

**A SUMMARY OF PUBLIC COMMENTS ON  
APPROACHES TO DEVELOPING ALTERNATIVE DISPOSAL OPTIONS  
FOR LOW-ACTIVITY RADIOACTIVE WASTE**

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**ABSTRACT**

The Environmental Protection Agency (EPA) issued an Advance Notice of Proposed Rulemaking (ANPR) in November, 2003 (1) to request public comment on options to promote a more consistent framework for the disposal of waste with low concentrations of radionuclides (“low-activity” radioactive waste). EPA received more than 1,500 submittals during the public comment period, which ended May 17, 2004. EPA consulted extensively with the Nuclear Regulatory Commission (NRC) in developing the ANPR. Portions of the ANPR address potential regulatory mechanisms for NRC to allow alternative disposal of waste from its (or Agreement State) licensees.

**INTRODUCTION**

Radioactive waste in the United States has traditionally been regulated based on its statutory definition or origin, rather than its radiological properties, encouraging the misconception that some waste types are inherently “worse” than others. In fact, some wastes, inconsistently regulated, if regulated at all for their radiological properties, can sometimes present higher risks to the public than those more tightly regulated. In addition to inconsistent regulation and risk perception, the current system discourages efficient use of resources and has resulted in limited disposal options (seen most clearly by the lack of success in siting new regional compact disposal facilities for low-level waste).

The vast majority of radioactive waste contains relatively low concentrations of radionuclides, which suggests that it may be possible to manage the risks from these “low-activity” wastes by methods that may not incorporate all of the radiation-protection measures necessary to manage higher-activity wastes. EPA’s ANPR (1) suggests that a consistent risk-management framework can effectively be applied to the disposal of “low-activity” radioactive waste, regardless of its origin. It is important to understand that “low-activity” is at present only a concept. The ANPR discusses methods and considerations that could be applied to define “low-activity”. However, the benefits of identifying additional disposal options based on consistent consideration of risks could include:

- greater and more certain public health protection;
- more efficient use of resources in risk reduction;
- more efficient site cleanups; and
- more consistent disposal decision-making (as opposed to case by case decisions).

The disposal technology of particular interest is the hazardous waste landfill permitted under Subtitle C of the Resource Conservation and Recovery Act (RCRA). These landfills have detailed engineering and technology requirements, and are permitted to contain chemically hazardous waste that presents a risk to public health and the environment. This disposal technology has the potential to address several “low-activity” waste streams, as described below.

## **ELEMENTS OF THE ANPR**

EPA’s ANPR covered a broad range of issues associated with “low-activity” waste and included many questions for public comment. Among the topics discussed in greatest detail were:

- The soundness of the concept of using RCRA-C landfills for disposal of low concentrations of radioactive material, and the need for considering such options;
- The applicability of such an approach to a limited set of wastes or more broadly to address wastes such as mixed radioactive and hazardous waste, low-level radioactive waste, waste containing Technologically Enhanced Naturally Occurring Radioactive Material (TENORM), waste from uranium or thorium ore processing, waste containing “unimportant quantities” of source material, and waste exempted from regulation by NRC or Agreement States;
- The appropriate method(s) to define “low-activity” waste, including modeling scenarios to evaluate long-term site performance or worker exposures;
- The necessity of special provisions to address the long-term care of RCRA-C sites containing “low-activity” waste, such as site ownership or financial assurance;
- The appropriate regulatory approach for NRC to take that would allow its licensees to dispose of licensed material in a RCRA-C landfill, such as some form of licensing or exemption;
- The potential effectiveness of “non-regulatory” approaches, such as guidance, to improve the current system; and
- The need to place additional requirements or restrictions on the disposal facility and/or the waste generator to ensure the protectiveness of “low-activity” waste disposal.

More detail on these and other issues may be found in the ANPR (1, 2).

