

# **POLICY ISSUE NOTATION VOTE**

July 5, 2006

SECY-06-0143

FOR: The Commissioners

FROM: Luis A. Reyes  
Executive Director for Operations

SUBJECT: STAKEHOLDER COMMENTS AND PATH FORWARD ON  
DECOMMISSIONING GUIDANCE TO ADDRESS LICENSE  
TERMINATION RULE ANALYSIS ISSUES

PURPOSE:

To request Commission approval of staff recommendations for finalizing draft decommissioning guidance, which addresses the License Termination Rule (LTR) Analysis issues, and to provide the results of stakeholder comments on the draft guidance, as directed by the Commission in the November 17, 2003, Staff Requirements Memorandum (SRM) on SECY-03-0069 ("Results of the License Termination Rule Analysis," May 2, 2003).

SUMMARY:

This paper provides a discussion of the stakeholder comments on draft decommissioning guidance, which addresses the LTR Analysis issues, and the staff's plans for addressing these comments and finalizing decommissioning guidance. The staff's plans include two policy-level changes, as a result of these comments, and this paper requests Commission approval to:

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(1) finalize guidance on onsite disposal of radioactive material under 10 CFR 20.2002 to state that disposals that result in doses no greater than a few millirem per year are generally acceptable to staff and that other dose criteria will be evaluated based on specific conditions; and (2) finalize guidance on restricted use and institutional controls to clarify that, when a long-term control (LTC) license is used to provide the institutional control for restricting future site use, the policy is to change an operating license to an LTC license by amendment, in lieu of terminating the operating license and issuing an LTC license.

#### BACKGROUND:

In 2003 and 2004, the staff provided the Commission with the results of the staff's analysis of issues associated with implementing the Nuclear Regulatory Commission's (NRC's) LTR in 10 CFR Part 20, Subpart E, and recommended options to resolve these issues (in SECY-03-0069; and in followup SECY-04-0035, "Results of the License Termination Rule Analysis of the Use of Intentional Mixing of Contaminated Soil," March 1, 2004). In the November 17, 2003, SRM, the Commission approved the staff's recommendations in SECY-03-0069, including revising existing decommissioning guidance to address the issues identified in the LTR Analysis. The SRM directed the staff to gather comments from stakeholders on the recommended actions on restricted use and institutional controls and share the results with the Commission before issuing final guidance. In the May 11, 2004, SRM on SECY-04-0035, the Commission approved the staff's recommendation to include guidance on intentional mixing of contaminated soil in the decommissioning guidance.

As part of this guidance development, the staff issued Regulatory Issue Summary 2004-08, "Results of License Termination Rule Analysis," on May 28, 2004, to inform stakeholders of the LTR Analysis, the Commission direction on how the LTR Analysis issues can be addressed, the schedule of future actions, and the opportunities for stakeholder comment. In April 2005, the staff discussed and obtained stakeholder input on the LTR Analysis issues at the staff's Decommissioning Workshop. The staff met with NRC's Advisory Committee on Nuclear Waste (ACNW) in June 2005, to obtain early input from an ACNW working group on the issues. The staff also established a State working group, consisting of Agreement and non-Agreement State representatives and NRC staff, to assist with development of the draft guidance.

Draft guidance was published for public comment in September 2005 in NUREG-1757, Draft Supplement 1, "Consolidated NMSS Decommissioning Guidance: Updates to Implement the License Termination Rule Analysis." Draft Supplement 1 included guidance on the following LTR Analysis issues: (1) restricted use and institutional controls; (2) onsite disposal of radioactive materials under 10 CFR 20.2002; (3) realistic scenarios; (4) intentional mixing of contaminated soil; and (5) removal of material after license termination. Draft Supplement 1 also provided new and revised guidance on other issues. One issue of note is the topic of engineered barriers, which was not explored in the LTR Analysis nor in the associated SRM. However, as the topic is related to restricted use and institutional controls, the staff supplemented the existing guidance on engineered barriers to describe a risk-informed graded approach to evaluation of engineered barriers, in accordance with the Commission's direction to further risk-inform the program and provide more flexibility.

The staff received 12 comment letters from various stakeholders: two licensees; four States; four public interest groups; one solid waste industry association; and one private citizen. A list of the stakeholder comment letters and the associated references in the Agencywide Documents Access and Management System is provided in Enclosure 1. On March 22, 2006, the staff briefed the ACNW on the stakeholder comments and the staff's considerations for addressing the comments and finalizing the guidance and obtained input from the ACNW and its consultants. In a June 9, 2006, letter (Enclosure 2), the ACNW provided observations and recommendations on the staff's plans to finalize the guidance.

#### DISCUSSION:

Based on its evaluation of the stakeholder comments, the staff plans numerous revisions to finalize the guidance in Draft Supplement 1. The staff considers two of these planned revisions to be policy issues warranting Commission approval. First, the staff recommends one change to guidance on dose criteria for approving onsite disposals under 10 CFR 20.2002. Second, the staff recommends revising the guidance on institutional controls to clarify the policy of amending an operating license to an LTC license for restricted use decommissioning. These two recommended changes are discussed below.

The staff also is providing the Commission with a summary of the results of stakeholder comments on the other guidance in Draft Supplement 1. The more significant comments and the staff's plans to revise the guidance are described in enclosures to this paper. The planned revisions described in the enclosures do not change previously approved options in the LTR Analysis. Though some of the less significant stakeholder comments are not addressed in these enclosures, the staff will consider all comments in finalizing the guidance and will develop responses to all comments. In response to the SRM on SECY-03-0069, Enclosure 3 addresses the significant stakeholder comments on the issue of restricted use and institutional controls. Enclosures 4–6 address the other LTR Analysis issues of (a) realistic scenarios; (b) intentional mixing of contaminated soil; and (c) removal of material after license termination, respectively.

