

## **POLICY ISSUE NOTATION VOTE**

July 11, 2002

SECY-02-0127

FOR: The Commissioners

FROM: William D. Travers  
Executive Director for Operations

SUBJECT: PROPOSED RESPONSE TO STATE OF OHIO ON ITS ASSURED  
ISOLATION STORAGE FACILITY DRAFT RULES

### PURPOSE:

To request Commission review of staff's proposed response to the Ohio Department of Health, Bureau of Radiation Protection (BRP), providing comments on their proposed rules for licensing an Assured Isolation Facility (AIF) for storage of low-level radioactive waste (LLW).

### BACKGROUND:

NRC staff received a February 20, 2002, letter from Mr. Robert E. Owen, BRP Manager of Technical Services, requesting review and comment on three draft Ohio rules, for an AIF, for which NRC has no comparable regulations (Attachment 1). The AIF concept involves placing LLW in a licensed, engineered facility, from which the waste could be subsequently retrieved for other dispositions, if necessary. The AIF remains under license for as long as LLW is present and relies on ongoing and continuing inspection, monitoring, and preventive maintenance. The draft Ohio rules include: (1) requirements for long-term storage of radioactive waste (not to exceed 100 years); (2) requirements for radioactive waste processing facilities; and (3) quality assurance requirements for facilities covered by the draft rules. The rules were drafted in response to a request from Ohio's Radiation Advisory Council. NRC comments were requested in concert with the Ohio public comment period that ended April 15, 2002. Pursuant to NRC staff discussion with Mr. Owen, he noted that the BRP desires NRC comment and that NRC comments would be helpful if submitted by September 7, 2002.

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Ohio's LLW is currently being disposed of primarily at Barnwell, South Carolina. Some Class A LLW is disposed at Envirocare in Utah. After 2008, South Carolina is expected to limit the Barnwell disposal facility to South Carolina, Connecticut and New Jersey LLW generators (all parties to the Atlantic LLW Compact). At this time, there are no new plans to construct new disposal facilities in any of the compacts or unaffiliated States.

An assured storage/isolation facility was first described in 1995 by the U.S. Department of Energy's National Low-Level Waste Management Program, as an alternative approach to disposal for long-term management of LLW. Since that time, a number of States have expressed interest in the concept of assured storage/isolation. The Texas legislature considered bills that would have allowed for development of an AIF in 1999, and Envirocare of Texas submitted a license application which was later withdrawn. California Governor's LLW Advisory Group also had discussions with NRC on an AIF. Additionally, in 1998, technical studies were developed by the National Low-Level Waste Management Program, in response to a request from Connecticut, Massachusetts, Michigan, New Jersey, New York, and North Carolina.<sup>1</sup> Legal studies were later prepared for Connecticut in 2000.<sup>2</sup> NRC staff indicated, in a March 30, 2001, letter (Attachment 2) to Mr. Richard A. Ratliff, Chief, Bureau of Radiation Control, Texas Department of Health, on licensing an AIF that, "If either Texas or some other organization were to develop the requirements that would be needed to ensure long-term isolation of waste with this type of facility, NRC would be willing to provide assistance with this effort." Currently, there are no AIFs licensed or any application for an AIF under review. NRC staff plans resources in the fiscal year 2004-2005 time frame, for a rulemaking on an AIF, based on States' past interest in this LLW management concept and the uncertainty of permanent LLW disposal capacity after 2008.

#### DISCUSSION:

In cases where NRC has no comparable set of requirements, such as the proposed Ohio rules for an AIF, NRC would usually share the draft State rule with appropriate staff, but NRC staff would not conduct any review of the State's rules. However, in this case staff conducted a review, in part given the staff's offer in the Texas response to provide assistance "...to develop the requirements that would be needed to ensure long-term isolation of waste with this type of facility..." and to help identify issues which should be considered in development of rules for licensing an AIF storage only facility (Attachment 3). (The Ohio proposed rule only covers an AIF for LLW storage with no intent for conversion to a permanent disposal facility.) Staff's proposed response also notes that should NRC proceed, at a later date, to establish a rulemaking for an AIF facility, Ohio may need to amend any final rule it issues, to be compatible with NRC, and that such action could ultimately impact Ohio's licensees.

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<sup>1</sup> "Licensing an Assured Isolation Facility for Low-Level Radioactive Waste," July 1998 (DOE/LLW-250a&b), National Low-Level Waste Management Program.