## **EPA’S ELECTRONIC DOCKET SYSTEM**

All public comments submitted in response to the ANPR are placed in an EPA docket designated specifically for this action. The docket represents the official public record, and also includes items such as background references and correspondence (e.g., correspondence with other agencies or members of Congress). EPA has created an electronic public docket system (edocket) to be used for all Agency actions. The edocket allows electronic access to members of the public through the World Wide Web and supports a searchable database that can be used to view, download, and print any comment submitted for an action. Users also have the ability to generate a docket index as an Adobe Acrobat Portable Document Format (PDF) file. The docket index contains a summary listing of all comments submitted for a particular action.

A user can review public comments submitted in response to the “low-activity” waste ANPR by doing the following:

1. Find the main EPA Edocket page at <http://www.epa.gov/edocket>;
2. Do a “Quick Search” on Docket ID OAR-2003-0095 (and select the link that appears);
3. For a particular comment, select the PDF icon if present (indicating that the comment was scanned into the system, rather than submitted directly through the edocket comment screen; otherwise, select the document ID link).

Each edocket page displays 30 entries. The user can navigate among the comments by moving ahead or back one page at a time, by selecting a specific page from the listing (e.g., page 10 will display docket items 271 through 300), or by doing a search on a particular document ID (full or partial). The printable docket index, generated through the “Print Docket” button, is a useful tool to identify commenters of particular interest. Note that some commenters are listed multiple times. This generally occurs because the commenter has submitted its comments in multiple formats to ensure receipt by the docket (e.g., electronically, by fax, and/or by mail). Thus, the same document may be listed under multiple document IDs. In other cases, a commenter may have submitted a cover letter with attached comments, which may appear in the docket as separate, but unique, documents.

### **WHO HAS COMMENTED?**

Roughly 90% of the approximately 1,500 comment submittals originated from private individuals, most of whom expressed concern over what they perceive as a weakening of control over and protection from radioactive material. The remaining commenters can be generally categorized as follows:

- 16 States, including multiple State agencies (e.g., EPA received comments from both the Washington Department of Ecology and the Washington Department of Health);
- 2 State organizations (the Association of State and Territorial Solid Waste Management Officials and the Conference of Radiation Control Program Directors), including input from some States that did not submit individual comments;
- 32 public interest groups (e.g., Sierra Club, Public Citizen, and Nuclear Information and Resource Service);
- 34 waste generators, representing a range of activities covering small mixed waste generators (e.g., National Institutes of Health), the nuclear power industry (e.g., Nuclear Energy Institute), TENORM generators (e.g., National Mining Association, American Petroleum Institute), and government agencies with significant cleanup responsibilities (e.g., Department of Energy, U.S. Army Corps of Engineers);
- 13 waste managers, including both treatment (e.g., Perma-Fix) and disposal (e.g., Waste Management, American Ecology);
- 12 local/political entities, such as municipalities or state elected officials;
- 1 tribe (Confederated Umatilla);
- 2 low-level waste compacts (Southeast and Southwestern);
- 3 labor organizations (e.g., AFL-CIO, AFSCME); and
- 57 “Expert Public.”

The “expert public” category includes commenters identified as having particular experience or expertise in some aspect of the ANPR approach, but who did not fall into any of the other categories. This should not be interpreted to suggest that other public comments are not “expert”. Rather, these broad groupings were found to be useful as the comments received were reviewed and common themes began to emerge. Specifically, the “expert public” consists of:

- Organizations of radiation professionals (e.g., Health Physics Society);
- Consultants specializing in radiation issues;
- Metal recyclers (neither generators nor disposers, but with a clear interest in how radioactive waste is managed);
- Individuals commenting as private citizens, but identifiable as members of larger organizations involved in radiation protection or waste management issues (e.g., Federal/State agencies and industry trade groups); and
- Individuals identifying themselves as possessing specialized knowledge or experience (e.g., training in geology, health physics, or radiation science, or experience working at landfills or with radioactive material).

## OVERARCHING MESSAGES

Bearing in mind that the comments received expressed a range of opinions on most issues, not only among the different groups described above, but also within each group, certain messages seemed to have particularly broad support or were expressed in clear and articulate language. The messages outlined below highlight several issues affecting EPA’s path forward in crafting an approach to “low-activity” waste disposal. Subsequent sections of this paper focus on the responses from different commenter categories to the questions posed in the ANPR.