#### Onsite Disposal under 10 CFR 20.2002

SECY-03-0069 (in its Attachment 4) discussed the issue of onsite disposal, under 10 CFR 20.2002. The regulation does not establish a clear standard for approving onsite disposals, but allows Agency discretion to approve such disposals, on a case-by-case basis, as long as the disposal results in doses that are maintained as low as is reasonably achievable (ALARA) and within the limits of 10 CFR Part 20. Part 20 includes the public dose limit of 1 millisievert per year (mSv/yr) [100 millirem per year (mrem/yr)] and the LTR criteria for license termination for unrestricted use [dose constraint of 0.25 mSv/yr (25 mrem/yr) and ALARA]. As all of the radioactive material disposed onsite would be accounted for under the LTR at the time of license termination, an onsite disposal resulting in higher doses [up to 1 mSv/yr (100 mrem/yr)] would need to be remediated for a site to meet the radiological criteria for unrestricted use in the LTR. Furthermore, as the Timeliness Rule in 10 CFR 30.36, 40.42, 70.38, and 72.54 also applies to onsite disposals, materials licensees may have to remediate the approved onsite disposals before license termination.

The Commission approved three dose criteria options for onsite disposals, per SECY-03-0069 and the associated SRM. SECY-03-0069 recommended continuing the current practice of approving onsite disposals with a dose criterion of a “few millirem” per year (Option 1), which is consistent with the staff’s goal of preventing future legacy sites. SECY-03-0069 also recommended approving onsite disposals using a dose criterion of 1 mSv/yr (100 mrem/yr), provided additional financial assurance was available to remediate the burial to the LTR criteria at the time of license termination (Option 2). The SRM on SECY-03-0069 approved the above options and directed the staff to also allow mainly short-lived material, which will significantly decay in a few years, to be disposed onsite with a maximum dose of 0.25 mSv/yr (25 mrem/yr) without requiring additional financial assurance, if the likelihood of creating a legacy site is low (Option 3). The staff included all three options in Draft Supplement 1.

The staff received stakeholder comments from four State agencies and two public interest groups. Comments were generally opposed to the draft guidance on onsite disposal. One State commenter was opposed to all onsite disposals and believed that onsite disposals are inconsistent with the objective of preventing future legacy sites. That commenter also believed that the issue of onsite disposal should be addressed through rulemaking, rather than through issuing guidance. One commenter observed that financial assurance seems to be the principal focus to prevent legacy sites and suggested that having adequate financial assurance alone may not prevent future legacy sites. Another State was opposed to Option 2, because that option would allow for the burial of material that will require remediation in the future.

The staff has reevaluated the guidance for dose criteria for onsite disposals, in its consideration and review of stakeholder comments on Draft Supplement 1. The staff has focused on whether options other than the current practice (a few millirem per year) are appropriate to provide in the final guidance.

The first staff consideration is whether onsite disposals at doses greater than a few millirem per year are needed or desired by licensees. In Draft Supplement 1, the staff specifically requested comment on whether licensees desire or have a need for onsite disposals at higher dose criteria [i.e., up to 1.0 mSv/yr (100 mrem/yr)]. No stakeholder comments were received on this request, so the staff reviewed recent requests for onsite disposal under 10 CFR 20.2002. Since 2000, only four requests have been submitted for onsite disposal under 10 CFR 20.2002, and these are summarized in Enclosure 7. In these requests, licensees calculated potential doses that are generally within a few millirem per year. Based on the review of these recent requests, the staff expects requests for onsite disposals resulting in doses greater than a few millirem per year to occur infrequently.

The second staff consideration is whether dose criteria greater than a few millirem per year are reasonable to provide in the final guidance for onsite disposal. The decommissioning guidance in NUREG-1757 is generally written as a standard review plan, which provides approaches that are generally acceptable to NRC staff. Licensees are not required to follow the approaches provided, and approaches other than those presented in the guidance would be considered by the staff to evaluate compliance with NRC regulations. Regarding reasonableness of criteria greater than a few millirem per year, there are two issues of concern to the staff: (1) the potential for future legacy sites (including the inability to achieve unrestricted use) and uncertainty about sufficient financial assurance; and (2) potential conflicts with requirements of the LTR and the Timeliness Rule.

Onsite disposals resulting in doses greater than a few millirem per year have associated uncertainties, which provide the potential for creating a future legacy site. For example, the amount of additional financial assurance for Option 2 might be underestimated because of uncertainties associated with the burial performance and potential releases of contamination, transport of contamination in the subsurface environment, cleanup costs of subsurface contamination, and future disposal costs. An uncertainty associated with Option 3 is the timing of decommissioning and license termination, where an earlier than expected decommissioning could result in insufficient time for decay of the short-lived materials before license termination. Given these uncertainties, the staff supports a more cautious use of these options on a site-specific basis, rather than encouraging routine use of these two options.

As previously noted, the Timeliness Rule applies to onsite disposals at materials facilities. The Timeliness Rule requires that if a separate disposal area is inactive for two years and the material is such that the dose criteria of the LTR would be exceeded, then licensees must begin decommissioning the area or request an extension of the decommissioning timeframe if this extension is not detrimental to the public health and safety and is otherwise in the public interest. The intent of the Timeliness Rule was, in part, to avoid future problems resulting from delayed cleanup of contaminated inactive facilities (59 *Federal Register* 36026, July 15, 1994). If onsite disposals that result in doses greater than the unrestricted use criterion of the LTR are approved, then, under the timeliness requirements, licensees may need to clean up the disposal before license termination. The staff believes that approval of onsite disposals at doses greater than the LTR's unrestricted use criterion is in conflict with the intent of the Timeliness Rule and LTR. In addition, because an entire site, including onsite disposals, must eventually meet the LTR criteria, the staff believes it would be sound to generally constrain doses from routine onsite disposals to a few millirem per year, to account for multiple sources of residual radioactivity at sites. The staff also notes that this approach would be consistent with the staff's current practice for offsite disposals of solid materials under 10 CFR 20.2002, where requests resulting in doses no greater than a few millirem per year are generally acceptable.

