

NUCLEAR REGULATORY COMMISSION

10 CFR Part 61

[Docket No. PRM-61-2]

New England Coalition on Nuclear Pollution, Inc.; Denial
of Petition for Rulemaking

AGENCY: Nuclear Regulatory Commission.

ACTION: Denial of petition for rulemaking.

SUMMARY: The Nuclear Regulatory Commission (NRC) is denying a petition for rulemaking submitted by the New England Coalition on Nuclear Pollution, Inc. (PRM-61-2). The petitioner requested that the NRC amend its regulations regarding waste classification of low-level radioactive waste (LLW) to restrict the number and types of waste streams which can be disposed of in near-surface disposal facilities and prepare a supplemental Environmental Impact Statement (EIS). The NRC is denying the petition because the "new information" as presented by the petitioner is not sufficient to invalidate the existing classification system or justify that NRC prepare a supplemental EIS.

ADDRESSES: Copies of the petition for rulemaking, the public comments received, the petitioner's response to these comments, and the NRC's letter to the petitioner are available for public inspection or copying in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

5-29-94

FOR FURTHER INFORMATION CONTACT: Mark Haisfield, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington DC 20555, Telephone: 301-492-3877 or Robert Hogg, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-504-2579.

SUPPLEMENTARY INFORMATION:

The Petition

On July 23, 1992 (57 FR 32743), the Nuclear Regulatory Commission ~~published a notice of receipt of a petition for rulemaking filed by the New~~ England Coalition on Nuclear Pollution, Inc. The petitioner requested that the NRC amend 10 CFR Part 61 concerning the classification of low-level radioactive waste for near-surface disposal to restrict the number and types of waste streams which may be disposed of in these disposal facilities. The petitioner believes the requested changes are necessary because of significant new information concerning intrusion into LLW disposal facilities that was not available at the time the original EIS was developed. Because of the new information, the petitioner argues that the NRC must prepare a supplemental EIS since the premises leading to the conclusions reached in the original EIS have substantially changed.

The petition is based on three purported changes that the petitioner believes have occurred since the rule was promulgated. The petitioner asserts that these changes affect the basis used to promulgate 10 CFR Part 61.

1. The petitioner argues that the original EIS was based on a 500 mrem per year dose to "inadvertent intruders." Revised guidance by international organizations has reduced dose limits for individual members of the public to 100 mrem per year and this new criterion has been incorporated into 10 CFR Part 20. The petitioner presumes that the intruder and public dose limits are integrally linked. The petitioner asserts that this revised dose limit should also be incorporated into the waste classification system and that this would impact waste streams allowed to be disposed of in LLW facilities.

2. The petitioner states that the three intrusion scenarios that the NRC considered in the development of 10 CFR Part 61 do not define a broad enough spectrum of possible events. Of particular concern is that the NRC used regulatory discretion, rather than scientific data, to exclude deliberate intrusion. The petitioner states that recent studies conducted at the behest of the State of Vermont show that, when intrusion is deliberate, the ability of near-surface facilities to properly provide isolation for all of the currently classified LLW streams is questionable.

3. The petitioner states that because most currently planned LLW facilities are using an engineered structure to isolate the waste, the cost differential between shallow-land burial facilities, assumed in the EIS, and a geologic repository (for high-level waste) has significantly changed since promulgation of 10 CFR Part 61. Because cost considerations were a factor in the development of the waste classification system, a supplemental EIS is needed.

Public Comments on the Petition

The notice of receipt of petition for rulemaking invited interested persons to submit written comments concerning the petition. The NRC received 14 comment letters. Three comment letters were received from States (two from Vermont), three from private organizations, three from associated industries (including one disposal site operator), three from private individuals, one from a university, and one from the Department of Energy. The comments generally focussed on the main elements of the petition -- revision of the 10 CFR Part 61 waste classification system and the petitioner's rationale for this change. In addition, the Commission received responses from the petitioner on many of the points raised by the commenters. The comments and responses were reviewed and considered in the development of NRC's decision on this petition. These comments and responses are available in the NRC Public Document Room. Following is a summary of the significant comments.

Four of the commenters supported this petition for rulemaking. They supported the concept of changing the classification system to restrict the more hazardous components of currently defined LLW, although not necessarily in the same way as proposed in the petition.

One commenter stated that the definitions of LLW and high-level radioactive waste should be changed to essentially require that waste which presents a potential hazard after 100 years be defined as high-level radioactive waste. Disposal of such newly defined high-level radioactive waste would be the responsibility of the Federal government.