**Conceptual Messages:** many commenters addressed EPA’s discussion of the underlying problems with the existing system as a driver for the actions outlined in the ANPR. Broad messages from these comments included:

- **Mixed Waste Disposal is Still a Problem for Waste Generators:** A number of generators agreed with EPA’s description of the issues surrounding mixed waste management, including the cost, limited options, and dual regulation. One generator stated that it has curtailed certain types of research that generate hard-to-manage wastes. These problems persist despite the progress in minimizing mixed waste generation over the past decade or so. Commenters indicated that the mixed waste rule issued by EPA in May 2001 (40 CFR part 266, subpart N), which provided a conditional exemption from the hazardous waste requirements, has provided some relief for decay in storage (particularly effective for short-lived radionuclides, after sufficient decay the waste could then potentially be managed as hazardous waste alone). Some commenters urged EPA to invest resources and work with more States to adopt that rule.
- **Managing Radioactive Waste Based on Risk, Rather than Source or Statutory Definition, is Appropriate and Sensible:** Many commenters agreed that the current system leads to inconsistencies in regulation and could be made more efficient and effective by managing waste according to its hazard, rather than its source or definition.

- **More Specifics are Needed to Fully Evaluate the Concept:** Some commenters found the discussion of “low-activity” waste vague and stated that a more specific definition would be necessary before they could respond to the questions. It was clear from the responses that some commenters misinterpreted the purpose of the ANPR, believing it to be a formal regulatory proposal, rather than a broad request for comment on concepts and possible ways to implement them.

**Implementation Messages:** another area prompting strong comment was the implementation of the described approach, including both the underlying technical analyses and the regulatory requirements. Messages expressed on these topics included:

- **Performance Analysis is Appropriate to Evaluate Capabilities of RCRA-C Landfills:** The approach outlined by EPA would apply the types of performance modeling typically used for radioactive waste to hazardous waste landfills, which have prescribed engineering and design standards.
- **The Effort Should be Limited to Hazardous Waste Landfills:** Most commenters did not support EPA establishing standards for disposal of “low-activity” waste in non-hazardous solid waste landfills (RCRA-D). Many members of the general public strongly opposed the use of both hazardous and solid waste landfills as not sufficiently protective for radioactive material. Others, while recognizing that the current EPA standards for municipal solid waste landfills are very similar to those for hazardous waste landfills, pointed out that there are many older landfills still operating that were not constructed to the current standards.
- **Regulation Would be the Appropriate Way to Implement This Approach:** Although they recognize the potential usefulness of “non-regulatory” approaches such as guidance, States overwhelmingly supported a “regulatory” pathway to establish disposal options for “low-activity” waste. This support was generally found throughout the comments, although it was clear that many members of the public misunderstood “non-regulatory” as synonymous with “deregulatory”, interpreting the term to suggest removing all regulations now applicable to radioactive waste management.

**Acceptability Messages:** many commenters expressed opinions regarding aspects of the outlined approach that might affect stakeholder support, including:

- **Public Acceptance Will be a Key Factor:** Comments from the general public were overwhelmingly negative toward anything perceived as a lessening of control or “deregulation” of radioactive material. However, other commenters also recognized that actions to address radioactive waste have historically been controversial, and urged EPA to make special efforts to increase public awareness and understanding of this approach. Some States and disposal operators indicated that the level of public acceptance would be considered in determining whether to pursue such an approach.
- **Current Practices Should Not be Cast in a Negative Light by a Broader Approach:** Some commenters pointed out that case-by-case evaluation procedures have been used to allow alternative disposal, and that a few States have permitted RCRA-C landfills to accept certain types of radioactive waste. They expressed concern that disposal standards created under a broad national approach would be driven toward an overly conservative

“worst case” scenario, which could lead some observers to interpret site-specific disposals as less protective, when in fact they may be appropriate to the site in question.

- **Department of Energy (DOE) Activities Generate Strong Feelings:** A number of commenters strongly opposed allowing DOE to take advantage of the type of approach to disposal options outlined in the ANPR. These commenters, including some States and much of the public, argued that DOE should focus on disposal at its own sites to ensure that it builds robust institutional control programs, that it has abused discretion in the past and evaded responsibility for managing its wastes, and that its waste presents characterization difficulties and is considerably different from waste generated in the commercial sector. Other commenters were more willing to see DOE waste addressed, but expressed concern that the much larger waste volumes would overwhelm disposal capacity.