Based on the above considerations in reviewing stakeholder comments, the staff recommends finalizing decommissioning guidance to include only Option 1 (onsite disposals resulting in doses no greater than a few millirem per year) as the approach which is generally acceptable to NRC staff. The guidance would also state that staff would approve requests to use other dose criteria based on the goal of preventing future legacy sites. The staff's review of these requests to use other dose criteria would be based on the following considerations: (a) time of potential dose impacts, based on half-lives of the material and the time until license termination; (b) mobility of the radioactive material to be disposed; (c) additional financial assurance that the licensee may provide to ensure necessary cleanup can be completed for license termination; and (d) other aspects that ensure that the facility will not become a future legacy site. The staff also plans to revise the guidance to emphasize that licensees should evaluate doses to workers and to the public exposed to the current condition of the site (at time of the disposal), as well as potential doses to critical groups of people exposed after the license is terminated.

The staff is currently developing a rule and associated guidance to prevent future legacy sites, as directed in the SRM to SECY-03-0069. As onsite disposals can have the potential to create future legacy sites, the rulemaking will consider the issue of onsite disposal, and this will be completed within existing budget and resource constraints. The staff notes that the outcome of the rulemaking could change the guidance for onsite disposal.

In addition to finalizing the guidance in NUREG-1757, guidance on onsite disposal will be included in appropriate volumes of the operational guidance for materials sites in NUREG-1556, "Consolidated Guidance About Materials Licenses." In SECY-06-0056 ("Improving Transparency in the 10 CFR 20.2002 Process," March 9, 2006), the staff informed the Commission that the staff intends to formalize and document a procedure for reviewing 10 CFR 20.2002 requests. The staff intends to include the revised guidance on onsite disposal in this procedure as well. The staff plans to accomplish both of these activities within existing budget and resource constraints, making changes as part of periodic updates of NUREG-1556 and as part of the planned formalization and documentation of the 10 CFR 20.2002 procedure.

#### Restricted Use and Institutional Controls

The guidance in Draft Supplement 1 describes new institutional control options that include NRC long-term oversight, for restricted use sites that cannot arrange other legally enforceable institutional controls. One of these options is the LTC license, a new type of possession-only license that functions as a legally enforceable institutional control after remediation is completed and all the restricted use requirements of the LTR have been met. Although an existing license could be terminated and a new LTC license established at the end of the decommissioning process, the staff believes that amending the license is administratively more efficient and helps preserve a single Agency record for the site. Through the license amendment process, the operational or decommissioning conditions in the license would be removed and new conditions for long-term control added. Both SECY-03-0069 and the draft guidance indicate that NRC may implement the LTC license through amendment of an existing license.

A stakeholder questioned why, for this option, the license is not actually terminated. The commenter noted that a restricted use site that uses the LTC license as an institutional control should not be considered "decommissioned," because decommissioning includes termination of the license.

The definition of "decommission" in 10 CFR Part 20 states, "Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits — (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted conditions and the termination of the license." As the Part 20 definition notes that decommissioning includes reducing residual radioactivity to a level that *permits* release and termination of the license, the staff considers a site with an LTC license to be decommissioned (even though the license is not actually terminated), given all of the applicable restricted use requirements in the LTR have been met.

The stakeholder's comment is related to another concern regarding the conditions under which the Commission might require additional cleanup at a decommissioned site where an LTC license is used as an institutional control. Part 20 contains a finality provision for decommissioning, in 10 CFR 20.1401(c), which states, "After a site has been decommissioned

and the license terminated in accordance with the criteria in this subpart ... the Commission will require additional cleanup only, if based on new information, it determines that the criteria of this subpart were not met and residual radioactivity remaining at the site could result in significant threat to public health and safety.” Although this provision includes the words “and the license terminated,” the staff believes that because a site with an LTC license would have met all the applicable LTR requirements for restricted use, the provision of 10 CFR 20.1401(c) is relevant to the site (i.e., NRC would require additional cleanup only if, based on new information, it determined that the LTR criteria were not met and residual radioactivity could result in a significant threat to public health and safety).

The staff recommends including the above discussion in the final decommissioning guidance, to clarify that, when an LTC license is used to provide the institutional control for restricting future site use, the policy is to change an operating license to an LTC license by amendment, in lieu of terminating the operating license and issuing an LTC license. This would resolve future questions about completion of decommissioning and relevance of 10 CFR 20.1401(c) for a site with an LTC license.

#### COMMITMENTS:

The actions the staff has committed to in this paper are as follows:

1. Continue actions to finalize guidance on the LTR Analysis issues;
2. Incorporate guidance on onsite disposals into operational guidance (internal 10 CFR 20.2002 procedure and periodic updates of NUREG-1556); and
3. Consider the issue of onsite disposal as a potential contribution to the creation of future legacy sites in the rulemaking to prevent future legacy sites.

#### RECOMMENDATIONS:

The staff recommends that the Commission approve:

1. Finalizing guidance on onsite disposal of radioactive material under 10 CFR 20.2002 to state that disposals that result in doses no greater than a few millirem per year are generally acceptable to staff and that other dose criteria will be evaluated based on specific conditions;
2. Finalizing guidance on restricted use and institutional controls to clarify that, when an LTC license is used to provide the institutional control for restricting future site use, the policy is to change an operating license to an LTC license by amendment, in lieu of terminating the operating license and issuing an LTC license.

RESOURCES:

The combined resources needed for these commitments are less than 1 full-time equivalent. The resources for fiscal years (FY) 2006–2007 have already been budgeted, and the resources for FY 2008 are included in the proposed FY 2008 budget. Finalizing the guidance is scheduled to be completed in September 2006, as stated in “Performance Budget: Fiscal Year 2006” (NUREG-1100, Volume 21).

