From: "Jenny Goodman" <Jenny.Goodman@dep.state.nj.us>
To: <decomcomments@nrc.gov>
Date: 12/28/05 3:14PM
Subject: Draft NUREG 1757 Supplement 1

Comments are attached (2 files)

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Created By:	Jenny.Goodman@dep.state.nj.us

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Division of Environmental Safety & Health
PO Box 424
Trenton, NJ 08625-0424
Phone (609) 633-7964
Fax (609) 777-1330

December 28, 2005

Chief, Rules Review and Directives Branch
US Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

Re: NUREG-1757 Supplement 1 Draft

To Whom It May Concern:

The New Jersey Department of Environmental Protection (Department) Dvision of Environmental Safety & Health has reviewed Supplement 1 of NUREG-1757 in the context of the applicability to contaminated sites currently in New Jersey. Shieldalloy Metallugical Corporation (SMC) has submitted a decommissioning plan that calls for leaving 57,000 cubic meters of contaminated slag and baghouse dust in the town of Newfield, New Jersey under the auspices of a Long Term Control (LTC) license. It is interesting that the Nuclear Regulatory Commission (NRC) chose to offer this option in a policy directive, and now this draft guidance, rather than as an update to 10 CFR 20 where it would undergo more rigorous public scrutiny. It appears, as we proceed through the steps of NRC possibly issuing an LTC license, that the citizens of Newfield, including elected officials and appointed planning board officials, have no opportunity to participate in decision-making on a site within their boundaries. The following exchange is from the transcripts of one of the public Site Specific Advisory Board meetings which was attended by staff of the NRC.

> **Citizen:** So your decision won't be based on whether or not the community submits a petition to you saying no, we don't want this here. That doesn't really hold that much weight with you. As long as they meet the restrictions that you set in place, then that's basically it. So basically having meetings with the public is just to assure the public that it's going to be done in a proper way; not whether or not we're going to stop it?
> **NRC:** That's correct.
> **Citizen:** So in other words, you're saying already that as long as they do what you say, we're stuck with the slag pile.
> **NRC:** If they meet everything that we require.
> **Citizen:** Well, then why are we having public meetings?
> **NRC:** Because maybe you'll raise an issue that causes them to go back and have to reassess.

The Department believes that public input is an essential part of the cleanup of any site.

The Division does not support the concept of the LTC license. We need look no further than NRC's own regulations to express our objections. The whole idea of the Compact system for low level radioactive waste (LLRW) disposal and the disposal of mill tailings under 10 CFR Parts 61 and 40, give us insight into NRC's reasoning for promulgating regulations regarding waste disposal. Criterion 2 of Appendix A to 10 CFR 40 regarding disposition of wastes from uranium mills sets to avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations. Regarding the LLRW disposal regulations, the Commission explained that; "Although LLRW can be safely stored, NRC believes that the protection of the public health and safety and the environment is enhanced by disposal, rather than by long-term, indefinite storage of waste. Disposal of waste in a limited number of facilities licensed under 10 CFR 61 or compatible Agreement State regulations, will provide better protection of the public health and safety and the environment than long term storage at hundreds or thousands of sites around the country." Indeed, in September, 2005 the Health Physics Society recently revised its position statement on Low-Level Radioactive Waste in which it says "the goal of managing LLRW is to ensure the safety of workers and the public and to protect the environment. To achieve this goal, disposal, not long-term storage, is the best and safest long-term approach."

The Department views 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. While we acknowledge that an LTC license is a last resort, and there will not be hundreds of these sites around the country, we are still interested in providing better protection of the public health and safety and the environment in New Jersey.

Our specific comments follow. I hope you will consider our comments in the revision of this draft NUREG. If you have any questions you may contact Jenny Goodman at (609) 984-5498.