## STATE COMMENTS

Although their level of support for the RCRA-C disposal approach varied, States generally 1) supported the idea that radioactive waste should be managed according to its hazard, and 2) agreed that RCRA-C landfills can safely manage low concentrations of radionuclides under certain conditions. However, they also expressed a number of concerns that EPA must address to establish this approach as viable, including:

- **Justification and Need for a Rulemaking:** A few States said that the ANPR had not established that a broad approach to “low-activity” waste disposal is needed. They suggested that the current system, while it can be improved, is able to address the wastes that are generated. Other States pointed to areas where they believed EPA’s approach held promise for improvement, such as managing TENORM and cleanup wastes.
- **Level of State Control and Flexibility in Implementation:** States generally believed that they should determine whether and how a disposal approach should be implemented. This would include authority to modify a disposal facility’s permit as necessary, to impose additional conditions or restrictions for disposal, and to prohibit waste from certain sources from entering the State.
- **Resources Available to States for Implementation:** States have limited resources for personnel, training, and inspection, and fear the additional demands if additional facilities are able to accept “low-activity” waste. This demand would likely be worsened if solid waste (RCRA-D) landfills were allowed to accept such waste, because they are much more numerous than hazardous waste (RCRA-C) landfills.
- **Long-Term Site Care:** States are concerned that “low-activity” waste sites have sufficient institutional control and financial assurance to ensure that any remediation needs are identified and met. One State described situations in which the site owner had created “shell” corporations with no assets to take title to the site, leaving cleanup to be publicly financed. Another State suggested that EPA take the opportunity to explore revising the RCRA post-closure requirements, citing concerns that the 30-year minimum period is insufficient for hazardous waste alone.

## **WASTE GENERATOR COMMENTS**

Waste generators strongly supported an approach that would make available additional disposal options for “low-activity” waste. As noted above, many generators agreed with EPA’s description of the situation for managing mixed waste. There is only one commercially available disposal facility for mixed waste and three for low-level waste. Access to the U.S. Ecology site in Richland, Washington, is generally restricted to generators in the 11 States in the Northwest and Rocky Mountain compacts. Access to the Barnwell, South Carolina site will be restricted to generators in the three States in the Atlantic compact (Connecticut, New Jersey, and South Carolina) beginning in 2008, and the capacity available to other generators until that time is restricted by the State. The Envirocare site in Utah is the only commercial disposal facility able to accept mixed waste and can be used for that purpose by generators in all States. As of 2008, however, Envirocare will also be the only licensed facility available to low-level waste generators in most States.

Only one segment of the generator community expressed misgivings about the approach outlined in the ANPR. Some generators of TENORM waste, particularly those in the oil and gas and mining sectors, expressed concern that the suggested approach of using RCRA-C landfills might place additional restrictions on them. Oil and gas generators were particularly concerned that disposal in RCRA-C landfills would also mean regulation of their wastes under RCRA. While certain refinery wastes are regulated as hazardous, wastes from exploration and production are generally excluded from the hazardous waste requirements. Those wastes are primarily subject to State solid waste regulations. EPA did not intend to imply that they would be drawn into the Federal hazardous waste system.

The mining sector, on the other hand, expressed concern that an approach that set standards for disposal in RCRA-C landfills might foreclose other disposal options. In particular, these generators supported the wider use of uranium mill tailings facilities for “low-activity” wastes. They suggest that mill tailings facilities are preferable to RCRA-C landfills because they are constructed to similar standards, are already licensed by NRC, must demonstrate performance for 1,000 years, and have a committed long-term steward (DOE). NRC policy allows direct disposal of certain “non-tailings” material if it is physically and chemically similar to tailings. The National Mining Association and Fuel Cycle Facility Forum have prepared a white paper encouraging NRC to broaden its policy to allow a wider range of materials to be disposed of at these sites. Although EPA focused on the use of RCRA-C landfills for “low-activity” waste, the approach outlined in the ANPR would not prohibit the wider use of mill tailings facilities, if deemed appropriate by the authorities responsible for regulating those facilities (primarily NRC, but also including DOE as the potential long-term steward).