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

*/RA/*

Luis A. Reyes  
Executive Director  
for Operations

Enclosures:

1. List of Stakeholder Comments on NUREG-1757, Draft Supplement 1
2. June 9, 2006, ACNW letter (ML061640324)
3. Restricted Use and Institutional Controls
4. Realistic Scenarios
5. Intentional Mixing of Contaminated Soil
6. Removal of Material After License Termination
7. Summary of Recent Requests for Onsite Disposals



LIST OF STAKEHOLDER COMMENTS ON NUREG-1757, DRAFT SUPPLEMENT 1

No.	Name and Affiliation	ADAMS #
1	A. Scroggs, Washington Department of Health	ML053630095
2	F. Gottdiener, Citizens Environmental Coalition	ML053630098
3	D. D'Arrigo and P. Gunter, Nuclear Information and Resource Service; J. Johnsrud, Sierra Club	ML053630099
4	S. Tarlton, Colorado Department of Public Health and the Environment	ML060040110
5	O. Paulson, Kennecott Uranium Co.	ML060040118
6	J. Lipoti, New Jersey Department of Environmental Protection	ML060040122
7	J. Deckler, Association of State and Territorial Solid Waste Management Officials (ASTSWMO)	ML060040128
8	R. Hill, Save the Valley, Inc.	ML060040142
9	G. van Noordennen, Connecticut Yankee Atomic Power Company	ML060040144
10	R. Vaughan, Coalition on West Valley Nuclear Wastes	ML060050273
11	B. Youngberg, New York State Department of Environmental Conservation	ML060050277
12	J. Lieberman, Regulatory and Nuclear Safety Consultant	ML060110183

**ENCLOSURE 2:**

**Advisory Committee on Nuclear Waste Ltr. re:  
Revised Decommissioning Guidance to Implement  
the License Termination Rule**

**ML061640324**



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
ADVISORY COMMITTEE ON NUCLEAR WASTE  
WASHINGTON, DC 20555 - 0001

ACNWR-0242

June 9, 2006

The Honorable Nils J. Diaz  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: REVISED DECOMMISSIONING GUIDANCE TO IMPLEMENT THE LICENSE  
TERMINATION RULE

Dear Chairman Diaz:

The Advisory Committee on Nuclear Waste (Committee) has been following the U.S. Nuclear Regulatory Commission (NRC) staff's revision of decommissioning guidance to implement the License Termination Rule (LTR). In support of this effort, the Committee participated in an April 2005 decommissioning workshop organized by the NRC staff. The entire Committee attended this workshop. A one-day working group meeting was held on June 15, 2005, during the 160<sup>th</sup> meeting of the Committee at which the NRC staff presented its approach to the guidance revisions.

The NRC staff published the proposed guidance revisions in September 2005 and requested public comments on the draft revisions. Following the public comment period, the Committee re-convened the working group and held another one-day meeting on March 22, 2006, during the 168<sup>th</sup> meeting of the Committee. At this working group meeting, the staff presented its proposed responses to the substantive public comments received on the proposed guidance revisions and its approach to finalizing the guidance.

In this second working group meeting, the Committee benefited from the continued participation of invited experts selected to provide the perspective of experienced practitioners in decommissioning. This working group was comprised of four of the members of the June 2005 working group and a fifth member who had participated previously in Committee activities on the West Valley Demonstration Project in New York.<sup>1</sup> This provided continuity on the review of the revisions to the guidance from the June 2005 working group.

## **OBSERVATIONS AND RECOMMENDATIONS**

The Committee has the following observations and recommendations based on the working group meeting held on March 22, 2006.

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<sup>1</sup> The invited experts were Eric Abelquist, Director of the Radiological Assessments and Training Program, Oak Ridge Institute for Science and Education; Eric Darois, Radiation Safety and Control Services in New Hampshire; Tracy Ikenberry, Associate and Senior Health Physicist, Dade Moeller & Associates; Thomas Nauman, Vice President, Shaw Environmental and Infrastructure; and David Kocher, SENES Oak Ridge, Inc.

- The staff has adopted the recommendations provided in the Committee's letter of August 12, 2005. Also, the expert panel unanimously agreed that the staff had factored the panel's input into the proposed guidance.
- The Committee believes that the graded approach adopted by the staff for both engineered barriers and institutional controls are risk-informed.
- Onsite disposal remains controversial and is best approached on a case-by-case basis. Several of the commentors perceived a link between onsite disposal and the creation of legacy decommissioning sites. The staff needs to address this issue in either this guidance revision or the guidance being developed to address the prevention of legacy sites.
- The staff should determine and track the potential impact of onsite disposal on the ability to achieve unrestricted release through the operational and decommissioning phases of a facility's lifetime.
- The long-term performance of engineered barriers in specific environmental settings remains a source of uncertainty, given the relatively short time that currently favored designs of barriers have been in service, as the guidance indicates.
- The proposed guidance provides a menu of potential institutional controls that could have merit for low- and high- risk sites. As experience is gained with the controls that function best under specific site conditions, the staff should incorporate more specific guidance for specific site conditions.
- During decommissioning, potentially contaminated soil can be characterized by soil excavation followed by radiation surveys to identify and remove soil that exceeds applicable limits. The soil that does not exceed applicable limits can be returned. The Committee believes that this practice should be allowed and not interpreted as intentional mixing.
- Decisions on license termination for restricted release sites would be based primarily on compliance with dose criteria for two cases: assuming that institutional controls will remain effective for the duration of the hazard, and assuming that institutional controls are no longer in effect. This LTR requirement is appropriate and risk-informed. However, the potential differences in approaches to institutional control of sites terminated under the LTR and the associated decommissioning guidance with other regulations (e.g., 10 CFR Parts 40 and 61) have been identified as a source of concern in the public comments and by the expert panel. The staff should ensure that these differences are explained in the decommissioning guidance.
- The differences between the technical and regulatory approaches used in decommissioning power reactors as compared to complex materials sites can be confusing when using NUREG-1757. For example, all three volumes of NUREG-1757

apply to materials site decommissioning while only Volume 2 of NUREG-1757 applies to reactor decommissioning. The Committee recommends that the staff expand the flowchart included in the guidance into a “roadmap” that points out the distinctions in the approaches for these two kinds of decommissioning projects to address this in a constructive manner.

- The Committee learned that the staff is working with Agreement States and industry groups to capture lessons learned from past decommissioning efforts. The Committee believes this initiative will provide valuable information that can be incorporated into the designs of new facilities in ways that facilitate future decommissioning. The Committee strongly supports these efforts to capture lessons learned.
- Both the Committee and staff recognize the relationship between modeling and monitoring to achieve confidence in regulatory decisions. The Committee is planning a working group meeting in the near future to address the modeling/monitoring interface and invites the staff’s participation in the session.

