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U. S. Nuclear Regulatory Commission
ATTN: Rulemaking and Adjudications Staff
Washington, D.C. 20555-0001

Subject: Response to Request for Comments on Proposed Rule Regarding *Entombment Options for Power Reactors* (66FR52551; October 16, 2001)

This letter is being submitted in response to the Nuclear Regulatory Commission's (NRC) proposed rule to amend 10CFR Parts 20 and 50. The NRC is considering an amendment to its regulations that would clarify the use of entombment for power reactors. The NRC has determined that entombment of power reactors is a technically viable decommissioning alternative and can be accomplished safely. Current regulations governing decommissioning and license termination require that decommissioning be completed within 60 years of permanent cessation of operations. Completion of decommissioning beyond 60 years will be approved by the NRC only when necessary to protect public health and safety. The regulations also establish dose criteria for license termination that includes a provision that permits license termination under restricted and unrestricted release conditions.

Exelon Generation Company, LLC (Exelon) appreciates the opportunity to comment; comments follow in Attachment 1. If you have any questions, please do not hesitate to contact us.

Respectfully,

Pamela Nolan for

Michael P. Gallagher
Director, Licensing and Regulatory Affairs
Mid-Atlantic Regional Operating Group

Attachment

Template = SECY-067

SECY-02

ATTACHMENT 1
General Comments on Entombment as a Decommissioning Option

- Power reactor entombment is not construction of a LLW disposal facility – it is properly classified as a decommissioning scenario, which creates an assured storage facility for radioactive material to decay in place, until it no longer represents a hazard considering future public use of the site. The clear distinction between entombment as a decommissioning scenario and a LLW disposal facility may be found in the ability to reuse the site in the future for other purposes. Regulation governing LLW disposal facilities does not contemplate future use of the site, restricted or unrestricted. Future use of an entombed site will be dictated by the dose-based performance criteria found in 10 CFR Part 20, Subpart E.

- Any rule promulgated by the NRC should be simple and performance-based. The rule should eliminate the 60-year ceiling on SAFSTOR.

- The entombment rulemaking should establish the financial assurance requirements of the licensee and of the independent third party responsible for maintaining institutional controls, for the unrestricted and restricted release scenarios, respectively; prior to license termination under the site release options of 10 CFR 20.

- Performance-base, and not prescriptive, requirements for security, insurance, post-closure monitoring, and active maintenance need to be specified in the rule.

Comments on Specific Question Posed in the ANPR

A.1 *Does the existing 10 CFR 50.82(a)(3) provide an adequate basis to allow periods of entombment beyond 60 years. If not, in what way should the regulations be changed?*

The NRC should remove any reference to a requirement for completing decommissioning in 60 years, as found in 10 CFR 50.82(a)(3). DECON decommissioning scenarios will generally be completed within 7 to 15 years after plant retirement. Economic considerations regarding long-term SAFSTOR will likely limit its use beyond 60-100 years; where ENTOMB will be the financially preferable option.

A.2 *Is 10 CFR 20, Subpart E, adequate to achieve license termination using an entombment approach? If not, how and why should this rule be modified?*

No changes are required in this part of the existing regulation. The entombment scenario proposed by individual sites will include restricted access for some period of time – followed by a restricted or unrestricted access scenario for future land use. The existing criteria in 10 CFR 20, Subpart E are exposure based, and would therefore allows various entombment scenarios to be employed utilizing both restricted and unrestricted future use.

A.3 *Should entombed facilities be required to maintain some type of NRC license after the facility meets the dose criteria of part 20, subpart E? If so, what conditions need to prevail before the license may be terminated? What alternatives might exist for adequately managing the radioactive materials left in the entombed structure?*

No. The current regulations appropriately provide for license termination once Subpart E requirements have been met. The current regulations also provide sufficient language and the flexibility therein for the NRC to determine the level of institutional controls required for restricted release scenarios.

A.4 *(A) new part is being considered in the regulations to establish performance objectives and requirements for licensing an entombed disposal facility. Should this option replace subpart E for purposes of entombment or should a licensee have a choice between using Subpart E approach or the entombed facility license approach? Should the dose based criteria for the entombed facility license be based on subpart E dose limits? If not, what should be the basis for those limits.*

Power reactor entombment is not construction of a disposal facility – it is properly classified as a decommissioning scenario, which creates an assured storage facility for radioactive material to decay in place, until it no longer represents a hazard considering future public use of the site. Exelon does not believe separate performance objectives need to be established for entombed facilities.

Regardless of the decommissioning option chosen, the performance objectives should be consistent. However, we would find it beneficial for our decommissioning planning to have exposure scenarios defined through the regulatory guidance process.