<sup>2</sup> "Technical Report: Assured Isolation Legal Study," April 2000, Prepared by Danaher, Tedford, Lagnese & Neal, P. C., for Connecticut Hazardous Waste Management Service.

In development of its response, staff identified and considered the following issues:

- The need for supplemental technical criteria, and the associated jurisdictional issues, such as the ownership of the AIF site by the Federal or State government, ownership of the material at the site, and requirements to cover the potential conversion of an AIF storage facility into a permanent disposal facility.
- The concern that NRC actions to help establish national regulations for an AIF may be viewed as counter to the policy underlying the Low-Level Radioactive Waste Policy Amendments Act of 1985, which focuses on disposal capacity, not storage. Further, NRC support of long-term storage (at least 100 years) may reduce incentive for compacts and unaffiliated States to develop additional disposal capacity.
- The likelihood that public confidence issues may arise based on where and how many AIFs are established. On one hand, an AIF may provide a more acceptable means for management of LLW with its design capabilities for later retrievability of waste for processing or disposal. However, an AIF may reduce incentive for compacts and States to develop permanent disposal capacity.
- The potential that some AIF concepts would permit some classes of LLW to be held in storage and then be subjected to processing, recycling or disposal at a future date. In such cases, the term of license, holding time and ability to retrieve need to be determined.
- The view that while State equivalents of 10 CFR Parts 30, 40, and 70 already provide sufficient authority to an Agreement State to license an AIF, issues related to long-term storage, adequate financial assurance, long-term custodians, and waste stability need to be addressed.
- The potential that certain AIF proposals relying on long-term storage may need a separate NRC license if the amount of special nuclear material exceeds the formula amount that an Agreement State can license under the Atomic Energy Act, NRC regulations and the State's Agreement with NRC.
- The need for an AIF regulation to address possible new requirements for security and protection of the AIF from sabotage and terrorist attacks after 9/11.
- NRC's authority over waste storage and management at a licensed reactor.

RECOMMENDATION:

The staff recommends that the attached letter be sent to Ohio.

COORDINATION:

The Office of the General Counsel (OGC) has reviewed this paper and has no legal objection. OGC is providing separately additional information to the Commission. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objection.

*/RA/*

William D. Travers  
Executive Director  
for Operations

Attachments:

1. February 20, 2002, letter from R. E. Owen
2. March 30, 2001, letter to R. A. Ratliff
3. Draft letter to R. E. Owen

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**\*See previous concurrence.**

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Manager of Technical Services  
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Dear Mr. Owen:

I am responding to your letter of February 20, 2002, in which you requested our views on the proposed Ohio regulations for licensing of an assured isolation facility.<sup>1</sup> I want to stress that the Commission's policy has been, and continues to be, that LLW should be disposed of safely in a permanent disposal facility as soon as possible after it is generated. Thus, the Commission strongly supports State and Compact efforts to develop new LLW disposal capacity in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA). The Commission is also aware that there are a variety of complex waste disposal issues, many of which are within the purview of the Atomic Energy Act, that continue to face the States and the Nation. In particular, there are many challenges, in the area of site decommissioning, that depend, for their safe resolution, on the availability of safe and economic means of managing LLW. The Commission is open to serious consideration of feasible and safe proposals and recognizes the need to assist the States in efforts that could include assured isolation facilities, which will help manage LLW. These facilities would permit relatively short-lived radioactive wastes to decay during isolation and then be recycled or disposed of at a future date, not to exceed a specified period of time. Although assured isolation is a LLW management tool, concerns about ultimate disposal must be reviewed, since storage for a period of 100 years raises additional complex issues, such as financial assurance, responsible parties and/or their successors, waste stability, and the LLRWPA requirement to establish additional permanent disposal capacity for LLW.

In the past, several States expressed interest in the assured isolation concept. The questions that will need to be considered include, in part, a common definition for assured isolation, and what financial assurance mechanisms would be required during the storage period and for ultimate disposal. As a separate matter, other issues need to be considered, such as how current State and U.S. Nuclear Regulatory Commission (NRC) regulatory limits on the possession of special nuclear material apply to an assured isolation facility, or how other program elements under review and development, such as stewardship and financial

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<sup>1</sup>Assured isolation is a low-level radioactive waste (LLW) management concept, and the associated facility is not permanent nor near-surface disposal, as defined in 10 CFR Part 61.

assurance, impact the final outcome of a proposed regulation for assured isolation. We had anticipated a need for rulemaking on assured isolation as an interim measure to manage LLW, until permanent disposal facilities are developed. We currently anticipate initiation of this effort in the fiscal year 2004-2005 time frame. We also recognize that the Commission, in the past, noted it would provide assistance to a State or other organization that developed requirements for an assured isolation facility.