Sincerely,

Jill Lipoti, Ph.D., Director
Division of Environmental Health & Safety

c: Samuel A. Wolfe, Assistant Commissioner, Environmental Regulation

New Jersey Department of Environmental Protection Comments on Supplement 1 to NUREG 1757

II Restricted Use, Institutional Controls, and Engineered Barriers
17.7 Restricted Use and Alternate Criteria
17.7.1 Overview

Why is the LTC option discussed under license termination since the license is not being terminated? Under the normal restricted use, alternate criteria, or Legal Agreement/Restricted Covenant (LA/RC) options, the license is terminated.

In step 1 on page II-7 for selecting an option for restricted use or alternate criteria, the dose assessment is required to be performed without taking credit for institutional controls to restrict future site use. This should be reworded to say " without institutional controls and/or engineered barriers to restrict future site use."

Step 2 should reference the relevant volume and sections in NUREG-1757 on how to do the ALARA analysis. Is the dose assessment that is used in the ALARA analysis the one without institutional and engineering barriers, using the resident farmer scenario? This should be made clear.

Step 4. Lower Hazard Level: calculated dose is less than the public dose limit of 1.0 mSv/y (100 mrem/y) assuming institutional controls and/or engineered barriers are not in place. Higher hazard level: calculated dose is 1.0-5.0 mSv/y (100-500 mrem/y) assuming institutional controls and/or engineered barriers are not in place.

If it is determined that the site is higher risk, does this mean that if the dose is greater than 500 mrem/y without institutional or engineered barriers, then the LTC license is not an option? The Department believes that this would be prudent policy on the part of the NRC. This should be incorporated into the steps and the flowchart.

Section 17.7.2.2 Institutional Controls and Engineered Barriers
Paragraph 4 on page II-13 discusses an LTC license where there are both restricted and unrestricted use areas. The first sentence is not clear. Does the NRC want the entire site under the LTC license or not? The discussion on the value of the property is optimistic and presumptuous. Will there be a buyer for the unrestricted portion of a "decommissioned" site which still requires that the property be licensed by the NRC? The Department agrees that maintaining single ownership of a site with both restricted use and unrestricted use areas is warranted to sustain future ownership and long-term protection.

Duration of Institutional Controls
What is the justification for the NRC to allow institutional controls (the LTC license) to be durable indefinitely, especially in light of the LLRW facility regulations which state that institutional controls cannot be relied on for more than 100 years (10 CFR 61.59)? Please do not respond that the LTC license is not regulated under 10 CFR 61. The end result is a LLRW disposal facility that contains waste from a single generator. Unfortunately, this disposal facility (SMC) will not have to abide by the regulations for siting or operating LLRW facilities.

Detriments Associated with Institutional Controls
How are potential impacts on sale of the property or value of the property due to the NRC license, or perceptions that the NRC could potentially require further cleanup in the future (i.e. lack of finality), going to be determined by the licensee? Obviously the licensee will present an optimistic appraisal of the situation. Can some guidance be given or can the NRC provide advice to the licensee on how they can obtain guidance on determining this? Would the NRC ever disapprove an LTC license because of this kind of detriment? What would it take for the NRC to rule out an LTC license due to this detriment? Does the town planning board have an opportunity to weigh in with their vision for the future use of the site? Can the elected members of a town government represent their citizen's wishes and determine the end use of the site?

Engineered Barrier Analysis
17.7.2.3 Site Maintenance and Long-Term Monitoring
Long-term Monitoring
Cannot locate Section 17.7.3.2.1 or Section 17.7.3.3.2 in Vol. 1.

Enforcing Institutional Controls
What if a State is currently not an Agreement State, does not approve of the LTC license option, but later becomes an Agreement State? Will the NRC continue to monitor and enforce the LTC license? Since the LTC license is not in the NRC regulations, it would seem that it could not be used as a compatibility issue in determining eligibility for Agreement State status.