A second commenter believes that the bases for developing the Part 61 classification system are not conservative, and therefore, the petition should

be accepted to protect the public from disposal of waste containing long-lived radionuclides.

A third commenter believes that restricting the longevity hazard (long-lived radionuclides) would increase public acceptance of LLW disposal facilities and eliminate program delays.

The fourth commenter, the Vermont Department of Public Service, believes that the classification system should be revised to reclassify non-fuel reactor components as greater than Class C. It is stated that these components, in Vermont, produce 99 percent of the activity, while comprising less than one-half of one percent of the volume. These components are easily segregated, and can be stored in spent fuel pools. The commenter believes the reclassification "could assist the State processes established by the Low-Level Radioactive Waste Policy Amendments Act of 1985."

The other ten commenters believe that granting the petition would not only be unwarranted, as the petitioner has not made a justifiable case for changing the waste classification system, but would also cause significant and unnecessary problems for the disposal of LLW. Problems cited include major uncertainty and delay while the NRC was developing a new rule, the creation of "orphan" wastes that would not be acceptable at LLW sites, and the inaccurate use of existing information. For example, the petitioner refers to a study by Rogers and Associates Engineering Corporation (RAE) prepared for the Vermont Low-Level Radioactive Waste Authority. Several commenters, including RAE and the Vermont Low-Level Radioactive Waste Authority, commented that the petitioner has incorrectly used the results of this study to assess facility performance and that this study does not support the petitioner's request.

The commenters argued that 10 CFR Part 61, and supporting documentation, provide a sound regulatory basis for protection of public health and safety and that the petitioner has not provided any new significant information to justify changing the current rules. These commenters further argued that the petitioner is inappropriately applying requirements in 10 CFR Part 20 to potential intruder exposures at a closed disposal site. They noted that Part 20 limits, and the international recommendations upon which they are based, are regulatory dose limits for routine exposures and are not uniquely pertinent to accidents, inadvertent intrusion, or other hypothetical events.

Some commenters also took exception to the petitioner's goal of protecting against willful, purposeful, or intentional intrusion instead of the inadvertent intruder. They stated that to protect against deliberate misuse of disposed waste would be unnecessarily conservative and unwarranted. One commenter noted that mining activities on a previously closed LLW disposal site (an activity postulated by the petitioner) would constitute possession of source, byproduct, or special nuclear material and would be regulated under the statutory basis of the Atomic Energy Act of 1954, as amended.

Several commenters were concerned that a revised classification system would generate an "orphan" class of waste. These wastes would not be accepted at an LLW site and would have to be stored, pending disposal at a high-level waste or other appropriate facility, resulting in additional radiation exposure due to the extra handling and storage required. These commenters stated that the current classification system provides an adequate level of protection of public health and safety.

Other commenters believe that revising the classification system unnecessarily would be extremely disruptive until new regulations were finalized.

Finally, several commenters did not see a need to develop a supplemental EIS because in their view no significant new information has been provided.

Reasons for Denial

The NRC is denying the petition for the following reasons:

1. The NRC believes that the petitioner is incorrect in asserting that ~~recommendations by international and national standards organizations (the~~ International Committee on Radiological Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP)) on public dose limits applicable to licensee operations should also be applied to hypothetical inadvertent intrusion at a closed LLW facility. In fact, the ICRP¹ distinguishes between limits for the conduct of operations where exposures might be expected and the approach to be taken for "potential exposures," which are hypothetical or postulated. The new 10 CFR Part 20 limit was adopted to impose restrictions on the releases from currently operating licensed facilities or on the ways that current licensees conduct operations. In contrast to this, the LLW classification system specifically addressed limiting potential exposures to an inadvertent intruder who might hypothetically pursue activities at a closed LLW disposal facility following

¹ Annals of the ICRP, ICRP Publication 60, "1990 Recommendations of the International Commission on Radiological Protection," Volume 21, pages 25-49 and 70-77.

loss of institutional control. Inadvertent intrusion is a hypothetical exposure scenario evaluated in the EIS to support the concentration limits for classifying radioactive wastes. It is a separate and different evaluation from the evaluation performed under § 61.41 to demonstrate protection of the general population from releases of radioactivity. The NRC's calculations, based on conservative assumptions about intrusion activities, demonstrated that if inadvertent intrusion were to occur, the one or few individuals involved might receive radiation exposure of the order of 200 mrem, well below 500 mrem per year goal selected as the dose rate limitation guideline.