In the next decade, permanent LLW disposal capacity may not be available and this would not be in the best interest of the public. Therefore, it is timely to consider your proposal, as it could be a helpful foundation which other Agreement States could use in their development of similar operable rules. We are providing the enclosed general comments as a technical consultation to you for your consideration. These comments are not all-encompassing and are provided for assistance, should you continue to develop regulations separately for assured isolation. Please note that should NRC proceed at a later date to develop assured isolation facility rules with extensive public and stakeholder involvement, that might require Ohio to amend its rule, to be compatible with NRC, depending on the compatibility category.

We would be pleased to discuss these issues and comments. Please contact me or Dr. Stephen Salomon of my staff at 301-415-3340.

Sincerely,

Paul H. Lohaus, Director  
Office of State and Tribal Programs

Enclosure:  
As stated

## GENERAL COMMENTS ON THE OHIO DRAFT RULES FOR ASSURED ISOLATION

These comments are not all-encompassing, and are provided for general assistance if Ohio develops regulations for assured isolation. It should be noted that the NRC has authority and jurisdiction over an Assured Isolation Facility (AIF) on a reactor site, at least until such time as the reactor is decommissioned and the reactor license is terminated. Thus, the comments that follow are directed to AIFs that are not on reactor sites.

### Draft Rule 3701:1-54-03 through 05; Assured Isolation Facility; Quality Assurance; and Radioactive Waste Processing

1. The definitions should be reviewed by other Federal agencies, to include the U.S. Environmental Protection Agency and the U.S. Department of Transportation. Some definitions should be revised [e.g., the definition for assured isolation should be limiting (not beyond 100 years) so as not to suggest this could be permanent disposal]. The 100-year provision in 1-54-03 (M)(3) is not direct enough to address this concern. Further, since the proposed regulation is intended to be specific to storage, the interim storage definition should not specifically include disposal. Consequently, the statement "... due to the absence of an accessible licensed disposal facility" should be revised or deleted from the interim storage definition. The definition of temporary storage states, "...for a reasonable time" and would be more useful if specific criteria were included to define what is considered reasonable. A definition for the term "institutional control," as it appears in Chapter 3701:1-54-03(K)(1), should be provided, relevant to assured isolation, and to distinguish use of the term as it is commonly applied to closed disposal sites.
2. In follow up to Comment 1, the definition for "waste management" includes disposal. Since, this definition provides interpretation for any other use of the term "management" as it applies to waste in these proposed requirements, clear distinction should be made that disposal is not included when the term "management" is used elsewhere, in the regulation, in reference to waste at an AIF. As a specific example, the definition of "assured isolation" states, "...means an integrated management system for isolating radioactive waste..." and can be interpreted as including disposal as part of the management system for this AIF waste.
3. Add clarification to (A) that the proposed regulations should be specific on when the 100-year period begins. The regulations should clearly state this is for an AIF, not for a permanent disposal facility.
4. Add (B) to (A)(2), since performance objectives should apply to all generators requiring an AIF license.
5. The regulation requires all generators to apply and operate an AIF if they will store waste longer than 5 years, in (A)(2). This could create thousands of AIFs with a significant potential for inadequate financial assurance and no incentive for disposal. Numerous bankruptcies may result. Consequently, this regulatory approach may not be consistent with the LLRWPA. Further, it is not clear how this would apply; as currently written, the regulation might be read to apply to both Ohio licensees and to NRC licensees at reactor sites. The regulation should be modified to make it clear that it applies only to Ohio licensees.

ENCLOSURE

6. Views of the Midwest Compact on the proposal should be sought to determine any legal restrictions on development of this rulemaking. Assured isolation is not permanent disposal and does not satisfy requirements of the LLRWPA. Consequently, any future National program definition and regulatory interpretation associated with assured isolation facilities may necessitate significant restructuring of existing State regulatory programs for State, commercial, and/or privately owned facilities.