## **GENERAL PUBLIC/INTEREST GROUP COMMENTS**

As noted above, the majority of comments from the general public and interest groups opposed the approach described in the ANPR. Most comments from the general public were short statements expressing opposition to “deregulation” of radioactive material and focused on the potential use of solid waste landfills (“ordinary” landfills), although many also cited hazardous waste landfills as insufficiently protective. There were relatively few instances of identical

“canned” letters submitted in significant numbers, although it was clear that many commenters took material from websites or other publications of interest groups. As an example, commenters frequently objected to the potential for radioactive material to be sent to “unlicensed” landfills, without acknowledging that the ANPR discussed licensing as one way to implement the approach or indicating whether that might alleviate their concerns.

Also, as stated earlier, there were a number of areas in which commenters interpreted the intent of the ANPR in ways not anticipated by EPA. For example, many reviewers believed EPA’s discussion of “non-regulatory” approaches implied that existing regulations would be removed completely, and that the Agency would rely only on guidance or other unenforceable mechanisms to ensure safe disposal. Further, similar to comments that asked for more definition of “low-activity” waste, it was clear from many comments that reviewers among the general public did not make distinctions between the types of “low-activity” waste under consideration and radioactive wastes presenting a greater hazard, such as spent nuclear fuel. Among the other sentiments prominently featured in public comments were:

- **“Reclassifying” Waste Does Not Reduce the Risk:** Many commenters took EPA’s discussion of defining “low-activity” waste from various sources through a common risk perspective to mean that there would be a threshold at which material could be declared “not radioactive” or at which radiation would be deemed to carry no risk. They point out, correctly, that national and international regulatory policies assume that any radiation exposure carries some risk (the “linear no-threshold” approach). However, EPA’s approach would make distinctions only based on relative risk, while keeping absolute risks within EPA’s established risk management framework. It would identify levels of radioactive material at which those risks could be effectively managed by other methods of disposal, such as RCRA-C landfills. Further, EPA would not “reclassify” waste in the sense that waste would continue to fall into existing statutory definitional categories (such as low-level waste).
- **Reducing Costs for the Nuclear Industry is the Only Possible Motive for EPA’s Action:** Commenters suggest that proper waste management is, or should be, an accepted cost of doing business. They also note that fully-licensed disposal facilities exist for the wastes under discussion, even if they are few in number. Therefore, they conclude that actions that would allow waste generators to dispose of their waste in ways that are less costly but present added risks to the public are contrary to EPA’s mission to protect public health and the environment. However, EPA is concerned that there are impacts to public health and the environment, in terms of continued on-site storage, long transportation routes to existing facilities, and deferred or incomplete site cleanups, which could be lessened by policies leading to additional protective disposal options.
- **“Permanent Disposal” Does Not Exist:** Many commenters pointed to the history of low-level waste disposal, and the failure of earlier sites, as evidence that such facilities are unable to safely contain radionuclides, and suggested that both RCRA-C and D landfills are also prone to leakage. They also argued that the fact that RCRA facilities “were not designed for” radioactive material further demonstrates that they would be unable to contain radionuclides, and cited the potential for construction on closed landfills as an additional danger. As described in the ANPR, EPA would assess the protectiveness of RCRA landfills using the same methods commonly applied to judging



the suitability of radioactive waste disposal facilities. In addition, there is experience of RCRA-C landfills accepting certain kinds of radioactive material that may be useful in assessing the wider use of those facilities.

