guidelines, that releasing the land was ill-advised, and that there remains a significant public health and safety hazard.

In the case of Gulf United Nuclear Fuels Corp. at Pawling, New York, a formerly licensed site where the GAO report stated there was soil contamination up to 100 times higher than NRC's guidance, the licensee had cleaned up the soil to meet the conservative guidance level in use at that time. In a subsequent survey for the National Park Service, higher levels were detected in a few areas of only several square feet, and the levels in these limited areas are up to approximately three times the current NRC guidance. Additionally, a few square feet of building surfaces were found to have contamination up to 320 times NRC's guidance. Although the NRC is working with the National Park Service to determine what further actions should be taken at the Pawling site, there does not appear to be a significant public health and safety hazard that requires immediate action.

2. The GAO report implies that the public health may be at risk based on comparisons of concentrations of uranium in groundwater around waste burial sites with EPA's interim drinking water standards.

NRC Comment: Boreholes and monitoring wells have been installed by licensees around ponds, lagoons, and waste burial sites at licensed facilities and have indicated uranium contamination of groundwater above background concentrations.

NRC's Standard Review Plan for evaluating license termination applications states that guidance on radioactivity in surface water and groundwater can be found in footnote 5 of Appendix B of 10 CFR Part 20 and in EPA's National Interim Primary Drinking Water Regulations (40 CFR 141; EPA 570/9-76-003). EPA's standards apply to community drinking water supplies under the Safe Drinking Water Act. Since none of the boreholes or monitoring wells are used for community drinking water supply, EPA's drinking water standards do not apply directly. They may be used indirectly to estimate individual risk associated with ingestion of contaminated drinking water from community and private wells. However, EPA's interim standards do not include a standard for uranium. Thus, NRC uses the uranium limit in Appendix B of 10 CFR Part 20 to evaluate potential impacts of the contaminated groundwater.

The highest concentration of uranium measured in these samples is only one-third of the 10 CFR Part 20 limit for uranium in liquid effluents. Therefore, existing uranium contamination of groundwater at these sites does not pose a health and safety hazard and is acceptable under NRC's present regulations. NRC is aware that EPA is developing a drinking water standard for uranium and has already proposed such a value for groundwater protection at uranium mill tailings sites. The proposed value (30 pCi/l) is considerably less than NRC's current limit in 10 CFR Part 20 (30,000 pCi/l). In light of these recent EPA initiatives and ongoing NRC improvements in oversight of the decommissioning program, NRC is reevaluating the criteria to be used in releasing decommissioned sites with existing groundwater contamination. NRC plans to issue interim criteria for residual radioactivity in groundwater during Fiscal Year 1991 and will conduct license termination reviews on a case-by-case basis in the interim.