The difference between the Legal Agreement/Restricted Covenant (LA/RC) option and the LTC option regarding enforcement is difficult to discern. If NRC is going to perform periodic inspections and be the enforcing party for the LA/RC, why not continue the license? NRC needs to be more clear as to when a site would be allowed to fall under the LA/RC option vs. the LTC license. Also incorporate this decision-making into Figure 17.1.

Sufficient Financial Assurance
Again, since the LA/RC option has to include the same costs of the LTC license option, it is difficult to differentiate between the two.

The last paragraph of this section explains that the licensee is allowed flexibility to request approval for removing the residual material, terminating the license, and releasing the site for unrestricted use. Does this mean that the NRC will not allow a request to terminate the LTC license and release the site under restricted use standards?

Evaluation Findings
Evaluation Criteria
The second paragraph of page II-26 discusses the duration of the monitoring. For long-lived radioactive materials (half-lives in the millions or billions of years), how long should monitoring be performed?

17.7.2.4 Obtaining Public Advice
After being a part of a Site Specific Advisory Board (SSAB) on obtaining a LTC license, it becomes apparent that the current guidance is not adequate. While the licensee should gather

members of the community and other affected parties, these members may not be qualified to answer questions on total effective dose equivalent, financial assurance, and enforcement issues. It seems that the public is at a disadvantage, simply because they lack expertise to really analyze these specific charges. It would seem appropriate, given the burden that an LTC places on a community for an indefinite period of time, for the NRC or licensee to be required to fund independent advisors, such as health physicists, lawyers, and/or financial advisors. These advisors(s) would be selected by the members of the SSAB, and tasked with providing an independent review and analysis of the proposed actions.

17.7.2.5 Dose Modeling and ALARA Demonstration
Acceptance Criteria
Information to be Submitted
Dose assessments are usually carried out to 1000 years. Why does the NRC only require "possibly up to 100 years"? This seems unprecedented, especially when the radioactive materials that may be left in the community have half lives in the millions and billions of years. Also, since the NRC determined that 1000 years was presumed to be the lifetime of the radionuclides of interest, why would this time period apply when the nuclides of interest have half lives in the millions and billions of years? Is the LTC option only available to sites where the radionuclides present will be able to decay for 10 half-lives within the 1000 year time period, thus restricting the LTC option to radionuclides under a 10 year half-life?

What happens when the dose to the average member of the critical group could exceed 500 mrem/y? Will the NRC make sure this doesn't happen by simulating degradation of engineered barriers for only 100 years?

17.8 Obtaining Public Advice on Institutional Controls
The last bullet on page II-37 states that "the licensee is not required to reach consensus with the affected parties on the various aspects of the proposed institutional controls." What happens when there is consensus from the entire SSAB against various aspects of the institutional controls? Does that affect the NRC's decision as to whether to issue an LTC license or an LA/RC?

Suggestions for Effective Public Involvement
The first paragraph suggests that the stakeholders of affected parties can define the term "undue burden". What happens if these individuals determine that there is an undue burden on the community? Will the NRC deny the LTC license? What are the constraints that are placed on the NRC's decision-making ability given that they are not members of the community and were not duly elected to represent the citizens?

The third paragraph on page II-43 states that preliminary results of dose assessments could be discussed. How can the SSAB be expected to determine whether institutional controls are adequate to provide reasonable assurance that the doses will be less than 25 mrem/y if only preliminary results are available?

Appendix M
The deleted text on page II-48 should be replaced with "Also note that there is some potential that a LA/RC could be revisited as a result of the Memorandum of Understanding with the Environmental Protection Agency".

M.1.4 Institutional Control Implementation Issues
The NRC states that the long-term effectiveness of institutional controls is recognized as a significant challenge given many examples of institutional control failures even after short periods of time. Why then is an NRC license considered a fail safe institutional control? There is no evidence to suggest that an NRC license will be a durable institutional control considering the NRC's track record regarding lost sources. While a "site" cannot be lost, the point is that even NRC licenses are not faultless.