- **Modeling Cannot Adequately Project Risks:** Related to the previous point, commenters questioned the reliability of performance assessment or other modeling methods to project exposures for future time periods. They point out that EPA has no way to judge whether its projections will be accurate, which makes actions based on those projections unjustified. However, modeling is the standard approach to assess public health risks from long-lived contaminants. EPA uses such modeling to determine which substances need to be regulated as hazardous, and the approach outlined in the ANPR involves performance assessment techniques routinely applied to radioactive waste disposal.
- **EPA's Radiation Risk Estimates Are Too Low:** Several commenters cited the 2003 report of the European Commission on Radiation Risk (ECRR) to support the idea that ionizing radiation at low dose rates is far more harmful than current EPA estimates acknowledge. These commenters suggest that EPA's cancer risk estimates might be off (i.e., too low) by a factor of 100 to 1,000. A more recent report by the UK Committee Examining Radiation Risks of Internal Emitters (CERRIE) concluded that risk estimates from internal radiation (i.e., alpha-emitting radionuclides) may be underestimated by as much as a factor of 10, but rejected the higher estimates of the ECRR. (The CERRIE report was issued after the public comment period for the ANPR closed.) EPA notes that the National Academies is currently conducting one of its periodic studies on the Biological Effects of Ionizing Radiation (BEIR), which may also influence future risk correlations.
- **Other Related Topics:** A significant number of commenters touched on issues outside the scope of the ANPR, but related to other government actions. These included protests against allowing radioactive material to be sent to incinerators or recycled into consumer products, as well as comments urging EPA not to modify the regulations for transportation of radioactive material. It appears that many of these comments were prompted by public interest groups, which sought to tie together actions by various government entities as a coordinated effort to relax the restrictions on radioactive material. These actions included NRC and DOE efforts to establish standards for free or restricted release of radioactive material and Department of Transportation (DOT) efforts to revise its regulations to harmonize with international standards, which included radionuclide-specific thresholds at which shipments must be labeled as radioactive material (raising concerns about increasing "unregulated shipments").

## RCRA-C DISPOSAL FACILITY COMMENTS

There are roughly 20 commercial RCRA-C landfills operating in the U.S. today, with more than half operated by only three companies (Waste Management, American Ecology, and Clean Harbors). Comments from this stakeholder group indicate that they have little doubt that the RCRA-C technology and operating requirements provide a foundation for the safe management of "low-activity" waste, and a number of these facilities are accepting such wastes regularly in the form of TENORM, cleanup wastes, "unimportant quantities" of source material, or other

NRC-exempted material. Further, their comments suggest that they believe the post-closure care issues can be addressed.

However, these facilities do express several concerns. First, they anticipate a negative and vocal reaction from some segments of the public. For this reason, they seem unlikely to actively campaign for approval to accept “low-activity” waste, but would rely on EPA, NRC, and States to conclude that such disposal is appropriate and defend that conclusion to the public.

Second, some facilities have concerns that a broader national approach might cause the public to view their site-specific practices as less protective. In a number of cases, State regulators have determined that RCRA-C landfills can safely accept for disposal certain types of radioactive material, including those discussed in EPA’s ANPR. Rather than improving the situation, these facilities believe that, if EPA’s analysis of “low-activity” waste suggested that their practices are not protective, it could actually eliminate viable disposal solutions.

Finally, the level of NRC regulation or additional oversight could be a determining factor for some disposal facilities. The ANPR discussed several regulatory approaches that NRC could use to allow its licensees to dispose of material at RCRA-C landfills, ranging from exemption to licensing of the disposal facility. The ANPR also considered various ways in which a facility might have to modify its operations to accommodate radioactive material, such as ground water monitoring or worker protection programs. From the disposal facility perspective, the prospect of accepting “low-activity” waste would be more attractive if changes to existing practices are minimal, particularly given the economic uncertainties. The resources applied in the areas of worker protection and post-closure care would be most likely to be affected by the level of NRC oversight. However, the economic attractiveness of “low-activity” waste disposal may be affected by measures to ensure that worker exposures are kept well below “radiation worker” levels or to limit radionuclide inventories at the time of facility closure. On the latter point, there is some evidence that State regulators anticipate extending the post-closure care periods for their existing RCRA-C landfills, which may reduce the perceived disparities between requirements for hazardous waste and radioactive waste disposal facilities. A few States did suggest that changes for “low-activity” waste disposal might have to be more extensive, possibly including application for specific materials licenses from NRC or the Agreement State. In addition, as noted above, many comments from the general public focused on the unacceptability of using “unlicensed” disposal facilities as a destination for “low-activity” waste.