In its final EIS, as noted by the petitioner, the NRC summarized the rationale for retaining the 500 mrem limitation guideline as follows:

"NRC's selection of the 500 mrem limit was based on (1) public opinion gained through the four regional workshops held on the preliminary draft of Part 61; (2) its acceptance by national and international standards organizations (e.g., ICRP) as an acceptable exposure limit for members of the public; and (3) the results of analyses presented in Chapter 4 of the draft EIS.²"

However, a fuller explanation for having selected this dose limitation guideline can be found in the Draft Environmental Impact Statement (DEIS) on

² Final Environmental Impact Statement on 10 CFR Part 61 "Licensing Requirements for Land Disposal of Radioactive Waste," November 1992, NUREG-0945, Vol. 2, page B-41, (response to issue C-4).

10 CFR Part 61 (NUREG-0782, Vol. 1)³. At that time, three candidate values of different order of magnitude were under consideration; 25 mrem per year, 500 mrem per year, and 5000 mrem per year. While noting the similarity of the selected value to the then current effective public dose limit in 10 CFR Part 20, the DEIS went on to explain the considerations for selection. Selection of the 25 mrem per year value would likely have resulted in considerably more costs, more changes in existing practices and greater reduction in disposal efficiency than the other two candidates. This was cited as "especially important considering the hypothetical nature of the intrusion event." The 5000 mrem per year alternative was seen to involve approximately the same costs and impacts as the 500 mrem per year alternative.

The higher value was considered to potentially result in allowing disposal of larger quantities of long-lived isotopes, which could result in moderately higher intruder hazards extending for long time periods. Therefore, 500 mrem per year was selected as a general dose rate limitation guideline for the inadvertent intruder.

In the final EIS, the NRC noted that the EPA, in commenting on the DEIS and the proposed 10 CFR Part 61, stated that it was not appropriate to include a dose limit for intrusion in the regulations because the licensee would not be able to monitor or demonstrate compliance with a dose limit related to an event which might occur hundreds of years in the future. Consequently, the final rule for 10 CFR Part 61 did not include a dose limit for inadvertent

³ Copies of NUREGs may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P. O. Box 37082, Washington, DC 20013-7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161. A copy is also available for inspection and/or copying at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

intrusion. However, provisions, including waste classification, were included in the final rule to reduce the likelihood and magnitude of exposures to potential intruders.

Finally, as noted above, ICRP distinguishes between limits for the conduct of operations where exposures might be expected and the approach to be taken for "potential exposures," which are hypothetical or postulated. In the former case, the ICRP proposed imposition of dose limits but in the latter case recommended that the probability of postulated events or scenarios be considered along with their consequences. The ICRP noted that the initial focus in controlling the consequences of potential or postulated events should be "prevention," that is, by incorporating provisions to reduce the probability of the postulated events which may lead to radiation exposures. The existence of multiple controls in the final rule to reduce the likelihood of exposures to postulated inadvertent intruders at closed LLW sites was, and continues to be, wholly consistent with the ICRP perspective. These multiple controls are specifically identified or included in §§ 61.7, 61.12, 61.14, 61.42, 61.52, and 61.59 and are intended to prevent inadvertent intrusion and to reduce potential exposure if intrusion were to occur.

For these reasons, the NRC does not believe that the current ICRP or NCRP recommendation that the public dose limit be 100 mrem per year constitutes new information which would warrant modifying these regulations. The NRC believes that the provisions of 10 CFR Part 61 provide an acceptable level of protection to the public and the inadvertent intruder.

2. The NRC believes that the petitioner has not provided adequate information to justify considering "deliberate" intrusion scenarios. The NRC believes that to protect against deliberate intrusion would be unnecessarily

conservative and unwarranted. The NRC regulations currently include provisions to protect against intrusion by, for example, requiring government land ownership, records, and the use of markers. In order to deliberately intrude into the LLW site, an individual will have to break the law and overlook the hazard. In the development of 10 CFR Part 61, the NRC stated, "...it would appear to be difficult to establish regulations designed to protect a future individual who recognizes a hazard but then chooses to ignore the hazard."⁴