The policy for sites where the dose results in over 500 mrem/y assuming no institutional controls or engineered barriers in place should be stated. Neither the LTC license option nor the LA/RC option should be allowed in those cases.

M.3.1 Purpose of the LTC License
A site with an LTC license should not be considered "decommissioned". MARSSIM defines decommissioning as follows: To remove a facility or site safely from service and reduce residual radioactivity to a level that permits release of the property and **termination** of the license and other authorization or site operation.

M.3.4 Eligibility for Restricted Release and the LTC License Option
Letter c. states that the LTC option would be acceptable if the site would need long-term monitoring or maintenance requiring technical skills to conduct. This sounds more like a reason why the LTC option would not be acceptable. Was this a mistake?

M.3.5 Partial Restricted Release under an LTC License and Maintaining Single Ownership of the Site
The NRC states that government-owned sites could be subdivided and the unrestricted use portions could be released from the license for reuse. For private sites, however, the license boundaries must be maintained and sale of the unrestricted portions of the site, separate from the restricted portions, is not allowed. If state or federal ownership is considered as durable as an LTC license, as indicated in Table M.1, why would government-owned sites be allowed to sell unrestricted portions? Either they should <u>not</u> be allowed to sell the unrestricted portions, or Table M.1 should be changed to show that State or federal ownership is more durable than an LTC license.

The first "Pro" listed on page II-58 states that permitted uses on the unrestricted portions of the property should enhance future resale of the site (with both restricted and unrestricted use portions) as a whole. What justification does the NRC have for this statement? What entity would ever want to purchase a property with a $60 million liability? Clearly it is unrealistic to expect that the site would ever be sold, which demonstrates that there is an undue burden on the community, in the Newfield case.

The second listed "Pro" states that this approach is intended to allow reuse of the site while enhancing the long-term protection. How does allowing access to unrestricted portions of the site enhance the long-term protection? One could view this as a detriment to long-term protection because more activity at a site could result in more trespassers.

The Department agrees that maintaining ownership of the complete site would help ensure monitoring over the long-term.

The first "Con" also demonstrates that there is an undue burden on the community. The second "Con" gives the impression that the NRC is being more lenient with spent nuclear fuel than with material that is being allowed to remain under the LTC license. This should be expanded to explain any required buffer zones around the stored spent fuel. The third "Con" speaks for itself.

M.3.7 Flexibility to Seek Unrestricted Release in the Future
The NRC should also have flexibility to *require* that the licensee dispose of the material under certain circumstances. For example, if a new inexpensive disposal option becomes available, the NRC should require the licensee to show that leaving the material under the LTC license is still ALARA. To be fair to the community, this demonstration should exclude the cost of dismantling any engineered barriers. The starting point should be pre-LTC license. Other circumstances that would require cleanup might be consistent problems with maintaining the integrity of engineered barriers, or enforcement actions against the licensee. The title of section M.3.7 should be "Flexibility to Seek/Require Unrestricted Release in the Future".

M.3.11 Finality of Decommissioning Decisions
This section illustrates the whole problem with the LTC license option. There is no finality in the NRC decisions. There would always be the possibility of requiring a cleanup, and therefore it is highly unlikely that the site would ever be able to be put into productive use. This is an undue burden on the community.

It seems that the only way an LTC license would not be an undue burden to the community is if the material had a short half life.

M.4 Legal Agreement and Restrictive Covenant (LA/RC)
This section shows that the NRC should remove this option from the guidance. There is no reason to allow this option other than the fact that the licensee may want to terminate the license or that a new owner does not want a license. Since the LA/RC is only a durable institutional control versus the NRC license, which is listed as the most durable institutional control, what is the advantage of this option for the NRC and the public?

M.5 Total System Approach to Sustain Site Protection at Restricted Use Sites
The NRC states that institutional controls should be established with the objective of lasting 1000 years to be consistent with the time-frame used for calculations. Why then does the NRC require only 100 years for the dose assessment calculations to demonstrate ALARA?