## **LOW-LEVEL WASTE COMPACT COMMENTS**

Comments received from regional low-level waste compacts were relatively narrow in scope, primarily focusing on the jurisdiction of the compacts and the potential effects of a broader approach to disposal of “low-activity” waste on the viability of compact sites. Neither of the compacts that commented has a regional facility; however, a number of States submitted comments that supported the compact position and cited concerns regarding specific compact facilities. These States suggested that allowing some portion of Class A low-level waste to go to other disposal locations would have a detrimental effect on the U.S. Ecology site in Richland, Washington, or interfere with the new facility licensing process now underway in Texas. Other

States disagreed, stating that the compacts have sufficient authority to require wastes within their jurisdiction to be sent to regional compact facilities for disposal.

### **WHAT TYPE OF REGULATION?**

Determining the appropriate roles among EPA, NRC, and the States will be critical to successfully implementing a broad approach to “low-activity” waste disposal. As discussed earlier, States emphasized the need to have both flexibility and control in implementing such an approach. Most States believed that the disposal facility’s RCRA permit would require modification, although the level of modification remains open to question.

There were significantly different opinions on the necessary and appropriate level of NRC regulation. Aside from the public’s general concern about “unlicensed” disposal, most commenters suggested that, as the primary regulators of RCRA facilities, EPA should take the lead role and NRC should “defer” to EPA. Some commenters proposed a Memorandum of Understanding (MOU) between the two agencies on the issues of inspection and enforcement.

Other commenters strongly disagreed, recommending that NRC take the lead in all aspects of regulation and implementation. They suggest that RCRA disposal facilities should apply for specific materials licenses and implement worker protection programs and other radiation protection measures required of NRC or Agreement State licensees.

### **CONCLUSION**

EPA received significant public comment on the ANPR from a wide variety of stakeholders. Many commenters attempted to address each question presented, while others focused on a few specific questions or addressed the underlying concepts more broadly. There was less response to requests for information on waste volumes and characteristics to judge the potential impacts of the suggested approach, although some commenters have offered to provide such information.

EPA is continuing to evaluate the comments to help determine its future course. While there are many details needing further consideration, several areas stand out as being fundamental to the broad approach outlined in the ANPR:

1. **Further Develop the Basis a New Approach to “Low-Activity” Waste:** Further work must be done to determine the scope of the impacts resulting from the current disposal framework, and the extent to which the suggested ANPR approach or other approaches can address those impacts. Such work will be crucial to clarifying the scope of the approach (e.g., which waste types to address) and narrowing the possibilities outlined in the ANPR.
2. **Improve Transparency of Process/Information for Stakeholders:** Given the potential for public acceptance to be a deciding factor for States and RCRA disposal facilities to choose “low-activity” waste disposal, additional effort must be expended to refine and clarify the concepts in the ANPR to be responsive to public concerns. Such efforts could include stakeholder meetings as well as availability of technical documents and other public information materials (e.g., fact sheets).

3. **Better Define the Scope of Implementation Activities for Disposal Options:** How a particular approach is implemented will primarily affect State and disposal facility attitudes toward participating in “low-activity” waste disposal. Further, these two critical stakeholder groups may have competing views on the appropriate implementation framework. As discussed above, areas where perspectives may differ could include the level of permit modification or licensing required, the operational changes required for the facility, and the roles of NRC and EPA.

At this time, EPA does not have a schedule for issuing a regulatory proposal or other follow-up to the ANPR. Progress on this effort could be affected by internal resource demands and priorities or by developments in the radioactive waste disposal situation. Those interested in tracking EPA’s activities in this area can find more information at <http://www.epa.gov/radiation/larw>.

## REFERENCES

1. U.S. Environmental Protection Agency, “Approaches to an Integrated Framework for Management and Disposal of Low-Activity Radioactive Waste: Request for Comment,” Federal Register, Vol. 68, pp. 65120-65151, November 18, 2003.
2. Schultheisz, D.J., et. al., “Approaches to Developing Alternative Disposal Options for Low-Activity Radioactive Waste,” WM'04 Conference, Tucson, Arizona, paper number 4399 (2004).