7. It seems likely that these new regulations will be coordinated with State requirements for environmental impact review and assessment for both assured isolation and disposal facilities. We expect that there will be resulting changes to the proposed definitions and regulations. Specifically, submittal of environmental information for review is typically required for new licenses, renewals, certain amendments, decommissioning, and other significant safety or facility changes. Further, an environmental review would also assure that such timely issues as site surveillance and security are reviewed for increased public confidence, with regard to potential and/or perceived threats. Additionally, NRC's future decisions will likely address Federal requirements for implementing the National Environmental Policy Act (NEPA) and prevention of segmentation (i.e., the dividing of a single overall plan into separate segments without a significant environmental impact, for the purpose of evading NEPA requirements) for initial environmental reviews related to storage of waste (i.e., assured isolation) versus subsequent potential impacts resulting from disposal of the same waste.

8. Since the potential exists to exceed special nuclear material amounts that Ohio can license under the Atomic Energy Act, NRC regulations and its Agreement with NRC (August 31, 1999), the regulation should limit such material, by reference to the amounts authorized under Ohio authority, and then refer an applicant to 10 CFR. Other provisions on segregating classes of waste and controls should be more specific.

9. The provision for returning waste to the generator in Chapter 3701:1-54-03(L)(2) raises questions on who maintains ownership-level responsibility for the waste until the waste reaches a permanent disposal site -- and how a generator or its successors would ensure financial assurance for its disposal, up through the 100 years permitted for assured isolation. The financial assurance provisions in (L) are limited and should be more specific, including: (1) provisions for specifying a 3-year time period for review of the mechanisms and costs (3 years planned for the revised NRC financial assurance requirements that are scheduled to be published in June 2002); (2) provisions specifying that when an AIF cannot provide adequate assurance, then within 90 days, the original generator or generator's designee should retrieve the waste and provide for final disposal; and (3) the addition of backup financial assurance provisions to address the potential for orphan waste where, for example, the original generator of waste stored in the AIF files in bankruptcy or terminates its business before the end of the AIF storage term. Also revise Chapter 3701:1-54-05 (K).

10. Review of the provision for emergency response was limited to the wording provided in 3701: 1-54-01(C)(8). Depending on the AIF inventory, an emergency response plan may not be sufficient or may not be needed, since the plan requirements are detailed in the referenced Chapter 3701:1-40. Further, the requirements of the plan may not be sufficient if the requirements do not address radioactive material or packaging at the end of the typical life cycles. (E.g., will consequences be worse through 100 years?) These requirements should specifically address recoverability.

11. Security, as identified in Chapters 3701:1-54-03(E)(4) and 3701:1-54-03(F)(1), should not be limited to unauthorized access and removal, using the traditional interpretation of this terminology as it applies to radioactive materials storage.

12. The regulation needs to also address possible new requirements for security and protection of the AIF from sabotage and terrorist attacks after 9/11.

13. Chapter 3701:1-54-03(F)(2) states, "All radioactive waste ultimately subject to transportation must be stored in containers made for transportation." If waste is being stored until retrieved and relocated to a permanent disposal site, all the waste will be subject to transportation for disposal and may be stored in transportation containers. We question if this is the best storage mechanism. Further, at the end of the expected 100-year maximum storage period, transportation requirements and containers may be significantly different from current requirements.

14. The description for waste processing facilities provided in Chapter 3701:1-54-05(E) states, "The facility design, location, and site geology shall provide reasonable assurance that radioactive materials will remain isolated from the environment as intended." Specific design considerations are also listed. However, climate characteristics of an area should also be considered during design (e.g., tornadoes, ambient temperature ranges, and wearing/cracking from winter-ice formation). The same comment applies to the AIF design considerations specified in Chapter 3701:1-54-03(D). Other hazards should also be addressed (e.g., chemical and formation of explosive gases may need evaluation).

15. The regulation states robust engineering designs; however, it is not clear that they are incorporated into the regulation and more specification may be needed. In addition, it is not clear how the rulemaking will be implemented. There is a need for guidance on reviews of applications to ensure consistency of approach at different facilities, and to ensure consideration of a risk-informed approach.

16. Similarly, additional considerations of the above comments are needed for the Quality Assurance and Radioactive Waste Processing regulations.

17. Guidance documents that may accompany the proposed requirements were not available to include with our review. We recommend the development of specific guidance for the implementation of AIF related requirements that will address, for example, specific areas, expected practices, and acceptable criteria (e.g., acceptable leak detection systems; guidelines assuring that stored waste can be inspected; etc.).