M.5.1 Legally Enforceable Institutional Controls
In New Jersey regulations, institutional controls do not refer to any physical kind of control such as fences, signs, markers, or vegetation. The Department's definition of institutional controls includes use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions. An NRC license would be considered an institutional control, but not a fence. The Department's definition of engineering controls includes caps, covers, dikes, trenches, leachate collection systems, radon remediation systems, signs, fences and physical access controls.

M.5.6 Maximum Limits on Dose if Institutional Controls Fail
Because it is not possible to preclude the failure of controls, the NRC should make it clear that the dose caps act as a safety net if institutional controls or engineered barriers fail.
3.5 Use of Engineered Barriers
In the third paragraph on page II-73, it seems that the NRC is changing the definition of unrestricted. Unrestricted release should mean that there are no restrictions, including no restrictions on removing or modifying an engineered barrier. To allow otherwise is extraordinary.

The last paragraph on page II-73 states that the licensee has to document how the engineered barriers will be maintained for "as long as necessary". What is the definition of "as long as necessary"? The Department's regulations specify an "appropriate period of time" to mean the length of time for the radionuclides to decay seven half-lives. On a technical basis, this definition would seem suitable for the LTC license option.

The NRC states that engineered barriers should be designed with the goal of remaining effective over the time period needed to achieve compliance, especially for long-lived radionuclides. The Department agrees with this statement.

What does "over the time period of compliance" mean for radionuclides with half-lives in the billions of years?

What is the definition of "reasonably foreseeable natural or human processes"? Isn't it reasonable to assume that no engineered barrier can withstand human processes? For example, once institutional controls fail (or even before), someone could come in with earth moving equipment so they can level the land for some other purpose and in doing so, degrade the engineered cap and uncover and spread the radioactive material.

The NRC suggests that natural analogs might provide information as to the possible long-term changes to an engineered system. Can the NRC give examples of natural analogs?

Experience of 10+ years for degradation of engineered caps has little applicability when the timeframe required to be met is 1000 years, and the material will actually remain for billions of years.

3.5.4.3 Potential Levels of Functionality and Uncertainty
The last sentence on page II-87 states that most engineered caps would not provide a substantial barrier to common practices assumed in intruder analysis (e.g. home construction, well

installation). Based on this statement, isn't it reasonable to assume complete failure of the engineered barrier?

III Onsite Disposal of Radioactive Materials

15.12 Onsite Disposal of Radioactive Materials under 10 CFR 20.2002

The NRC requires that detailed information be provided on engineered structures or barriers. Is the licensee supposed to assume failure of the engineered barriers in determining if the dose is within the given criteria?

Option 2

The second paragraph implies that a restricted use site is a future legacy site. Then why would restricted use be allowed?

V. Intentional Mixing

The Department allows intentional mixing when it can be shown that the material to be mixed was native to the site, e.g. a site that mined sand and removed certain minerals which left the naturally occurring radioactive materials concentrated above soil cleanup standards. In this case, the Department would allow offsite uncontaminated soil to be used in the intentional mixing.

VI Removal of Material After License Termination

G.1.1 Structures Versus Equipment

Building Structures, and Systems and Components that May Be Left in Place at License Termination

Number 3. indicates that materials may be left onsite if the potential dose from the residual radioactivity is within the dose criteria of the LTR. It should be specified that the dose from the building structures, and systems and components should be added to any residual radioactivity remaining in the soil and/or groundwater so that the total dose does not exceed the dose criteria of the LTR.

The first paragraph on page VI-8 states that for offsite use scenarios, the dose criteria is still 25 mrem/y. This seems to contradicts the guidance in the December 27, 2002 NRC Memorandum, "Update on Case-Specific Licensing Decisions on Controlled Release of Concrete from Licensed Facilities", that volumetrically contaminated material should meet the criteria of a few millirem/y.