The Committee believes this experience of early involvement and continued interaction with staff provides a useful model for Committee evaluation and assistance that can be used in other areas as well. The Committee looks forward to early interactions with the staff on the development of the proposed rulemaking and related guidance to prevent legacy sites.

Sincerely,

**/RA/**

Michael T. Ryan  
Chairman

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The Committee believes this experience of early involvement and continued interaction with staff provides a useful model for Committee evaluation and assistance that can be used in other areas as well. The Committee looks forward to early interactions with the staff on the development of the proposed rulemaking and related guidance to prevent legacy sites.

Sincerely,

Michael T. Ryan  
Chairman

\* See previous concurrence.

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## DISCUSSION OF SIGNIFICANT STAKEHOLDER COMMENTS AND STAFF PATH FORWARD ON RESTRICTED USE AND INSTITUTIONAL CONTROLS

### SUMMARY OF DRAFT GUIDANCE

In NUREG-1757, Draft Supplement 1, "Consolidated NMSS Decommissioning Guidance: Updates to Implement the License Termination Rule Analysis," the U.S. Nuclear Regulatory Commission (NRC) staff proposed revisions to the following sections of NUREG-1757, Vol. 1, Rev. 1: (1) Section 17.7, "Restricted Use and Alternate Criteria"; (2) Section 17.8, "Obtaining Public Advice on Institutional Controls"; and (3) Appendix M, "Overview of the Restricted Use and Alternate Criteria Provisions of 10 CFR Part 20, Subpart E." The revisions incorporate the Commission-approved options related to restricted use and institutional controls and include guidance on the risk-informed graded approach for institutional controls. The revised guidance includes descriptions of the two new "last resort" options for institutional controls, with NRC long-term oversight: (1) a possession-only license for long-term control (LTC); and (2) a legal agreement and restrictive covenant (LA/RC). In addition, the staff provided further guidance on advice from affected parties, a total system approach for sustaining protection, and risk-informed long-term monitoring.

### SUMMARY OF STAKEHOLDER COMMENTS ON DRAFT GUIDANCE

Three States, one licensee, two public interest groups, one solid waste industry association, and one private citizen provided comments on restricted use and institutional controls. A broad range of stakeholder comments was received, including comments on perceived inconsistencies between the License Termination Rule (LTR), in 10 CFR Part 20, Subpart E, and NRC's regulations for low-level waste disposal and uranium mill tailings, as well as concerns about the existing restricted use provisions of the LTR. Most of the comments on the draft guidance addressed the LTC license option, and a few addressed the LA/RC option and advice from affected parties. No comments were received on the risk-informed graded approach, total system for sustaining protection, or long-term monitoring. The more significant comments are discussed below, along with staff plans to address comments and to finalize the guidance. Minor comments are not discussed.

### KEY COMMENTS ON DRAFT GUIDANCE FOR LTC LICENSE

#### Support for and Opposition to LTC License

One commenter agreed with the concept of an LTC license and indicated that when properly implemented, an LTC license can provide greater assurance that the necessary land use and other controls will remain effective at sites that are released for restricted use. The commenter preferred use of the LTC license over the LA/RC. Another commenter supported the use of an LTC license as a strong institutional control. A third commenter did not support the concept of the LTC license. This commenter viewed the LTC license as long-term storage, not permanent disposal, since it would not meet the criteria that the NRC has established for disposal facilities. The commenter believed that the LTC approach is inconsistent with other NRC regulations for low-level radioactive waste and uranium mill tailings, which favor disposal in a limited number of facilities, to reduce proliferation of small waste disposal sites. The staff infers that the

commenter also believed that permanent disposal would provide better protection of public health safety and the environment than would the use of an LTC license.

**Staff considerations:** The staff acknowledges comments supporting and opposing use of LTC licenses. The staff plans to change the guidance to clarify that, for the LTC option to be used, the licensee must meet the eligibility requirements for restricted use in 10 CFR 20.1403. The LTC license will be used only as a last resort to providing institutional controls for restricted use, when licensees have not been able to establish other types of institutional controls.

#### Proliferation of Restricted Use Sites and Future Legacy Sites

Some commenters expressed concerns that the LTC license would lead to proliferation of restricted use sites.

**Staff considerations:** The staff plans to revise the guidance to emphasize that the LTC license is a last resort for restricted use sites, of which only a few are expected, and that NRC's ongoing rulemaking to prevent future legacy sites will also help reduce the number of future restricted use sites.

#### LTC License Should Not Provide a Means for Avoiding Requirements

One commenter suggested that NRC should not offer options for restricted use decommissioning to licensees who cannot meet the LTR requirements for restricted use. The LTC license should not provide a means for avoiding applicable license requirements.

**Staff considerations:** The existing draft guidance states that compliance with all the requirements of 10 CFR 20.1403 is required for restricted use sites, including sites for which the LTC license option is proposed. The staff plans to clarify the guidance to emphasize this point.

#### Approach for Maintaining Single Ownership of a Privately Owned Restricted Use Site

Draft Supplement 1 provided guidance on keeping an entire site (that contains both restricted and unrestricted use portions) together under single ownership and an LTC license, when the LTC license is the institutional control. The draft guidance explained that this approach is preferred only for a privately owned site needing long-term restrictions on use, where the restricted use portion has little or no resale value, but the unrestricted use portion has a valuable use that would maintain the value for the entire site. This approach was intended to allow reuse of the site while maintaining site ownership, and thus, enhance both reuse and long-term protection. The draft guidance noted this was a challenging issue and specifically requested stakeholder comment on this aspect of the guidance.

One commenter suggested that prohibiting the sale of unrestricted use property (maintaining single ownership of the entire site) should not be the preferred approach in the guidance and should only be provided as an option. The commenter indicated that this approach is an attempt to rewrite the LTR and is unnecessary if there is sufficient financial assurance to enable a third party to carry out the necessary control and maintenance. Another commenter agreed with the approach of maintaining single ownership.