The NRC also believes the likelihood of deliberate intrusion is very small. Deliberate intruders would have to ignore the hazard information on markers. The future value of LLW as a material can not be accurately assessed, but the NRC believes that its value would be unlikely to warrant illegal actions that in themselves would be hazardous, and would require a significant amount of time and effort. If the value of LLW were to become significant, then it is likely that responsible institutions would assess risks and would make rational decisions regarding use or control of the site. Although the NRC is not relying on institutional controls beyond 100 years, the NRC believes that relevant records will be preserved, and remain accessible for hundreds of years after closure. This would reduce the likelihood and level of exposure of inadvertent or deliberate intrusion. For example, if intrusion did not occur until 500 years after closure, the exposure would be limited to a few mrem as calculated in the EIS. The NRC, therefore, believes that its current treatment of intrusion continues to reflect a rational and acceptable approach. The NRC current regulations

⁴ Draft Environmental Impact Statement on 10 CFR Part 61 "Licensing Requirements for Land Disposal of Radioactive Waste," September 1981, NUREG-0782, Volume 2, page 4-3.

provide reasonable assurance of protection against an inadvertent intruder. And while not directly protecting against the deliberate intruder, the NRC believes that such an intrusion is unlikely to happen, therefore, the risk is very small.

3. The NRC believes that the petitioner's request for a supplemental EIS, due to increased costs of current disposal plans (including engineered structures), is not valid for several reasons. First, the NRC considered a range of different disposal options and costs, including the use of engineered barriers and structures, in the development of 10 CFR Part 61. Shallow-land burial, as had been practiced at commercial disposal sites, was considered as the base case for analysis. ~~Two improved shallow-land disposal alternatives~~ were also considered. The use of engineered barriers was anticipated and included in cost impact analyses as the upper bound alternative. Second, although the petitioner is correct in stating that LLW disposal costs for new facilities have significantly increased since promulgation of the rule, so have the expected costs for other potential methods of waste disposal, including geologic disposal, referred to by the petitioner. Third, as noted by one of the commenters, much of the increased cost for new LLW disposal facilities is independent of the disposal technology used. That is, the increased costs for site characterization, licensing, public involvement, and administration for all disposal sites would tend to minimize long-term cost differentials between shallow-land burial with and without engineered structures. The petitioner is erroneously asserting that costs were a prime consideration in the selection of the waste classification system. Although costs were considered in the EIS, the NRC principally looked to identify and

implement improvements in the disposal of LLW, such as the development of the waste classification system, to help ensure adequate protection of the public health and safety and the environment. The costs of developing and constructing a facility were not the prime consideration.

In addition to the three reasons above, the NRC has also qualitatively considered the effect of imposing a classification system as indicated in the petition. The benefit would be to reduce the potential radiation exposure of a very small number of individuals after the end of the institutional control period. A realistic estimate of the benefit, as shown in the EIS, would be a 100 mrem reduction in dose (from 200 mrem to 100 mrem per year) to one or a few individuals per site, 100 years after closure. To maximize the benefit, the intrusion would need to occur relatively shortly after the end of the institutional control period, since the 100 mrem difference between the existing classification system and that suggested by the petitioner becomes smaller with time. As discussed earlier, as the time period increases beyond 100 years to 500 years, potential exposures reduce to only a few mrem for the existing classification system.

Not only are the perceived benefits exceedingly small, but if a revised classification system were imposed, the NRC believes that it would result in significant negative impacts. First, it would take years to revise the waste classification regulations. During this time, current efforts by the States and compact organizations to develop LLW facilities could be severely impacted as they would not know what waste would be acceptable in a LLW facility. Second, as provided in the Low-Level Radioactive Waste Policy Amendments Act of 1985, States will continue to be responsible to provide for disposal of waste that is classified A, B, and C under the existing classification system

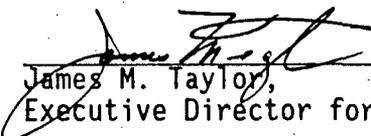
in 10 CFR Part 61. If a new classification system were developed that resulted in some currently acceptable waste being unacceptable for a LLW facility, either Congressional action would be necessary to change the Act to make the Federal Government responsible for the waste or the States would be forced to develop alternative methods to dispose of this new class of waste. And third, additional operational exposures could be expected to occur as specific waste would need to be segregated, handled, treated, stored, and transported while awaiting alternative disposal facilities.

In sum, no new significant information has been provided by the petitioner that would call into question the basis for, or conclusion of, the final EIS. On the other hand, in a qualitative analysis, it is clear that granting the petition would result in significant negative impacts relative to the small potential reduction in intruder exposures. Therefore, a supplemental EIS is not needed.

For reasons cited in this document, the NRC denies the petition.

Dated at Rockville, Maryland, this 29th day of March, 1994.

For the Nuclear Regulatory Commission.


James M. Taylor,
Executive Director for Operations.