A.5 *Should the entombed facility option be available only to power reactors? If not, under what circumstances should it be applied to other than power reactors?*

Exelon's experience is with power reactors. As such, we are not qualified to judge the technical merits of entombing other types of radioactive facilities. However, we believe if engineered barriers are appropriately established and the necessary financial assurances are implemented that other types of radioactive facilities could utilize the entombment scenario for decommissioning.

A.6 *Are there other options that the Commission should consider in developing an approach to entombment that will provide for its viability while maintaining the public health and safety?*

Existing regulation provide adequate, performance-based dose criteria to ensure public health and safety for the entombment option.

B.1 *To what degree should credit be given to engineered barriers for the purposes of dose reduction to meet the license termination criteria of 10 CFR part 20, Subpart E?*

Full credit should be given to engineered barriers. The NRC and the EPA have previously recognized through other regulations regarding hazardous wastes and radioactive materials, that engineered barriers enhance and prolong the ability of the natural systems to contain and significantly reduce the rate of release of radionuclides. The engineered barriers in concert with natural barriers, increase the confidence that post-entombment performance objectives can be met.

C.1 *Should material that could be classified as GTCC waste be considered in the entombment approach? Are there circumstances under which residual radioactivity that could be classified as GTCC be allowed to be entombed on site? If so, under what conditions?*

Disposal of GTCC waste is the responsibility of the DOE. Power reactor owners should have the ability to remove GTCC waste at any time during the initial phase of entombment, which should be a minimum of 60 years or more to allow for sufficient decay of cobalt-60 before handling this material. After other entombment criteria have been met, license termination can occur any time after the GTCC waste has been either removed from the site, or placed in a NRC-licensed storage facility until it can be removed from the site.

D.1 *What additional role, if any, should the affected States have in the license termination process based on entombment for power reactors? In addition should an Agreement State be permitted to issue a license for an entombed disposal facility?*

The affected States' should have no additional role in the license termination process. The affected States' role remains unchanged if 10 CFR Part 20, Subpart E remains the standard for decommissioning.

Power reactor entombment is not construction of a disposal facility – it is properly classified as a decommissioning scenario, which creates a facility to assure storage of radioactive materials created or used at that site until such time that the radioactive materials no longer present a hazard to the general public. An NRC-licensed LLW disposal facility is allowed to accept radioactive waste created or used elsewhere, from other generators. The effective life of intruder barriers at a LLW disposal facility is 500 years. Additionally, there are no specific performance requirements for intruder scenarios after the 500-year effective life of the barriers has been exceeded. Entombing a power reactor will meet the stringent Subpart E site release criteria for *restricted or unrestricted use of the site* after the entombment period. Therein lies the significant distinction between entombment and the construction of a LLW disposal facility.

D.2 What issues exist for entombment in a State where existing State legislation prohibits LLW disposal?

Entombment is not LLW disposal. Therefore, no issues should exist for States where LLW disposal is prohibited.

D.3 *Are there other issues for an entombment that impact Low Level Waste Compacts?*

Exelon recognizes that entombment may decrease the amount of LLW to be disposed of in a Compact LLW disposal facility. Therefore, planning for a LLW facility in the affected Compact must be review carefully for the financial impact, if power reactors within the Compact choose to utilize entombment.

D.4 *If the entombment disposal facility option does not include GTCC waste and the disposal license is issued by an Agreement State, what compatibility categories as described in NRC's "Policy Statement on Adequacy and Compatibility of Agreement State Programs," published September 3, 1997 (62 FR 45517), and in NRC's Management Directive 5.9, "Adequacy and Compatibility of Agreement State Programs," should be assigned?*

Power reactor entombment does not create a LLW disposal facility, it is a decommissioning disposal alternative. Exelon has no further response to this question.

E.1 *Please provide any other considerations or rule changes that the Commission should consider to facilitate license termination based on an entombment approach, while maintaining the requisite protection of the public health and safety?*

Exelon has addressed its considerations and rule change issues in the answers to the questions above.

E.2 *The NRC is interested in the likelihood that licensees would pursue entombment to assist it in formulating its decision regarding the entombment options. Please provide your assessment as to the number of licensees likely to pursue entombment as an option. Specifically, it is requested that reactor licensees indicate their potential interest in choosing the entombment option. The preliminary views expressed in this document may change in light of comments received. If the proposed rule is developed by the Commission, there will be another opportunity for additional public comment in connection with that proposed rule.*

Exelon Generation Company, LLC owns 17 operating nuclear units and four retired units in three states. Our interest in utilizing the entombment option will depend strongly upon 1.) the outcome of the final rulemaking, 2.) the projected availability of financially-accessible LLW disposal facilities, and 3.) the ability to establish reasonable alternatives to implement institutional controls.