**Staff considerations:** The staff plans to remove the preference for one approach and to restate the approach as an option to be considered on a case-by-case basis, given site-specific factors. Licensees should discuss with affected parties the options for sustaining ownership and reuse of the site, without causing undue burdens, and provide this information in the decommissioning plan.

#### Flexibility of LTC License for Future Changes

A commenter asked if there is flexibility for an LTC licensee to propose use of a different institutional control in the future, to replace the LTC license as the institutional control for restricted use. The commenter also questioned if there is flexibility for NRC to require an LTC licensee to remediate the site in the future if an inexpensive disposal option becomes available.

**Staff considerations:** The staff believes that there would be flexibility for an LTC licensee to propose a restricted release with a different and acceptable institutional control. As the draft guidance indicates, additional cleanup of a site under the LTC license would not be required, unless new information were to indicate a significant threat to public health and safety, per the finality statement in 10 CFR 20.1401(c). However, an LTC licensee would have the flexibility to propose remediation to unrestricted release levels, if a new inexpensive disposal option were to become available. The staff plans to make changes to the guidance to clarify these flexibilities.

#### KEY COMMENTS ON DRAFT GUIDANCE FOR LA/RC

##### LA/RC Justification

Commenters questioned the conditions for when the LA/RC could be an acceptable institutional control option vs. the LTC license. Specifically, commenters noted that there was no need for the licensee or owner to demonstrate that the LA/RC would be a significant benefit to the licensee or owner and to affected parties. Commenters suggested that, instead, the licensee should demonstrate that the LA/RC option is justified and provides the same level of protection for the public and the environment as the LTC license option.

**Staff considerations:** The staff agrees that the condition to demonstrate the benefit of the LA/RC to the licensee or owner and to affected parties is unnecessary. The staff plans to revise the guidance to reflect that a LA/RC may be an acceptable institutional control option, instead of an LTC, if there are no monitoring nor maintenance activities that would require a site owner to have special expertise or knowledge to carry them out. For a site to use either option, the LTR criteria for restricted use must be met, including that the institutional control must be legally enforceable (for the LA/RC, enforceable in the jurisdiction where the site is located).

##### Use of Environmental Covenants

Some commenters focused on State involvement in LA/RC. Commenters suggested that the guidance mention that States have effective environmental covenant mechanisms available, which can be more effective than the NRC LA/RC.

**Staff considerations:** The Uniform Environmental Covenants Act (UECA) is a model law that was approved by the National Conference of Commissioners on Uniform State Laws in 2004

and for which active legislative introduction began in some States in 2005. It establishes requirements for a new valid real estate document (environmental covenant) to control future use of a brownfield when a site is sold. If adopted by a State, UECA includes provisions absent from most existing State statutes, which may help to overcome obstacles that lead to ineffectiveness of other land-use controls. The staff plans to revise the guidance on institutional controls to discuss the potential availability of environmental covenants in some States.

#### KEY COMMENT ON PROCESS: PREFERENCE FOR RULEMAKING

A commenter suggested that the LTC license option should be subject to rulemaking, rather than establishing this option through Commission policy and guidance. The commenter indicated that rulemaking is appropriate because this appears to be a significant change. Further, the LTC license would not be terminated in the usual sense, could require a National Environmental Policy Act (NEPA) review, should undergo more rigorous public scrutiny, and could lead to additional legacy sites.

**Staff considerations:** SECY-03-0069 (“Results of the License Termination Rule Analysis,” May 2, 2003) evaluated both rulemaking and guidance and recommended that guidance was appropriate for the few sites that might consider using the LTC license option. The Commission approved the staff’s recommendation to develop guidance. Consistent with NRC’s decommissioning process, a NEPA review would be done for a site that proposes an LTC license for restricted use. The staff plans to include the LTC license option in the final guidance and does not plan rulemaking for this option.

#### KEY COMMENTS ON THE LICENSE TERMINATION RULE

##### Perceived Inconsistencies with Other Regulations

A few commenters mentioned perceived inconsistencies between the NRC decommissioning guidance and NRC regulations for low-level waste disposal and uranium mill tailings disposal.

**Staff considerations:** The comments raise a broader issue concerning a consistent regulatory scheme for materials containing uranium and thorium, regardless of their source. This concern is beyond the scope of the decommissioning guidance effort, because the staff is not revising the regulations (only guidance supporting the regulations). However, the staff notes that although the regulations for low-level waste disposal, uranium mill tailings disposal, and license termination differ, due in part to their statutory origins, the regulations have generally similar features and provide similar protection of public health and safety and the environment.

##### Indefinite Duration of Institutional Controls

One commenter questioned the justification for NRC to allow institutional controls to be durable indefinitely, especially in light of the low-level waste facility regulations, which state that institutional controls cannot be relied on for more than 100 years.

**Staff considerations:** The LTR approach to analyses of institutional controls assumes two cases: institutional controls in place and institutional controls no longer in effect. Dose criteria must be met for both cases. The analysis of institutional controls no longer in effect assumes

loss of controls at any time. This approach mitigates issues with determining or justifying the duration of institutional controls. The purpose of the 10 CFR Part 61, 100-year institutional control requirement is to provide protection for the time period needed for Class A and B waste to decay to acceptable levels. The staff plans to revise the guidance to explain the approach for demonstrating compliance with the LTR requirements for institutional controls, compared to use of institutional controls for the low-level waste disposal regulations.

#### Consistent Analysis of Institutional Controls and Engineered Barriers

One commenter suggested that analyses assuming institutional controls are no longer in effect should also assume that engineered barriers are not in place.

**Staff considerations:** The Commission determined that under the LTR, engineered barriers are distinct and separate from institutional controls (“Decommissioning Criteria for the West Valley Demonstration Project (M-32) at the West Valley Site; Final Policy Statement,” 67 *Federal Register* 5003, February 1, 2002). Therefore, the analysis of institutional controls no longer in effect under the LTR would not assume that engineered barriers would also fail. Instead, degradation of engineered barriers without active monitoring and maintenance would need to be analyzed (because institutional controls would not be in place to ensure active monitoring and maintenance and to prevent an inadvertent intruder). The distinction between engineered barriers and institutional controls is described in Draft Supplement 1, and the staff does not plan to make changes to the guidance.

## DISCUSSION OF SIGNIFICANT STAKEHOLDER COMMENTS AND STAFF PATH FORWARD ON REALISTIC SCENARIOS

### SUMMARY OF DRAFT GUIDANCE

In NUREG-1757, Draft Supplement 1, "Consolidated NMSS Decommissioning Guidance: Updates to Implement the License Termination Rule Analysis," the U.S. Nuclear Regulatory Commission (NRC) staff proposed revising the following sections of NUREG-1757, Vol. 2: (1) Chapter 5, "Dose Modeling Evaluations"; (2) Section I.3 of Appendix I, "Criteria for Selecting and Modifying Scenarios, Pathways, and Critical Groups"; and (3) Appendix M, "Process for Developing Alternate Scenarios at NRC Sites Involved in DandD and License Termination." The revisions incorporate the revised policy on the use and basis of exposure scenarios for demonstrating compliance with the License Termination Rule (LTR) in 10 CFR Part 20, Subpart E. The revised policy allows licensees to base their compliance exposure scenarios on "reasonably foreseeable land uses," which are considered to be land uses that are likely within the next 100 years (also referred to as "realistic scenarios"). Licensees may still use screening scenarios or bounding scenarios, but the guidance emphasizes the flexibility afforded by use of realistic scenarios. The guidance states that if realistic scenarios are used to demonstrate compliance, less likely, but plausible, scenarios should also be evaluated to assess the sensitivity of dose to the scenario assumptions. This results in a more informed license termination decision.

### SUMMARY OF STAKEHOLDER COMMENTS ON DRAFT GUIDANCE AND STAFF CONSIDERATIONS

Three States, one licensee, and one solid waste industry association provided comments.

Some stakeholder comments supported the policy of using a "reasonably foreseeable land use" scenario as the basis for LTR compliance. The other comments can be addressed by revising the guidance to provide clarifications, without changing the policy as presented in SECY-03-0069 ("Results of the License Termination Rule Analysis," May 2, 2003).

Some comments indicated that there may be confusion about the difference between the time frame for establishing the realistic scenario (based on land uses that are likely within 100 years) and the time frame for the dose analysis to demonstrate LTR compliance [1000 years in 10 CFR 20.1401(d)]. The staff plans to provide additional explanation in the guidance to clarify the different time frames.

One commenter questioned whether sites using realistic scenarios should be unrestricted use sites, or whether, consistent with U.S. Environmental Protection Agency (EPA) approaches, deed restrictions or other controls should be used to limit the land use to only the assumed "reasonably foreseeable land use." The staff acknowledges that EPA approaches may differ from NRC's implementation of "reasonably foreseeable land use." The staff plans to include more discussion in the guidance on why such controls are not needed under NRC's approach and how the evaluation of less likely, but plausible, land uses ensures significant exposure would not occur if land uses other than the determined "reasonably foreseeable land use" were to occur in the future.

## DISCUSSION OF SIGNIFICANT STAKEHOLDER COMMENTS AND STAFF PATH FORWARD ON INTENTIONAL MIXING OF CONTAMINATED SOIL

### SUMMARY OF DRAFT GUIDANCE

In NUREG-1757, Draft Supplement 1, "Consolidated NMSS Decommissioning Guidance: Updates to Implement the License Termination Rule Analysis," the U.S. Nuclear Regulatory Commission (NRC) staff updated Section 17.1.3, "Soil," and prepared a new Section 15.13, "Use of Intentional Mixing of Contaminated Soil," for inclusion in NUREG-1757, Vol.1, Rev. 1. The staff provided guidance on continuing the current practice of using mixing to meet the waste acceptance criteria (WAC) of disposal facilities. Guidance is also provided on the use of intentional mixing of contaminated soil to meet the License Termination Rule (LTR) criteria (10 CFR Part 20, Subpart E), in limited circumstances, on a case-by-case basis. The guidance addresses the limitations for when intentional mixing to meet the LTR can be used and the minimum requirements for when NRC may consider accepting such a proposal. The draft guidance describes the information that must be included in a decommissioning plan or license termination plan, to support the use of intentional mixing.

### SUMMARY OF STAKEHOLDER COMMENTS ON DRAFT GUIDANCE AND STAFF CONSIDERATIONS

Three States, one licensee, one solid waste industry association, and one private citizen provided comments.

#### General Comments

One commenter questioned the need for some of the options and flexibility in the guidance and opposed the use of clean soil from outside the contaminated footprint to be used in mixing. This commenter suggested specific changes to the guidance, based on these oppositions. Another commenter supported the use of intentional mixing. A third commenter opposed the use of intentional mixing to meet WAC and to meet the LTR criteria and had several specific comments on the guidance. This commenter stated that this issue should be addressed through rulemaking rather than guidance. Another commenter supported the use of mixing to meet WAC, expressed some reservation with the use of mixing to meet the LTR criteria, and fully opposed mixing uncontaminated or clean soils with contaminated soil to lower concentrations.

**Staff considerations:** The staff acknowledges that some commenters support and some oppose the use of mixing to meet WAC and to meet the LTR criteria. The staff believes that the general concepts described in the draft guidance are sound. In response to these comments, the staff plans changes to clarify the guidance, but does not plan to change the general intent or policy.

#### Comments Suggesting Increased Flexibility

One of the limitations on use of mixing described in SECY-04-0035 ("Results of the License Termination Rule Analysis of the Use of Intentional Mixing of Contaminated Soil,"

March 1, 2004) and included in the draft guidance is that clean soil, from outside the footprint of the area containing the contaminated soil, should not be mixed with contaminated soil to lower concentrations. The staff would consider rare cases where using clean soil from outside the footprint of the area containing contaminated soil is the only viable alternative to achieving the dose levels of the LTR. In the guidance, the staff also proposed that clean soil from outside the site boundary or from offsite should not be used for mixing.

One commenter suggested changes that would add some flexibility and clarification to the guidance on this limitation. First, the commenter suggested that the word "rare" be removed, in reference to cases of using clean soil for intentional mixing. Second, the commenter suggested that the staff remove the limitation on use of clean soil from outside the site boundary. The commenter stated that the important issue was whether mixing was the only viable approach to achieve an adequate remediation.

**Staff considerations:** The staff believes that the commenter's suggestions are reasonable and increase the flexibility afforded to the use of mixing, without a change to the essence of the limitation to use clean soil for mixing when that is the only viable option to achieve the dose criteria of the LTR. The staff believes that the final decision on allowing the mixing, even with more flexibility, will remain a case-by-case, risk-informed decision, protective of public health and the environment. The staff believes that these changes are within the policy approved by the Commission (SECY-04-0035 and associated Staff Requirements Memorandum, dated May 11, 2004). Thus, the staff plans to add to the guidance the flexibility and clarifications that were proposed.

#### Mixing to Change Waste Classifications

The draft guidance on intentional mixing to meet WAC provided a limitation that the classification of the waste, as determined by the requirements of 10 CFR 61.55, is not altered.

One commenter suggested that mixing should be allowed, with Commission consultation, in some cases to reduce classification of waste for disposal sites regulated under 10 CFR Part 61. Another commenter thought mixing should not be used for changing waste classification, for low-level waste and for other wastes not subject to Part 61.

**Staff considerations:** In SECY-04-0035, the staff noted that NRC current practice does not allow waste classification to be changed intentionally by mixing, and the draft guidance would maintain this practice. However, the staff acknowledged that it has not focused on the continued appropriateness of that practice, given changes to low-level waste disposal since Part 61 was finalized. The staff mentioned this issue at a March 22, 2006, briefing of the Advisory Committee on Nuclear Waste (ACNW), at which the staff discussed the stakeholder comments on Draft Supplement 1 and the staff's path forward for finalizing the guidance. The ACNW stated that this issue may be considered in a white paper that the ACNW is developing, which should be completed in Spring 2006. The staff does not plan to change the guidance on waste classification at this time, but may make changes in future updates to the decommissioning guidance, as appropriate.

## DISCUSSION OF SIGNIFICANT STAKEHOLDER COMMENTS AND STAFF PATH FORWARD ON REMOVAL OF MATERIAL AFTER LICENSE TERMINATION

### SUMMARY OF DRAFT GUIDANCE

In NUREG-1757, Draft Supplement 1, "Consolidated NMSS Decommissioning Guidance: Updates to Implement the License Termination Rule Analysis," the U.S. Nuclear Regulatory Commission (NRC) staff proposed a substantial revision of NUREG-1757, Vol. 2, Appendix G, Section G.1.1, "Structures Versus Equipment," to provide additional guidance on what building structure materials may be left onsite at license termination, and what radiological criteria should apply to this material. This subject is a follow-up to the License Termination Rule (LTR) Analysis issue of removal of residual contamination from an unrestricted use site after license termination. This guidance is important because once the site is released for unrestricted use under the LTR (10 CFR Part 20, Subpart E), there are no regulatory controls on the site.

In addition to revising Appendix G, Section G.1.1, the staff revised Section G.3, "References," to reflect the new references in Section G.1.1, and added a new subsection, "Current NRC Approach to Releases of Solid Material," to Section 15.11 of Vol. 1, Rev. 1, to provide information about the current approaches to releases of solid materials during facility operations.

### SUMMARY OF STAKEHOLDER COMMENTS ON DRAFT GUIDANCE AND STAFF CONSIDERATIONS

Two States provided comments. Both comments dealt with clarification of the three acceptable approaches provided to determine what materials may be left in buildings at license termination. Neither commenter expressed opposition to the proposed draft guidance.

The staff plans to evaluate whether any changes are warranted to alleviate confusion, but does not plan significant changes to the guidance.

SUMMARY OF 10 CFR 20.2002 REQUESTS FOR ONSITE DISPOSAL RECEIVED SINCE JANUARY 1, 2000

Licensee	Dates	Materials Involved	Licensee-Calculated Dose
Tennessee Valley Authority, Watts Bar Nuclear Plant	Submitted 08/26/2005; review in process	In-situ disposal of liquid effluent line until decommissioning.	0.0561 millisievert/year (mSv/yr) [5.61 millirem/year (mrem/yr)]. Dose based on screening criteria from ANSI/HPS N13.12, which includes reuse and recycle scenarios. Dose is to an intruder exposed at the time the request was submitted, though the area was still under licensee control. The licensee considered the estimate to be conservative. Doses at license termination would be much smaller, due to radioactive decay.
Vermont Yankee	Submitted 10/04/2004; approved 07/19/2005	Soil, sand, and silt from various onsite activities. Request increased previously approved volumes to 150 cubic meters (5300 cubic feet)/year. Less than 0.037 becquerel/gram (Bq/g) [1 picocurie/gram (pCi/g)] cesium (Cs)-137 and cobalt (Co)-60.	Dose to a maximally exposed member of the public less than 0.01 mSv/yr (1 mrem/yr) during active control of the site, and less than 0.05 mSv/yr (5 mrem/yr) to an inadvertent resident intruder after termination of license. Includes dose from past disposals.
Oyster Creek	Submitted 12/29/2000; approved 12/14/2001	Approximately 140,000 cubic meters (5 million cubic feet). 0.0033 Bq/g (0.088 pCi/g) of Co-60, and 0.010 Bq/g (0.27 pCi/g) of Cs-137.	Dose is less than 0.01 mSv/yr (1 mrem/yr) for a resident farmer after termination of active site control. Disposal was offsite on property the licensee owns next to the plant site; thus considered by the Staff to be similar to onsite disposal.
Vermont Yankee	Submitted 09/11/2000; approved 06/26/2001	Adds slightly contaminated soil from construction-related activities to list of previously approved materials for onsite disposal [up to 28 cubic meters (980 cubic feet)/year].	Dose to a maximally exposed member of the public less than 0.01 mSv/yr (1 mrem/yr) during active control of the site, and less than 0.05 mSv/yr (5 mrem/yr) to an inadvertent resident intruder after termination of license. Includes dose from past disposals.